

**JOINT MEMORANDUM TO PARLIAMENT
SUBMITTED BY**

**HON. JOHN-PETER AMEWU
(MINISTER FOR ENERGY)**

AND

**KEN OFORI-ATTA
(MINISTER FOR FINANCE)**

ON THE

**FINANCING AND COMMERCIAL AGREEMENTS
FOR THE SUPPLY AND ERECTION OF ELECTRICAL
MATERIALS AND EQUIPMENT FOR
ELECTRIFICATION OF 582 COMMUNITIES IN THE
ASHANTI, BRONG AHAFO, EASTERN, VOLTA AND
WESTERN REGIONS (PHASE 2) AND THE WAIVER
OF TAXES AND DUTIES**

28th
-----OCTOBER, 2019

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-----OCTOBER, 2019

ACTION REQUIRED

- 1.0 Parliament is respectfully invited to consider and approve the following:
- I. The Commercial Contract for the project, in an amount of US\$103,000,000.00 (One hundred and three Million, United States Dollars) between the Government of the Republic of Ghana, acting through the Ministry of Energy and China International Water and Electric Corporation, to finance the supply and erection of electrical materials and equipment for the electrification of 582 communities in the Ashanti, Brong Ahafo, Eastern, Volta and Western Regions (Phase 2 of the initial 1,033 communities).
 - II. The Facility Agreement between the Republic of Ghana represented by the Ministry of Finance and Industrial and Commercial Bank of China Limited (ICBC) for an amount of up to US\$95,375,020.36 (Ninety-five million, three hundred and seventy five thousand, twenty United States Dollars, thirty six Cents), for the supply and erection of electrical materials and equipment for the electrification of 582 communities in the Ashanti, Brong Ahafo, Eastern, Volta and Western Regions (Phase 2 of the initial 1,033 communities).
 - III. The Facility Agreement between the Republic of Ghana represented by the Ministry of Finance and Societe Generale Ghana for an amount of up to US\$15,450,000.00 (Fifteen million, four hundred and fifty thousand United States Dollars), for the supply and erection of electrical materials and equipment for the electrification of 582 communities in the Ashanti, Brong Ahafo, Eastern, Volta and Western Regions (Phase 2 of the initial 1,033 communities).
 - IV. The waiver of tax liability amounting to US\$31,016,771 (equivalent of GH¢158,216,548.93) for the purchase of project materials and equipment.

BACKGROUND INFORMATION

- 2.0 The Government of Ghana through the Ministry of Energy has been pursuing the National Electrification Scheme (NES) since 1990 with the following objectives:
- i) Reducing poverty, especially in the rural areas;
 - ii) Increasing the overall socio-economic development of the nation;
 - iii) Increasing people's standard of living, especially those in the rural areas;
 - iv) Creating small-to medium-scale industries in rural areas;
 - v) Enhancing activities in other sectors of the economy, such as, Agriculture, Health, Education, Tourism, etc. and
 - vi) Creating jobs in the rural areas, thus reducing the rate of rural to urban migration;
- 3.0 The NES which commenced in 1990 aims at extending the reach of reliable electricity supply to all parts of the country over a 30-year period. Complementary to the NES is the Self-Help Electrification Programme (SHEP), under which communities which are within 20km radius of an existing Medium Voltage (MV) network, and which have provided the requisite Low Voltage (LV) electric poles; and have wired at least one third (1/3) of the houses are qualified to be connected to the national electricity grid. So far, over 10,486

communities in Ghana, as at March 2019, have been connected to the national electricity grid under the NES and SHEP since their commencement in 1990. Rate of access to electricity in Ghana has increased from about 15% of the population at the inception of the NES to the current level of 84.98%.

JUSTIFICATION FOR GOVERNMENT ACTION

- 4.0 The proceeds of the two credit facilities will be used to finance works in five hundred and eighty-two (582) communities in thirty-eight (38) Districts in selected communities in the Ashanti, Brong Ahafo, Eastern, Volta and Western Regions. This number represents the Phase 2 of a total of 1,033 communities.
- 5.0 The phase 1 project was earmarked to connect 495 communities in 15 Districts of the Ashanti, Eastern, Volta and Western regions. The project has been completed, with 507 communities already connected to the national grid.
- 6.0 The communities, following their connection to the national electricity grid would contribute to the achievement of Government's target of universal access to electricity (a minimum of 90%) by 2020. The current Electricity Accessibility Rates on regional basis, based on the population are as per Table 1 below.

Table 1: Current Electricity Accessibility Rates for the Regions of Ghana

Region	Access Rate (%)	Ranking
Greater Accra	96.66	1
Ashanti	91.57	2
Brong Ahafo	90.93	3
Western	90.15	4
Volta	89.02	5
Central	88.69	6
Eastern	81.60	7
Ahafo	79.62	8
Western North	77.14	9
Upper West	76.46	10
Bono East	73.61	11
Oti	70.36	12
Northern	70.21	13
Upper East	60.65	14
Northern East	59.12	15
Savannah	54.51	16
National Average of Electricity Access Rate	84.98	

- 7.0 From Table 1, it can be deduced that only 6 out of the 16 regions have access rates above the national average of 84.98%. Connecting the number of communities under the CWE Phase 2 project to the national grid, together with other upcoming projects like the main SHEP, Sinohydro, TBEA, Hunan Phase 2 and the EBID funded projects would raise the access rates significantly to achieve Government's objective of universal access.
- 8.0 Furthermore, this credit facility will also cover the provision of the LV poles required for all the beneficiary communities. The provision of LV poles has been a major challenge for many of the communities.

ON-GOING PROJECTS

9.0 The Ministry of Energy is currently implementing several electrification projects across the country. About 1,300 communities will have access to electricity supply upon completion of these projects. The projects are:

- i) Outstanding SHEP-4 project
- ii) Outstanding SHEP-5 project
- iii) Electrification of selected communities in the Northern, Eastern and Volta Regions (Phase 1)
- v) Electrification of selected communities in the Western, Central and Brong Ahafo regions

Following the completion of these communities, access to electricity would inch closer to the targeted minimum of 90%. The achievement to a very large extent assumes that the financial obligations of the Government will be available at the right time.

CURRENT PROJECT

10.0 The scope of the current project involves the design, manufacture, delivery, installation, testing and commissioning, and handing-over of the electrification project in 582 beneficiary communities in the Ashanti, Brong Ahafo, Eastern, Volta and Western Regions of the country. The project is to be executed by China International Water & Electric Corporation (CWE). The project completion date is 1,460 days from Commencement Date.

OPTIONS AND IMPACTS CONSIDERED / BENEFITS

11.0 Connecting the number of communities earmarked under the CWE Phase 2 project will contribute significantly towards the achievement of universal access to electricity. Access to electricity in these communities will enhance their social well-being and economic activities. Other opportunities include:

- o Creating small-to medium-scale industries in rural areas;
- o Creating jobs in the rural areas and thus reducing the rate of rural to urban migration;
- o Increasing people's standard of living, especially those in the rural areas;
- o Increasing the overall socio-economic development of the nation;
- o Enhancing activities in other sectors of the economy, such as, Agriculture,

Health, Education, Tourism, etc.

FINANCING TERMS & CONDITIONS

12.0 The second phase of the project is to be financed by Industrial and Commercial Bank of China (ICBC) Limited, and Societe Generale Ghana. The financial package provides a 100% financial solution. The project is on the approved list of projects in the 2019 Budget (appendix 10c) to be considered for funding. The summary of the financing terms of the two credit agreements is provided below:

Terms of the Sinasure insured facility agreement financed by ICBC

Facility Amount	-	US\$95,375,020.36 (inclusive of an estimated Sinasure premium of US\$7,825,020.36)
Interest Rate	-	6 months US LIBOR plus a margin of 1.95% p.a.
Grace Period	-	4 years
Repayment Period	-	11 years
Tenor	-	15 years
Commitment fee	-	0.5% p.a.
Upfront Fee	-	1.50 % flat

Terms of the Tied Commercial Facility financed by Societe Generale Ghana

Facility Amount	-	US\$15,450,000.00
Interest rate	-	6 Month Libor + a margin of 4.50% p.a.
Grace Period	-	1 years
Repayment period	-	5 years
Tenor	-	6 years
Commitment fee	-	0.75% p.a.
Facility Management	-	0.50% flat
Arrangement fee	:	0.75% flat

FISCAL IMPACT ASSESSMENT

13.0 A Debt Sustainability Analysis (DSA) was conducted for a number of loans (envisaged pipeline loans) taking into consideration the disbursement profile for the medium term, payment periods, interest rates and other relevant charges which determine government's debt obligations.

This project was factored in the assessment which informed the Government's Medium-Term Debt Strategy (MTDS) and consequently determined government's borrowing plan for the medium term and published as Appendix 10c of the 2019 Budget.

The fiscal impact of this project has been incorporated in the 2019 Budget and forms part of the anticipated Project Loan disbursement amount of GHS4.3 billion.

14.0 ASSESSMENT OF DUTIES, TAXES AND LEVIES TO BE EXEMPTED

14.1 Under the provisions of the Particular Conditions of Contract Agreement, clause 1.13(b) indicates that materials, equipment, supplies, tools, permanent and temporary consumables,

which form part of the permanent installation shall be exempted from taxes, Value Added Taxes, customs duties, tariffs, levies established under the laws of Ghana and any such taxes paid by the contractor shall be reimbursed by the Employer within 90 days. Such taxes and fees are to be borne by the Government of Ghana (represented by the Ministry of Energy).

- 14.2. At its Forty-Ninth Sitting of the Third Meeting held on Thursday, 21st December, 2017, Parliament approved by Resolution the requests for waiver of Import Duties, Import VAT, Import NHIL, GETFUND, ECOWAS Levy, EXIM Levy, and Special Import Levy amounting to the Ghana Cedi equivalent of Twenty-Five Million, Sixteen Thousand, One Hundred and Ninety-Nine United States Dollars (US\$25,016,199.00 for the phase-1 of the electrification of 1,033 communities in the Ashanti, Brong-Ahafo, Eastern, Volta and Western regions to be executed by Ministry of Energy/China International Water and Electric Corporation (CWE).
- 14.3. Accordingly, in line with Article 174(2) of the 1992 Constitution, the Tax Liabilities on equipment and materials for the Phase 2 are to be submitted to Parliament for consideration and approval.
- 14.4 The Ghana Revenue Authority (GRA) has determined the quantum of taxes payable on materials and equipment to be procured under the project. Gross taxes per the GRA computation amounted to a total of US\$31,016,771 equivalent to GH¢158,216,548.93 at the Bank of Ghana exchange rate of GH¢5.1010=US\$1.00 as of May 17, 2019. This amount has been factored in the import exemption in the 2019 budget estimates. The breakdown is summarized below:

TAX ASSESSMENT										
MINISTRY OF ENERGY/SELF-HELP ELECTRIFICATION PROGRAMME IN FIVE REGIONS-PHASE II/CHINA INTERNATIONAL WATER & ELECTRIC CORP										
Description of Items	CIF (USD)	Imp. Duty	Nhil/Gfund 5%	Imp. VAT 12.5%	EXIM Levy 0.75%	Ecowas Levy 0.5%	SIL 0%/2%	TOTAL (USD)	Exchange Rate	TOTAL (GHC)
TOTAL	77,084,590	13727400	4312435	11320141	578134	385423	693238	31,016,771	5.1010	158,216,548.93

CABINET APPROVAL

- 15.0 By a letter-referenced OPCA.3/3/071019 and dated 7th October, 2019 from the Office of the President, Cabinet gave approval of the Loan and Commercial Agreements as well as the Tax Exemption.

CONCLUSION

16.0 Considering the benefits to be derived from this electrification project, particularly the reduction of poverty, creation of jobs and the opportunities for the setting up of small to medium scale agro industries in the rural communities, Parliament is hereby respectfully requested to consider and approve the requests set out in item (1) above.

<p>JOHN-PETER AMEWU <i>[Signature]</i> Minister for Energy Date:</p>	<p>KEN OFORI-ATTA <i>[Signature]</i> Minister for Finance Date:</p>
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In case of reply the
number and date of this
letter should be quoted.

My Ref. No OPCA. 3/3/071019

Your Ref. No.....



REPUBLIC OF GHANA

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8745
OFFICE OF THE PRESIDENT

P.O. BOX 1627

ACCRA

TEL: 0302-201000/2

CONFIDENTIAL

7th October, 2019

FINANCING AND COMMERCIAL AGREEMENTS FOR THE SUPPLY AND ERECTION OF ELECTRICAL MATERIALS AND EQUIPMENT FOR ELECTRIFICATION OF 582 COMMUNITIES IN THE ASHANTI, BRONG AHAFO, EASTERN, VOLTA AND WESTERN REGIONS (PHASE 2) AND THE WAIVER OF TAXES AND DUTIES

Cabinet at its Sixty-second meeting held on Thursday, 3rd October, 2019 considered a report of the Cabinet Committee on Economic Matters on the above Memorandum submitted jointly by the Ministers for Finance and Energy.

2. The Memorandum requested Cabinet to consider and approve the following:

- (a) Commercial Contract for the above project in an amount of One hundred and three million United States Dollars (USD103,000,000) between the Government of the Republic of Ghana, acting through the Ministry of Energy, and China International Water and Electric Corporation to finance the supply and erection of electrical materials and equipment for the electrification of 582 communities in the Ashanti, Brong Ahafo, Eastern, Volta and Western Regions (Phase 2 of the initial 1,033 communities);
- (b) Facility Agreement between the Republic of Ghana, represented by the Ministry of Finance, and the Industrial and Commercial Bank of China Limited (ICBC) for an amount of up to Ninety-five million, three hundred and seventy-five thousand, and twenty United States Dollars and thirty-six Pence (USD95,375,020.36) for the supply and erection of electrical materials and equipment for the electrification of 582 communities in the Ashanti, Brong Ahafo, Eastern, Volta and Western Regions (Phase 2 of the initial 1,033 communities);
- (c) Facility Agreement between the Republic of Ghana, represented by the Ministry of Finance, and Societe

Generale Ghana for an amount of up to Fifteen million, four hundred and fifty thousand United States Dollars (USD15,450,000) for the supply and erection of electrical materials and equipment for the electrification of 582 communities in the Ashanti, Brong Ahafo, Eastern, Volta and Western Regions (Phase 2 of the initial 1,033 communities); and

(d) Waiver of tax liability amounting to Thirty-one million, sixteen thousand and seven hundred and seventy-one United States Dollars (USD31,016,771), equivalent to One hundred and fifty-eight million, two hundred and sixteen thousand, five hundred and forty-eight Ghana Cedis and ninety-three Pesewas (GHS158,216,548.93).

3. Cabinet approved the Memorandum for the consideration of Parliament.

4. I should be grateful if you could take requisite action on the decision by Cabinet.



MERCY DEBRAH-KARIKARI
SECRETARY TO THE CABINET

THE HON. MINISTER FOR FINANCE

THE HON. MINISTER FOR ENERGY

cc: Chief of Staff
Secretary to the President
Secretary to the Vice President

Hon. Minister for Parliamentary
Affairs

Chairperson, Cabinet
Committee on Economic Matters

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2. Facility Agreement from Societe General Ghana Limited
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4. Tax Assessment

1. Facility Agreement from ICBC and Bank of China

FACILITY AGREEMENT

[_____] , 2019

between

THE REPUBLIC OF GHANA

(acting through and represented by the Ministry of Finance)

and

INDUSTRIAL AND COMMERCIAL BANK OF CHINA LIMITED

(acting as Arranger, Agent, Insured and Lender)

and

BANK OF CHINA

(acting as Insured and Lender)

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THIS AGREEMENT is dated, [_____], 2019 and made between:

- (1) THE REPUBLIC OF GHANA acting through and represented by the Ministry of Finance (the "Borrower");
- (2) INDUSTRIAL AND COMMERCIAL BANK OF CHINA LIMITED as arranger (the "Arranger");
- (3) THE FINANCIAL INSTITUTIONS listed in Schedule 1 (*The Original Lenders*) as lenders (the "Original Lenders");
- (4) INDUSTRIAL AND COMMERCIAL BANK OF CHINA LIMITED as agent of the other Finance Parties (the "Agent"); and
- (5) INDUSTRIAL AND COMMERCIAL BANK OF CHINA LIMITED and BANK OF CHINA as insured under the Sinosure Insurance Policy (the "Insured").

IT IS AGREED as follows:

SECTION 1

INTERPRETATION

1. DEFINITIONS AND INTERPRETATION

1.1 Definitions

In this Agreement:

"Advance Payment" means the amount payable by the Buyer to the Chinese Supplier upon the satisfaction of all the conditions stated in the Clause 7 of the Commercial Contract as amended by any amendment agreement/addendum signed by and between the Chinese Supplier and the Buyer in relation to the Project (save the condition of "Issuance of the Employer of the Advance Payment and Receipt of the Employer of the Advance Payment Guarantee") and equals to fifteen percent (15%) of the total price of the Commercial Contract.

"Affiliate" means, in relation to any person, a Subsidiary of that person or a Holding Company of that person or any other Subsidiary of that Holding Company.

"Assignment Agreement" means an agreement substantially in the form set out in Schedule 5 (*Form of Assignment Agreement*) or any other form agreed between the relevant assignor and assignee.

"APLMA" means the Asia Pacific Loan Market Association Limited.

"Authorisation" means:

- (a) an authorisation, consent, approval, resolution, licence, exemption, filing, notarisation, lodgement or registration; and
- (b) in relation to anything which will be fully or partly prohibited or restricted by law if a Governmental Agency intervenes or acts in any way within a specified period after

lodgement, filing, registration or notification, the expiry of that period without intervention or action.

"Availability Period" means the period from and including the CP Satisfaction Date to and including the earlier of:

- (a) the first date on which the Available Facility is zero; and
- (b) the date which is 48 Months after the CP Satisfaction Date.

"Available Commitment" means a Lender's Commitment minus:

- (a) the amount of its participation in any outstanding Loans; and
- (b) in relation to any proposed Utilisation, the amount of its participation in any Loans that are due to be made on or before the proposed Utilisation Date.

"Available Facility" means the aggregate for the time being of each Lender's Available Commitment.

"Break Costs" means the amount (if any) by which:

- (a) the interest which a Lender should have received pursuant to the terms of this Agreement for the period from the date of receipt of all or any part of the principal amount of a Loan or Unpaid Sum to the last day of the current Interest Period in respect of that Loan or Unpaid Sum, had the principal amount or Unpaid Sum received been paid on the last day of that Interest Period;

exceeds:

- (b) the amount of interest which that Lender would be able to obtain by placing an amount equal to the principal amount or Unpaid Sum received by it on deposit with a leading bank in the London interbank market for a period starting on the Business Day following receipt or recovery and ending on the last day of the current Interest Period.

"Business Day" means a day (other than a Saturday or Sunday) on which banks are open for general business in Beijing, London, Accra and New York City.

"Buyer" means the Republic of Ghana acting through and represented by the Ministry of Energy.

"China" means the People's Republic of China.

"Chinese Supplier" means China International Water & Electric Corporation.

"Commercial Contract" means the contract agreement made 30 December 2013 between the Chinese Supplier and the Republic of Ghana acting through and represented by the then Ministry of Energy and Petroleum, as amended by any amendment agreement/addendum signed by and between the Chinese Supplier and the Buyer in relation to the Project.

"Commitment" means:

- (a) in relation to an Original Lender, the amount in United States dollars set opposite its name under the heading "Commitment" in Schedule 1 (*The Original Lenders*) and the amount of any other Commitment transferred to it under this Agreement; and

- (b) in relation to any other Lender, the amount in United States dollars of any Commitment transferred to it under this Agreement,

to the extent not cancelled, reduced or transferred by it under this Agreement.

"Confidential Information" means all information relating to the Borrower, the Finance Documents, the Facility or the Sinosure Insurance Policy of which a Finance Party becomes aware in its capacity as, or for the purpose of becoming, a Finance Party or which is received by a Finance Party in relation to, or for the purpose of becoming a Finance Party under, the Finance Documents or the Facility from either:

- (a) the Borrower or any of its advisers; or
- (b) another Finance Party, if the information was obtained by that Finance Party directly or indirectly from the Borrower or any of its advisers,

in whatever form, and includes information given orally and any document, electronic file or any other way of representing or recording information which contains or is derived or copied from such information but excludes information that:

- (a) is or becomes public information other than as a direct or indirect result of any breach by that Finance Party of Clause 33 (Confidentiality); or
- (b) is identified in writing at the time of delivery as non-confidential by the Borrower or any of its advisers; or
- (c) is known by that Finance Party before the date the information is disclosed to it in accordance with paragraphs (a) or (b) above or is lawfully obtained by that Finance Party after that date, from a source which is, as far as that Finance Party is aware, unconnected with the Borrower and which, in either case, as far as that Finance Party is aware, has not been obtained in breach of, and is not otherwise subject to, any obligation of confidentiality.

"Confidentiality Undertaking" means a confidentiality undertaking substantially in a recommended form of the APLMA or in any other form agreed between the Borrower and the Agent.

"CP Satisfaction Date" means the date on which the Agent has received all of the documents and other evidence listed in Schedule 2 (*Conditions precedent*) in form and substance satisfactory to the Agent.

"Default" means an Event of Default or any event or circumstance specified in Clause 20 (*Events of Default*) which would (with the expiry of a grace period, the giving of notice, the making of any determination under the Finance Documents or the Sinosure Insurance Policy or any combination of any of the foregoing) be an Event of Default.

"Eligible Goods and Services" means the materials and equipment supplied and installed pursuant to the Commercial Contract in relation to the Project which are eligible for support by Sinosure under the Sinosure Insurance Policy, of which not less than 60 per cent. of the purchase price are of Chinese origin, as evidenced by the export documents duly presented to the Chinese customs authorities and attached to the Supplier Certificate.

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"Environment" means living organisms including the ecological systems of which they form part and the following media:

- (a) air (including air within natural or man-made structures, whether above or below ground);
- (b) water (including territorial, coastal and inland waters, water under or within land and water in drains and sewers); and
- (c) land (including land under water).

"Environmental Law" means all laws and regulations of any relevant jurisdiction concerning or applicable with regard to: (i) the pollution or protection of, or compensation of damage or harm to, the Environment; (ii) occupational or public health and safety; (iii) emissions, discharges or releases into, or the presence in, the Environment or of the use, treatment, storage, disposal, transportation or handling of Hazardous Substances (including without limitation taxation or any obligation to purchase credits or allowances or to provide financial security with regard to any such activities); or (iv) disclosure of any matters falling within (i) to (iii).

"Environmental Licence" means any Authorisation, notification, assessment, certificate, allowance or credit required at any time under Environmental Law.

"Event of Default" means any event or circumstance specified as such in Clause 20 (*Events of Default*).

"External Indebtedness" means any Financial Indebtedness which is denominated or payable by its terms, or at the option of the creditor in respect of such Financial Indebtedness, in a currency other than the currency of Ghana or is payable by its terms outside of Ghana.

"Facility" means the term loan facility made available under this Agreement as described in Clause 2.1 (*The Facility*).

"Facility Office" means the office or offices notified by a Lender to the Agent in writing on or before the date it becomes a Lender (or, following that date, by not less than 5 Business Days' written notice) as the office or offices through which it will perform its obligations under this Agreement.

"Fee Letter" means any letter or letters dated on or about the date of this Agreement between the Arranger and the Borrower (or the Agent and the Borrower) setting out any of the fees referred to in Clause 11 (*Fees*).

"Finance Document" means this Agreement, any Fee Letter and any other document designated as such by the Agent and the Borrower.

"Finance Party" means the Agent, an Arranger, the Insured or a Lender.

"Financial Advisory Agreement" means the financial advisory agreement dated [_____] entered into between the Chinese Supplier and the Arranger and/or an Affiliate of the Arranger.

"Financial Indebtedness" means any indebtedness for or in respect of:

- (a) moneys borrowed;
- (b) any amount raised by acceptance under any acceptance credit facility or dematerialised equivalent;

- (c) any amount raised pursuant to any note purchase facility or the issue of bonds, notes, debentures, loan stock or any similar instrument;
- (d) the amount of any liability in respect of any lease or hire purchase contract which would, in accordance with GAAP, be treated as a finance or capital lease;
- (e) receivables sold or discounted (other than any receivables to the extent they are sold on a non-recourse basis);
- (f) any amount raised under any other transaction (including any forward sale or purchase agreement) having the commercial effect of a borrowing;
- (g) any derivative transaction entered into in connection with protection against or benefit from fluctuation in any rate or price (and, when calculating the value of any derivative transaction, only the marked to market value shall be taken into account);
- (h) shares which are expressed to be redeemable;
- (i) any counter-indemnity obligation in respect of a guarantee, indemnity, bond, standby or documentary letter of credit or any other instrument issued by a bank or financial institution; and
- (j) the amount of any liability in respect of any guarantee or indemnity for any of the items referred to in paragraphs (a) to (i) above.

"First Repayment Date" means the earlier of the first 20 April or the first 20 October that occurs following the expiry of the Availability Period.

"GAAP" means generally accepted accounting principles, standards and practices in Ghana, including IFRS.

"Ghana" means the Republic of Ghana and includes any Ghanaian Agency (but excluding, for the avoidance of doubt, any company incorporated or established under the laws of Ghana).

"Ghanaian Agency" means an agency of the Republic of Ghana and includes any agency, authority, department, government, minister, ministry, official of, or of the government of the Republic of Ghana or any political sub-division in or of the Republic of Ghana.

"Ghanaian Assets" means all:

- (a) "premises of the mission" (as defined in the Vienna Convention on Diplomatic Relations signed in 1961) of Ghana;
- (b) "consular premises" (as defined in the Vienna Convention on Consular Relations signed in 1963) of Ghana;
- (c) military assets or property of Ghana;
- (d) the Petroleum Funds (as such term is defined in the Petroleum Revenue Management Act, 2011 (Act 815)); or
- (e) other assets of Ghana which are not at the relevant time used for commercial or business purposes.

"Ghanaian Counterparty" means the Buyer and any other Ghanaian entity that is counterparty to the Commercial Contract.

"Governmental Agency" means:

- (a) any government or any governmental agency, semi-governmental or judicial entity or authority (including, without limitation, any stock exchange or any self-regulatory organisation established under statute); and
- (b) any Ghanaian Agency.

"Hazardous Substance" means any waste, pollutant, emission, contaminant or other substance (including any liquid, solid, gas, ion, living organism or noise) that may be harmful to human health or other life or the Environment or a nuisance to any person or that may make the use or ownership of any affected land or property more costly.

"Holding Company" means, in relation to a company or corporation, any other company or corporation in respect of which it is a Subsidiary.

"IFRS" means international accounting standards within the meaning of the IAS Regulation 1606/2002.

"IMF" means the International Monetary Fund.

"Indirect Tax" means any goods and services tax, consumption tax, value added tax or any tax of a similar nature.

"Interest Period" means, in relation to a Loan, each period determined in accordance with Clause 9 (*Interest Periods*) and, in relation to an Unpaid Sum, each period determined in accordance with Clause 8.3 (*Default interest*).

"Lender" means:

- (a) any Original Lender; and
- (b) any bank, financial institution, trust, fund or other entity which has become a Party in accordance with Clause 21 (*Changes to the Lenders*),

which in each case has not ceased to be a Party in accordance with the terms of this Agreement.

"LIBOR" means, in relation to any Loan:

- (a) the applicable Screen Rate; or
- (b) (if no Screen Rate is available for United States dollars for the Interest Period of that Loan) the arithmetic mean of the rates (rounded upwards to 4 decimal places) as supplied to the Agent at its request by the Reference Banks as the rate at which the relevant Reference Bank could borrow funds in the London interbank market in the relevant currency and for the relevant period, were it to do so by asking for and then accepting interbank offers for deposits in reasonable market size in that currency and for that period,

as of the Specified Time, which, as set out in Schedule 6 (*Timetables*), is 11:00 a.m. London time on the Quotation Day for United States dollars and for a period comparable to the Interest Period of that Loan.

"LMA" means the Loan Market Association.

"Loan" means a loan made or to be made under the Facility or the principal amount outstanding for the time being of that loan.

"Majority Lenders" means:

- (a) if there are no Loans then outstanding, a Lender or Lenders whose Commitments aggregate more than $66\frac{2}{3}\%$ of the Total Commitments (or, if the Total Commitments have been reduced to zero, aggregated more than $66\frac{2}{3}\%$ of the Total Commitments immediately prior to the reduction); or
- (b) at any other time, a Lender or Lenders whose participations in the Loans then outstanding aggregate more than $66\frac{2}{3}\%$ of all the Loans then outstanding.

"Margin" means 1.95 per cent per annum.

"Material Adverse Effect" means any event or occurrence that in the opinion of the Lenders has or would have adversely affected or could adversely affect:

- (a) the business, condition (financial or otherwise), operations, performance, assets or prospects of the Borrower since 1 January 2019;
- (b) the ability of the Borrower to perform its obligations under any Finance Document or the ability of Sinasure to perform and comply with its obligations under the Sinasure Insurance Policy;
- (c) the validity or enforceability of any Transaction Document or the Sinasure Insurance Policy; or
- (d) any right or remedy of the Lenders in respect of any Finance Document.

"Month" means a period starting on one day in a calendar month and ending on the numerically corresponding day in the next calendar month, except that:

- (a) if the numerically corresponding day is not a Business Day, that period shall end on the next Business Day in that calendar month in which that period is to end if there is one, or if there is not, on the immediately preceding Business Day; and
- (b) if there is no numerically corresponding day in the calendar month in which that period is to end, that period shall end on the last Business Day in that calendar month.

The above rules will only apply to the last Month of any period.

"Party" means a party to this Agreement.

"PRC" means the People's Republic of China.

"Project" means the project known as the Self-Help Electrification Programme in Five Regions in Ghana, as further set out in the Commercial Contract.

"Quotation Day" means, in relation to any period for which an interest rate is to be determined, 2 Business Days before the first day of that period unless market practice differs in the London interbank market, in which case the Quotation Day will be determined by the Agent in accordance with market practice in the London interbank market (and if quotations for that currency and period

would normally be given by leading banks in the London interbank market on more than one day, the Quotation Day will be the last of those days).

"Reference Banks" means, subject to Clause 23.16 (*Reference Banks*), in relation to LIBOR, the principal London offices of ICBC (London) Limited, HSBC Bank plc and Barclays Bank PLC or such other banks as may be appointed by the Agent in consultation with the Borrower.

"Related Fund" in relation to a fund (the **"first fund"**), means a fund which is managed or advised by the same investment manager or investment adviser as the first fund or, if it is managed by a different investment manager or investment adviser, a fund whose investment manager or investment adviser is an Affiliate of the investment manager or investment adviser of the first fund.

"Repayment Date" means the First Repayment Date and each date for the payment of interest in accordance with Clause 8.2 (*Payment of interest*) thereafter up to and including the Termination Date.

"Repeating Representations" means each of the representations set out in Clauses 17.1 (*Status*), 17.2 (*Binding obligations*), 17.3 (*Non-conflict with other obligations*), 17.4 (*Power and authority*), 17.6 (*Governing law and enforcement*), 17.11 (*No default*), 17.13 (*Paripassu ranking*) and 17.14 (*No proceedings pending or threatened*).

"Representative" means any delegate, agent, manager, administrator, nominee, attorney, trustee or custodian.

"Screen Rate" means the ICE Benchmark Administration Limited Interest Settlement Rate for United States dollars for the relevant period displayed on the appropriate page of the Reuters screen. If the agreed page is replaced or service ceases to be available, the Agent may specify another page or service displaying the appropriate rate after consultation with the Borrower and the Lenders.

"Security" means a mortgage, charge, pledge, lien or other security interest securing any obligation of any person or any other agreement or arrangement having a similar effect.

"Sinosure" means China Export & Credit Insurance Corporation, a company incorporated under the laws of the PRC with its current address at Fortune Times Building, 11 Fenghuiyan, Xicheng District, Beijing 100032, the PRC.

"Sinosure Insurance Policy" means a buyer's credit insurance policy (as amended from time to time) issued by Sinosure to the Insured in relation to this Agreement.

"Sinosure Premium" means the insurance premium payable to Sinosure under the Sinosure Insurance Policy in respect of the Facility.

"Specified Time" means a time determined in accordance with Schedule 6 (*Timetables*).

"Subsidiary" means in relation to any person at any time, any other person which is then either controlled, or more than 50 per cent. of whose issued ordinary or common equity share capital is then beneficially owned, directly or indirectly, by that person.

"Supplier Certificate" means a notice given or to be given by the Chinese Supplier to the Agent in the form or substantially the form of Part II of Schedule 3 (*Supplier Certificate*), duly completed with particulars of the relevant Invoice(s) (as such term is defined in the Supplier Certificate).

"**Tax**" means any tax, levy, impost, duty or other charge or withholding of a similar nature (including any penalty or interest payable in connection with any failure to pay or any delay in paying any of the same).

"**Termination Date**" means the date which is 126 Months after the First Repayment Date.

"**Total Commitments**" means the aggregate of the Commitments, being an amount not exceeding U.S.\$95,375,020.36 at the date of this Agreement.

"**Transaction Document**" means a Finance Document or the Commercial Contract.

"**Transfer Certificate**" means a certificate substantially in the form set out in Schedule 4 (*Form of Transfer Certificate*) or any other form agreed between the Agent and the Borrower.

"**Transfer Date**" means, in relation to an assignment or a transfer, the later of:

- (a) the proposed Transfer Date specified in the relevant Assignment Agreement or Transfer Certificate; and
- (b) the date on which the Agent executes the relevant Assignment Agreement or Transfer Certificate.

"**Unpaid Sum**" means any sum due and payable but unpaid by the Borrower under the Finance Documents.

"**U.S.\$**" or "**US Dollars**" means the lawful currency for the time being of the United States of America.

"**Utilisation**" means a utilisation of the Facility.

"**Utilisation Date**" means the date of a Utilisation, being the date on which the relevant Loan is to be made.

"**Utilisation Request**" means a notice substantially in the form set out in Part I of Schedule 3 (*Utilisation Request*).

1.2 Construction

(a) Unless a contrary indication appears, any reference in this Agreement to:

- (i) the "**Agent**", the "**Arranger**", the "**Borrower**", any "**FinanceParty**", the "**Insured**", any "**Lender**" or any "**Party**" shall be construed so as to include its successors in title, permitted assigns and permitted transferees;
- (ii) "**assets**" includes present and future properties, revenues and rights of every description;
- (iii) a "**FinanceDocument**" or any other agreement or instrument is a reference to that Finance Document or other agreement or instrument as amended, novated, supplemented, extended, restated (however fundamentally and whether or not more onerously) or replaced and includes any change in the purpose of, any extension of or any increase in any facility or the addition of any new facility under that Finance Document or other agreement or instrument;
- (iv) "**indebtedness**" includes any obligation (whether incurred as principal or as surety) for the payment or repayment of money, whether present or future, actual or contingent;

- (v) a **"person"** includes any individual, firm, company, corporation, government, state or agency of a state or any association, trust, joint venture, consortium or partnership (whether or not having separate legal personality);
 - (vi) a **"regulation"** includes any regulation, rule, official directive, request or guideline (whether or not having the force of law) of any governmental, intergovernmental or supranational body, agency, department or of any regulatory, self-regulatory or other authority or organisation;
 - (vii) a provision of law is a reference to that provision as amended or re-enacted; and
 - (viii) a time of day is a reference to Beijing time.
- (b) Section, Clause and Schedule headings are for ease of reference only.
 - (c) Unless a contrary indication appears, a term used in any other Finance Document or in any notice given under or in connection with any Finance Document has the same meaning in that Finance Document or notice as in this Agreement.
 - (d) A Default (other than an Event of Default) is **"continuing"** if it has not been remedied or waived and an Event of Default is **"continuing"** if it has not been waived.
 - (e) The **"equivalent"** in any currency (the **"first currency"**) of any amount in another currency (the **"secondcurrency"**) shall be construed as a reference to the amount in the first currency which could be purchased with that amount in the second currency at the Agent's spot rate of exchange for the purchase of the first currency with the second currency at or about 11:00 a.m. on a particular day (or at or about such time and on such date as the Agent may from time to time reasonably determine to be appropriate in the circumstances).

1.3 **Third Party Rights**

A person who is not a Party has no right under the Contracts (Rights of Third Parties) Act 1999 to enforce or to enjoy the benefit of any term of this Agreement.

SECTION 2
THE FACILITY

2. THE FACILITY

2.1 The Facility

Subject to the terms of this Agreement, the Lenders make available to the Borrower a term loan facility in United States dollars in an aggregate amount equal to the Total Commitments.

2.2 Finance Parties' rights and obligations

- (a) The obligations of each Finance Party under the Finance Documents are several. Failure by a Finance Party to perform its obligations under the Finance Documents does not affect the obligations of any other Party under the Finance Documents. No Finance Party is responsible for the obligations of any other Finance Party under the Finance Documents.
- (b) The rights of each Finance Party under or in connection with the Finance Documents are separate and independent rights and any debt arising under the Finance Documents to a Finance Party from the Borrower shall be a separate and independent debt.
- (c) A Finance Party may, except as otherwise stated in the Finance Documents, separately enforce its rights under the Finance Documents.

2.3 Sinosure Override

- (a) Notwithstanding anything to the contrary in this Agreement, nothing in this Agreement shall oblige any Finance Party to act (or refrain from acting) in a manner that is inconsistent with any requirement of Sinosure under or in connection with the terms of the Sinosure Insurance Policy and, in particular:
 - (i) the Agent shall be authorised on behalf of the Insured to take all such actions as the Insured may deem necessary to ensure that all requirements of the Sinosure Insurance Policy are complied with; and
 - (ii) the Agent shall not be obliged to do anything on behalf of the Insured if, in the opinion of the Insured, to do so could result in a breach of any requirements of Sinosure under or in connection with or affect the validity of Sinosure Insurance Policy.
- (b) Nothing in this Clause 2.3 shall affect the obligations of the Borrower under the Finance Documents.

3. PURPOSE AND MONITORING

3.1 Purpose

- (a) The Borrower shall apply all amounts borrowed by it under the first Utilisation of the Facility towards the payment of 100 per cent of the Sinosure Premium.
- (b) The Borrower shall apply all amounts borrowed by it under the Facility other than under the first Utilisation towards the financing of up to 85 per cent of the purchase price of the Eligible Goods and Services pursuant to the Commercial Contract.

3.2 Monitoring

No Finance Party is bound to monitor or verify the application of any amount borrowed pursuant to this Agreement.

4. CONDITIONS OF UTILISATION

4.1 Initial conditions precedent

- (a) The Borrower may not deliver a Utilisation Request unless the Agent has received all of the documents and other evidence listed in Schedule 2 (*Conditions precedent*) in form and substance satisfactory to the Agent. The Agent shall notify the Borrower and the Lenders promptly upon being so satisfied.
- (b) Unless otherwise agreed by the Agent (acting on the instructions of all Lenders) in writing, if the Agent has not received all of the documents and other evidence listed in Schedule 2 (*Conditions precedent*) in form and substance satisfactory to the Agent before [_____], the Total Commitments shall be immediately cancelled.

4.2 Further conditions precedent

The Lenders will only be obliged to comply with Clause 5.6 (*Lenders' participation*) if on the date of the Utilisation Request and on the proposed Utilisation Date:

- (a) no Default is continuing or would result from the proposed Loan;
- (b) the Repeating Representations to be made by the Borrower are true in all material respects;
- (c) the amounts shown in the relevant invoice(s) are due, payable and permitted to be paid in accordance with the terms of the Commercial Contract, or in the case of the Sinosure Premium, amounts shown in the relevant invoice(s) are due, payable and permitted to be paid in accordance with the Sinosure Insurance Policy;
- (d) the Project is proceeding in a manner which is consistent with achievement of the completion of the Project within the time provided for in the Commercial Contract in the form in which it was delivered as a condition precedent in accordance with Schedule 2 (*Conditions precedent*); and
- (e) no default (howsoever described) or other breach of the Financial Advisory Agreement is continuing.

4.3 Maximum number of Loans

The Borrower may not deliver a Utilisation Request in relation to a Supplier Certificate if, as a result of the proposed Utilisation, more than 1 Loan would be outstanding in respect of the relevant unpaid invoice attached to the Supplier Certificate delivered with that Utilisation Request.

SECTION 3
UTILISATION

5. UTILISATION

5.1 Delivery of a Utilisation Request

The Borrower may utilise the Facility by delivery to the Agent of a duly completed Utilisation Request not later than the Specified Time, which, as set out in Schedule 6 (*Timetables*), is 10:00 a.m. Beijing time 15 Business Days before the relevant Utilisation Date.

5.2 Completion of a Utilisation Request

- (a) Each Utilisation Request is irrevocable and will not be regarded as having been duly completed unless:
- (i) the proposed Utilisation Date is a Business Day within the Availability Period;
 - (ii) the currency and amount of the Utilisation comply with Clause 5.3 (*Currency and amount*);
 - (iii) the proposed Interest Period complies with Clause 9 (*Interest Periods*);
 - (iv) it specifies, where a Supplier Certificate is attached, the Chinese Supplier's account and bank, or where a Sinosure Premium debit note is attached, Sinosure's account and bank, in each case, to which the proceeds of the Utilisation are to be credited; and
 - (v) it has attached to it a Supplier Certificate or a Sinosure Premium debit note, as the case may be, and all relevant attachments thereto.
- (b) Only 1 Loan may be requested in each Utilisation Request.

5.3 Currency and amount

- (a) The currency specified in a Utilisation Request must be United States dollars.
- (b) The amount of the proposed Loan must be a minimum of U.S.\$5,000,000 or, if less, the Available Facility.

5.4 Disbursement

Following receipt from each Lender of its participation in a Loan in accordance with Clause 5.6 (*Lenders' participation*), the Agent shall pay the relevant amount(s) due under the relevant invoice(s) directly to the Chinese Supplier or Sinosure, as the case may be, in accordance with the payment instructions specified in the Utilisation Request submitted for that Loan.

5.5 Authorisation to Disburse

The Borrower hereby irrevocably and unconditionally requests and authorises the Agent and the Lenders to make payments from the proceeds of Loans directly to the Chinese Supplier or Sinosure, as the case may be, in accordance with the payment instructions specified in the Utilisation Request submitted for that Loan.

5.6 Lenders' participation

- (a) If the conditions set out in Clause 4 (*Conditions of Utilisation*) and Clause 5.1 (*Delivery of a Utilisation Request*) to Clause 5.3 (*Currency and amount*) above have been met, each Lender shall make its participation in each Loan available by the Utilisation Date through its Facility Office.
- (b) The amount of each Lender's participation in each Loan will be equal to the proportion borne by its Available Commitment to the Available Facility immediately prior to making the Loan.
- (c) The Agent shall notify each Lender of the amount of each Loan and the amount of its participation in that Loan by the Specified Time, which, as set out in Schedule 6 (*Timetables*), is 11:00 a.m. Beijing time 3 Business Days before the relevant Utilisation Date.

5.7 Cancellation of Commitment

The Commitments which, at that time, are unutilised shall be immediately cancelled at the end of the Availability Period.

SECTION 4

REPAYMENT, PREPAYMENT AND CANCELLATION

6. REPAYMENT

6.1 Repayment of Loans

- (a) The Loans outstanding at the end of the Availability Period shall be repaid in full in 22 equal six month instalments. One instalment shall fall due on each Repayment Date.
- (b) The Borrower may not reborrow any part of the Facility which is repaid.

6.2 No Finance Party liability for the Commercial Contract

The Borrower hereby acknowledges and agrees that none of the Finance Parties shall be in any way responsible for the performance of the Commercial Contract and no Finance Party shall have any obligation to intervene in any dispute arising out of the performance thereof. Any claim which any Ghanaian Counterparty may have against the Chinese Supplier or any other party, including any successors or assignees, and/or the failure of the Chinese Supplier to perform its obligations under the Commercial Contract shall not affect the obligations of the Borrower to perform its obligations and make payments under this Agreement and shall not be used as a defence or as set-off, counterclaim or cross-complaint as against the performance or payment of any of its obligations hereunder.

7. PREPAYMENT AND CANCELLATION

7.1 Illegality

If, at any time, it is or will become unlawful in any applicable jurisdiction for a Lender to perform any of its obligations as contemplated by this Agreement or to fund or maintain its participation in any Loan:

- (a) that Lender shall promptly notify the Agent upon becoming aware of that event;
- (b) upon the Agent notifying the Borrower, the Commitment of that Lender will be immediately cancelled; and
- (c) the Borrower shall repay that Lender's participation in the Loans on the last day of the Interest Period for each Loan occurring after the Agent has notified the Borrower or, if earlier, the date specified by the Lender in the notice delivered to the Agent (being no earlier than the last day of any applicable grace period permitted by law).

7.2 Voluntary cancellation

The Borrower may, if it gives the Agent not less than 30 Business Days' (or such shorter period as the Majority Lenders may agree) prior notice, cancel the whole or any part (being a minimum amount of U.S.\$1,000,000 and an integral multiple of U.S.\$10,000) of the Available Facility. Any cancellation under this Clause 7.2 shall reduce the Commitments of the Lenders rateably.

7.3 Voluntary prepayment of Loans

- (a) The Borrower may, if it gives the Agent not less than 30 Business Days' (or such shorter period as the Majority Lenders may agree) prior notice, prepay the whole or any part of any Loan (but, if in part, being an amount that reduces the Loan by a minimum amount of U.S.\$1,000,000 and an integral multiple of U.S.\$10,000).
- (b) Any prepayment under this Clause 7.3 shall satisfy the obligations under Clause 6.1 (*Repayment of Loans*) pro rata against the remaining instalments of the Loans outstanding at the end of the Availability Period.
- (c) A Loan may only be prepaid after the last day of the Availability Period (or, if earlier, the day on which the Available Facility is zero).

7.4 Right of replacement or repayment and cancellation in relation to a single Lender

- (a) If:
 - (i) any sum payable to any Lender by the Borrower is required to be increased under paragraph (c) of Clause 12.2 (*Tax gross-up*); or
 - (ii) any Lender claims indemnification from the Borrower under Clause 12.3 (*Tax indemnity*) or Clause 13.1 (*Increased costs*),

the Borrower may, whilst the circumstance giving rise to the requirement for that increase or indemnification continues, give the Agent notice of cancellation of the Commitment of that Lender and its intention to procure the repayment of that Lender's participation in the Loans or give the Agent notice of its intention to replace that Lender in accordance with paragraph (d) below.

- (b) On receipt of a notice of cancellation referred to in paragraph (a) above, the Commitment of that Lender shall immediately be reduced to zero.
- (c) On the last day of each Interest Period which ends after the Borrower has given notice of cancellation under paragraph (a) above (or, if earlier, the date specified by the Borrower in that notice), the Borrower shall repay that Lender's participation in each Loan.
- (d) The Borrower may, in the circumstances set out in paragraph (a) above, on 30 Business Days' prior notice to the Agent and that Lender, replace that Lender by requiring that Lender to (and, to the extent permitted by law, that Lender shall) transfer pursuant to Clause 21 (*Changes to the Lenders*) all (and not part only) of its rights and obligations under this Agreement to a Lender or other bank, financial institution, trust, fund or other entity selected by the Borrower which confirms its willingness to assume and does assume all the obligations of the transferring Lender in accordance with Clause 21 (*Changes to the Lenders*) for a purchase price in cash or other cash payment payable at the time of the transfer equal to the outstanding principal amount of such Lender's participation in the outstanding Loans and all accrued interest (to the extent that the Agent has not given a notification under Clause 21.10 (*Pro rata interest settlement*)), Break Costs and other amounts payable in relation thereto under the Finance Documents.

- (e) The replacement of a Lender pursuant to paragraph (d) above shall be subject to the following conditions:
 - (i) the Borrower shall have no right to replace the Agent;
 - (ii) neither the Agent nor any Lender shall have any obligation to find a replacement Lender; and
 - (iii) in no event shall the Lender replaced under paragraph (d) above be required to pay or surrender any of the fees received by such Lender pursuant to the Finance Documents.

7.5 Mandatory Prepayment

- (a) In the event that Buyer receives any payment from the Chinese Supplier as damages under the Commercial Contract and such payments are not used within two (2) months of their receipt for the Project then Borrower shall prepay the Facility in an amount equal to the payments so received which have not been used for the Project.
- (b) In the event that Buyer receives the proceeds of any insurance policy for damage to the Project and the proceeds are not used within two (2) months of their receipt for the Project then Borrower shall prepay the Facility in an amount equal to the proceeds so received which have not been used for the Project.

7.6 Restrictions

- (a) Any notice of cancellation or prepayment given by any Party under this Clause 7 shall be irrevocable and, unless a contrary indication appears in this Agreement, shall specify the date or dates upon which the relevant cancellation or prepayment is to be made and the amount of that cancellation or prepayment.
- (b) Any prepayment under this Agreement shall be made together with accrued interest on the amount prepaid, any prepayment fee payable under Clause 11.3 (*Prepayment fee*) and any Break Costs.
- (c) The Borrower may not reborrow any part of the Facility which is prepaid.
- (d) The Borrower shall not repay or prepay all or any part of the Loans or cancel all or any part of the Commitments except at the times and in the manner expressly provided for in this Agreement.
- (e) No amount of the Total Commitments cancelled under this Agreement may be subsequently reinstated.
- (f) If the Agent receives a notice under this Clause 7 it shall promptly forward a copy of that notice to either the Borrower or the affected Lender, as appropriate.
- (g) If all or part of a Loan under the Facility is repaid or prepaid, an amount of the Commitments (equal to the amount of the Loan which is repaid or prepaid) in respect of the Facility will be deemed to be cancelled on the date of repayment or prepayment. Any cancellation under this paragraph (g) shall reduce the Commitments of the Lenders rateably under the Facility.

SECTION 5
COSTS OF UTILISATION

8. INTEREST

8.1 Calculation of interest

The rate of interest on each Loan for each Interest Period is the percentage rate per annum which is the aggregate of the applicable:

- (a) Margin; and
- (b) LIBOR.

8.2 Payment of interest

The Borrower shall pay accrued interest on each Loan on the last day of each Interest Period.

8.3 Default interest

- (a) If the Borrower fails to pay any amount payable by it under a Finance Document on its due date, interest shall accrue on the Unpaid Sum from the due date up to the date of actual payment (both before and after judgment) at a rate which, subject to paragraph (b) below, is the sum of 2 per cent. and the rate which would have been payable if the Unpaid Sum had, during the period of non-payment, constituted a Loan in the currency of the Unpaid Sum for successive Interest Periods, each of a duration selected by the Agent (acting reasonably). Any interest accruing under this Clause 8.3 shall be immediately payable by the Borrower on demand by the Agent.
- (b) If any Unpaid Sum consists of all or part of a Loan which became due on a day which was not the last day of an Interest Period relating to that Loan:
 - (i) the first Interest Period for that Unpaid Sum shall have a duration equal to the unexpired portion of the current Interest Period relating to that Loan; and
 - (ii) the rate of interest applying to the Unpaid Sum during that first Interest Period shall be the sum of 2 per cent. and the rate which would have applied if the Unpaid Sum had not become due.

- (c) Default interest (if unpaid) arising on an Unpaid Sum will be compounded with the Unpaid Sum at the end of each Interest Period applicable to that Unpaid Sum but will remain immediately due and payable.

8.4 Notification of rates of interest

The Agent shall promptly notify the Lenders and the Borrower of the determination of a rate of interest under this Agreement.

9. INTEREST PERIODS

9.1 Interest Periods

- (a) Subject to the paragraphs (b) to (d) below and Clause 8.3 (*Default interest*) each Interest Period for a Loan shall be for a duration of six (6) Months ending on 20 April or 20 October each year or

any other period agreed between the Borrower and the Agent (acting on the instructions of all the Lenders).

- (b) The first Interest Period for a Loan shall start on its Utilisation Date.
- (c) Each subsequent Interest Period for a Loan shall start on the last day of its preceding Interest Period.
- (d) An Interest Period for a Loan shall not extend beyond the Termination Date.

9.2 Non-Business Days

If an Interest Period would otherwise end on a day which is not a Business Day, that Interest Period will instead end on the next Business Day in that calendar month (if there is one) or the preceding Business Day (if there is not).

10. CHANGES TO THE CALCULATION OF INTEREST

10.1 Absence of quotations

Subject to Clause 10.2 (*Market disruption*), if LIBOR is to be determined by reference to the Reference Banks but a Reference Bank does not supply a quotation by the Specified Time, which, as set out in Schedule 6 (*Timetables*), is 11:00 a.m. London time on the Quotation Day, the applicable LIBOR shall be determined on the basis of the quotations of the remaining Reference Banks.

10.2 Market disruption

- (a) If a Market Disruption Event occurs in relation to a Loan for any Interest Period, then the rate of interest on each Lender's share of that Loan for the Interest Period shall be the percentage rate per annum which is the sum of:
 - (i) the Margin; and
 - (ii) the rate notified to the Agent by that Lender as soon as practicable and in any event by close of business on the date falling 1 Business Day after the Quotation Day (or, if earlier, on the date falling 5 Business Days prior to the date on which interest is due to be paid in respect of that Interest Period), to be that which expresses as a percentage rate per annum the cost to that Lender of funding its participation in that Loan from whatever source it may reasonably select.
- (b) In this Agreement "**Market Disruption Event**" means:
 - (i) at or about noon on the Quotation Day for the relevant Interest Period the Screen Rate is not available or the Screen Rate is zero or negative and none or only one of the Reference Banks supplies a rate to the Agent to determine LIBOR for United States dollars for the relevant Interest Period; or
 - (ii) before noon (London time) on the business day immediately following the Quotation Day for the relevant Interest Period, the Agent receives notifications from a Lender or Lenders (whose participations in a Loan exceed 35 per cent. of that Loan) that the cost to it or them

of funding its participation in that Loan from whatever source it may reasonably select would be in excess of LIBOR.

10.3 Alternative basis of interest or funding

- (a) If a Market Disruption Event occurs and the Agent or the Borrower so requires, the Agent and the Borrower shall enter into negotiations (for a period of not more than 30 days) with a view to agreeing a substitute basis for determining the rate of interest.
- (b) Any alternative basis agreed pursuant to paragraph (a) above shall, with the prior consent of all the Lenders and the Borrower, be binding on all Parties.
- (c) For the avoidance of doubt, in the event that no substitute basis is agreed at the end of the 30 day period, the rate of interest shall continue to be determined in accordance with the terms of this Agreement.

10.4 Break Costs

- (a) The Borrower shall, within 15 Business Days of demand by a Finance Party, pay to that Finance Party its Break Costs attributable to all or any part of a Loan or Unpaid Sum being paid by the Borrower on a day other than the last day of an Interest Period for that Loan or Unpaid Sum.
- (b) Each Lender shall, as soon as reasonably practicable after a demand by the Agent, provide a certificate confirming the amount of its Break Costs for any Interest Period in which they accrue.

11. FEES

11.1 Commitment fee

The Borrower shall pay to the Agent (for the account of each Lender) a commitment fee in the amount and at the times agreed in a Fee Letter.

11.2 Up-front management fee

The Borrower shall pay to the Arranger (for its own account) an up-front management fee in the amount and at the time agreed in a Fee Letter.

11.3 Prepayment fee

The Borrower shall pay to the Agent (for the account of each Lender), on the date of each prepayment of a Loan, a prepayment fee in US Dollars computed at the rate of 2 per cent. of the amount of the Loans prepaid on that date.

SECTION 6

ADDITIONAL PAYMENT OBLIGATIONS

12. TAX GROSS UP AND INDEMNITIES

12.1 Definitions

- (a) In this Agreement:

"**Tax Credit**" means a credit against, relief or remission for, or repayment of any Tax.

"**Tax Deduction**" means a deduction or withholding for or on account of Tax from a payment under a Finance Document.

"**Tax Payment**" means an increased payment made by the Borrower to a Finance Party under Clause 12.2 (*Tax gross-up*) or a payment under Clause 12.3 (*Tax indemnity*).

- (b) Unless a contrary indication appears, in this Clause 12 a reference to "determines" or "determined" means a determination made in the absolute discretion of the person making the determination.

12.2 Tax gross-up

- (a) All payments to be made by the Borrower to any Finance Party under the Finance Documents shall be made free and clear of and without any Tax Deduction unless such Borrower is required to make a Tax Deduction, in which case the sum payable by such Borrower (in respect of which such Tax Deduction is required to be made) shall be increased to the extent necessary to ensure that such Finance Party receives a sum net of any deduction or withholding equal to the sum which it would have received had no such Tax Deduction been made or required to be made.
- (b) The Borrower shall promptly upon becoming aware that the Borrower must make a Tax Deduction (or that there is any change in the rate or the basis of a Tax Deduction) notify the Agent accordingly. Similarly, a Lender shall notify the Agent on becoming so aware in respect of a payment payable to that Lender. If the Agent receives such notification from a Lender it shall notify the Borrower.
- (c) If the Borrower is required to make a Tax Deduction, it shall make that Tax Deduction and any payment required in connection with that Tax Deduction within the time allowed and in the minimum amount required by law.
- (d) Within 30 days of making either a Tax Deduction or any payment required in connection with that Tax Deduction, the Borrower shall deliver to the Agent for the Finance Party entitled to the payment evidence reasonably satisfactory to that Finance Party that the Tax Deduction has been made or (as applicable) any appropriate payment paid to the relevant taxing authority.

12.3 Tax indemnity

- (a) Without prejudice to Clause 12.2 (*Tax gross-up*), if any Finance Party is required to make any payment of or on account of Tax on or in relation to any sum received or receivable under the Finance Documents (including any sum deemed for purposes of Tax to be received or receivable by such Finance Party whether or not actually received or receivable) or if any liability in respect of any such payment is asserted, imposed, levied or assessed against any Finance Party, the

Borrower shall, within 15 Business Days of demand of the Agent, promptly indemnify the Finance Party which suffers a loss or liability as a result against such payment or liability, together with any interest, penalties, costs and expenses payable or incurred in connection therewith, provided that this Clause 12.3 shall not apply to:

- (i) any Tax imposed on and calculated by reference to the net income actually received or receivable by such Finance Party (but, for the avoidance of doubt, not including any sum deemed for purposes of Tax to be received or receivable by such Finance Party but not actually received or receivable) by the jurisdiction in which such Finance Party is incorporated; or
 - (ii) any Tax imposed on and calculated by reference to the net income of the Facility Office of such Finance Party actually received or receivable by such Finance Party (but, for the avoidance of doubt, not including any sum deemed for purposes of Tax to be received or receivable by such Finance Party but not actually received or receivable) by the jurisdiction in which its Facility Office is located.
- (b) A Finance Party intending to make a claim under paragraph (a) shall notify the Agent of the event giving rise to the claim, whereupon the Agent shall notify the Borrower thereof.
 - (c) A Finance Party shall, on receiving a payment from the Borrower under this Clause 12.3, notify the Agent.

12.4 Tax Credit

If the Borrower makes a Tax Payment and the relevant Finance Party determines that:

- (a) a Tax Credit is attributable to that Tax Payment; and
 - (b) that Finance Party has obtained, utilised and retained that Tax Credit,
- the Finance Party shall pay an amount to the Borrower which that Finance Party determines will leave it (after that payment) in the same after-Tax position as it would have been in had the Tax Payment not been made by the Borrower.

12.5 Stamp taxes

The Borrower shall:

- (a) pay all stamp duty, registration and other similar Taxes payable in respect of any Finance Document, and
- (b) within 15 Business Days of demand, indemnify each Finance Party against any cost, loss or liability that Finance Party incurs in relation to any stamp duty, registration and other similar Tax paid or payable in respect of any Finance Document.

12.6 Indirect tax

- (a) All consideration expressed to be payable under a Finance Document by any Party to a Finance Party shall be deemed to be exclusive of any Indirect Tax. If any Indirect Tax is chargeable on any payment or supply made by any Finance Party to any Party in connection with a Finance

Document, that Party shall pay to the Finance Party (in addition to and at the same time as paying the consideration) an amount equal to the amount of the Indirect Tax.

- (b) Where a Finance Document requires any Party to reimburse a Finance Party for any costs or expenses, that Party shall also at the same time pay and indemnify the Finance Party against all Indirect Tax incurred by that Finance Party in respect of the costs or expenses to the extent that the Finance Party reasonably determines that it is not entitled to credit or repayment in respect of the Indirect Tax.

13. INCREASED COSTS

13.1 Increased costs

- (a) Subject to Clause 13.3 (*Exceptions*) the Borrower shall, within 15 Business Days of a demand by the Agent, pay for the account of a Finance Party the amount of any Increased Costs incurred by that Finance Party or any of its Affiliates as a result of (i) the introduction of or any change in (or in the interpretation, administration or application of) any law or regulation or (ii) compliance with any law or regulation made after the date of this Agreement. The terms "law" and "regulation" in this paragraph (a) shall include any law or regulation concerning capital adequacy, prudential limits, liquidity, reserve assets or Tax.
- (b) In this Agreement "Increased Costs" means:
- (i) a reduction in the rate of return from the Facility or on a Finance Party's (or its Affiliate's) overall capital (including as a result of any reduction in the rate of return on capital brought about by more capital being required to be allocated by such Finance Party);
 - (ii) an additional or increased cost; or
 - (iii) a reduction of any amount due and payable under any Finance Document,

which is incurred or suffered by a Finance Party or any of its Affiliates to the extent that it is attributable to that Finance Party having entered into its Commitment or funding or performing its obligations under any Finance Document.

13.2 Increased cost claims

- (a) A Finance Party intending to make a claim pursuant to Clause 13.1 (*Increased costs*), shall notify the Agent of the event giving rise to the claim, following which the Agent shall promptly notify the Borrower.
- (b) Each Finance Party shall, as soon as practicable after a demand by the Agent, provide a certificate confirming the amount of its Increased Costs.

13.3 Exceptions

- (a) Clause 13.1 (*Increased costs*) does not apply to the extent any Increased Cost is:
- (i) attributable to a Tax Deduction required by law to be made by the Borrower;
 - (ii) compensated for by Clause 12.3 (*Tax indemnity*) (or would have been compensated for under Clause 12.3 (*Tax indemnity*) but was not so compensated solely because any of the exclusions in paragraph (b) of Clause 12.3 (*Tax indemnity*) applied); or

- (iii) attributable to the wilful breach by the relevant Finance Party or its Affiliates of any law or regulation.
- (b) In this Clause 13.3, a reference to a "Tax Deduction" has the same meaning given to the term in Clause 12.1 (*Definitions*).

14. OTHER INDEMNITIES

14.1 Currency indemnity

- (a) If any sum due from the Borrower under the Finance Documents (a "Sum"), or any order, judgment or award given or made in relation to a Sum, has to be converted from the currency (the "First Currency") in which that Sum is payable into another currency (the "Second Currency") for the purpose of:
 - (i) making or filing a claim or proof against the Borrower;
 - (ii) obtaining or enforcing an order, judgment or award in relation to any litigation or arbitration proceedings,

the Borrower shall as an independent obligation, within 15 Business Days of demand, indemnify each Finance Party to whom that Sum is due against any cost, loss or liability arising out of or as a result of the conversion including any discrepancy between (A) the rate of exchange used to convert that Sum from the First Currency into the Second Currency and (B) the rate or rates of exchange available to that person at the time of its receipt of that Sum.

- (b) The Borrower waives any right it may have in any jurisdiction to pay any amount under the Finance Documents in a currency or currency unit other than that in which it is expressed to be payable.

14.2 Other indemnities

The Borrower shall, within 15 Business Days of demand, indemnify each Finance Party against any cost, loss or liability incurred by that Finance Party as a result of:

- (a) the occurrence of any Event of Default;
- (b) any information produced or approved by the Borrower being or being alleged to be misleading or deceptive in any respect;
- (c) any enquiry, investigation, subpoena (or similar order) or litigation with respect to the Borrower or with respect to the transactions contemplated or financed under this Agreement or the Sinosure Insurance Policy;
- (d) a failure by the Borrower to pay any amount due under a Finance Document on its due date, including without limitation, any cost, loss or liability arising as a result of Clause 25 (*Sharing among the Finance Parties*);
- (e) funding, or making arrangements to fund, its participation in a Loan requested by the Borrower in a Utilisation Request but not made by reason of the operation of any one or more of the provisions of this Agreement (other than by reason of default or negligence by that Finance Party alone); or
- (f) a Loan (or part of a Loan) not being prepaid in accordance with a notice of prepayment given by the Borrower.

14.3 Indemnity to the Agent

The Borrower shall promptly indemnify the Agent against any cost, loss or liability incurred by the Agent (acting reasonably) as a result of:

- (a) investigating any event which it reasonably believes is a Default; or
- (b) acting or relying on any notice, request or instruction which it reasonably believes to be genuine, correct and appropriately authorised.

15. MITIGATION BY THE LENDERS

15.1 Mitigation

- (a) Each Finance Party shall, in consultation with the Borrower, take all reasonable steps to mitigate any circumstances which arise and which would result in any amount becoming payable under or pursuant to, or cancelled pursuant to, any of Clause 7.1 (*Illegality*), Clause 12 (*Tax gross up and indemnities*) or Clause 13 (*Increased costs*) including (but not limited to) transferring its rights and obligations under the Finance Documents and its interests in respect of the Sinosure Insurance Policy to another Affiliate or Facility Office.
- (b) Paragraph (a) above does not in any way limit the obligations of the Borrower under the Finance Documents.

15.2 Limitation of liability

- (a) The Borrower shall promptly indemnify each Finance Party for all costs and expenses reasonably incurred by that Finance Party as a result of steps taken by it under Clause 15.1 (*Mitigation*).
- (b) A Finance Party is not obliged to take any steps under Clause 15.1 (*Mitigation*) if, in the opinion of that Finance Party (acting reasonably), to do so might be prejudicial to it.

16. COSTS AND EXPENSES

16.1 Transaction expenses

Each party shall bear its own costs and expenses (including legal fees) incurred by it or any of its respective Affiliates in connection with the negotiation, preparation, printing, execution and syndication of:

- (a) this Agreement and any other documents referred to in this Agreement;
- (b) any other Finance Documents executed after the date of this Agreement; and
- (c) the Sinosure Insurance Policy and any other documents in relation thereto.

16.2 Amendment costs

If (a) the Borrower requests an amendment, waiver or consent or (b) an amendment is required pursuant to Clause 26.9 (*Change of currency*), the Borrower shall, within 15 Business Days of demand, reimburse the Agent for the amount of all costs and expenses (including legal fees) reasonably incurred by the Agent in responding to, evaluating, negotiating or complying with that request or requirement.

16.3 Enforcement costs

The Borrower shall, within 15 Business Days of demand, pay to each Finance Party the amount of all costs and expenses (including legal fees) incurred by that Finance Party in connection with the enforcement of, or the preservation of any rights under, any Finance Document and the Sinosure Insurance Policy.

SECTION 7

REPRESENTATIONS, UNDERTAKINGS AND EVENTS OF DEFAULT

17. REPRESENTATIONS

The Borrower makes the representations and warranties set out in this Clause 17 to each Finance Party on the date of this Agreement.

17.1 Status

- (a) It is a Ghanaian Agency and enters into and performs the Transaction Documents to which it is a party on behalf of Ghana.
- (b) All its payment obligations under the Finance Documents are treated as sovereign debts of Ghana. The full faith and credit of Ghana has been pledged for the due and punctual payment by the Borrower of the principal of, and interest on, and any additional amounts incurred by the Borrower in connection with the Loans or otherwise owing by it in connection with the Finance Documents and the performance by the Borrower of any of its other obligations under the Finance Documents.

17.2 Binding obligations

- (a) The obligations expressed to be assumed by it in each Finance Document are, subject to any general principles of law limiting its obligations which are specifically referred to in any legal opinion delivered pursuant to Clause 4 (*Conditions of Utilisation*) legal, valid, binding and enforceable obligations.
- (b) The obligations of the Borrower under the Transaction Documents to which the Borrower is a party are and will be direct, unconditional, unsecured and unsubordinated obligations of the Borrower, other than in each case any relevant statutory preferences or title retentions and its respective payment obligations thereunder rank and will rank, subject to Clause 19.3 (*Negative pledge*), at least paripassu in priority of payment with its other present and future actual and contingent unsecured and unsubordinated liabilities for External Indebtedness.

17.3 Non-conflict with other obligations

- (a) The Borrower is not, nor will it be, with the giving of notice or lapse of time or both, in violation of or in default under any constitutional or treaty provision, convention, statute, law, regulation, decree, court order or similar authority binding upon it, or under any agreement or instrument to which it is a party or by which it or any of its assets is bound.
- (b) The execution and delivery by the Borrower of the Finance Documents, the performance by it of the transactions contemplated by the Finance Documents in accordance with their terms do not and will not:
 - (i) conflict with or result in a breach of any of the terms or provisions of, or constitute a default under, or cause a moratorium in respect of any obligations of the Borrower under the constitution of Ghana;
 - (ii) violate any provisions of any law, rule or regulation or of any order, judgment, injunction, decree, resolution, determination or award of any court or arbitrator or of any judicial,

administrative or governmental authority or organisation presently in effect having application to the Borrower;

(iii) of themselves result in a breach of, or constitute a default under:

(A) the Borrower's powers or breach any limit in respect thereof (whether imposed by law or any regulation or agreement or otherwise); or

(B) any agreement (including, for the avoidance of doubt, any agreement between it and the IMF or the International Bank for Reconstruction and Development) or other instrument to which it is a party or by which its assets may be bound or affected or cause any indebtedness owing to be prepaid or become payable;

(iv) create, result in or oblige it to create any Security whatsoever on the whole or any part of its assets, present or future; or

(v) contravene any regulation or requirement of any bank, fund, multilateral or supranational agency or international banking or regulatory authority to which it is subject or with which it is bound to comply.

(c) The Borrower is in compliance with all constitutional or treaty provisions, statutes, laws, regulations, decrees, court orders or other similar authorities binding on it concerning money laundering.

17.4 Power and authority

It has the power to enter into, perform and deliver, and has taken all necessary action to authorise its entry into, performance and delivery of, the Finance Documents and the transactions contemplated by those Finance Documents.

17.5 Validity and admissibility in evidence

All Authorisations required or desirable:

(a) to enable it lawfully to enter into, exercise its rights and comply with its obligations in the Finance Documents;

(b) to make the Finance Documents admissible in evidence in its jurisdiction of incorporation; and

(c) to enable it to carry on its operations, and which are material;

(d) to make the Finance Documents admissible in evidence in Ghana, have been obtained or effected and are in full force and effect.

17.6 Governing law and enforcement

(a) The choice of the law specified in each Finance Document will be recognised and enforced in Ghana.

(b) Any judgment or arbitral award obtained in relation to a Finance Document will be recognised and enforced in Ghana and in the jurisdiction of the governing law of that Finance Document.

- (c) Each Finance Document is in proper legal form under the laws of Ghana for the enforcement thereof against the Borrower and contains no provision which is contrary to the laws or public policy of Ghana or which would not for any reason be upheld by the courts of Ghana.

17.7 No immunity

- (a) Neither it nor any of its assets (other than Ghanaian Assets) is entitled to immunity from suit, execution, attachment or other legal process in Ghana. Its entry into the Transaction Documents to which it is party constitutes, and the exercise of its rights and performance of and compliance with its obligations under those Transaction Documents will constitute, private and commercial acts done and performed for private and commercial purposes.
- (b) The waiver of immunity set out in Clause 36.4 (*Waiver of immunity*) of this Agreement is legal, valid, binding and enforceable against the Borrower.

17.8 Deduction of Tax

It is not required under the laws of Ghana to make any deduction for or on account of Tax from any payment it may make under any Finance Document.

17.9 No filing or stamp taxes

Under the laws of Ghana it is not necessary that the Finance Documents or the Sinosure Insurance Policy be filed, recorded or enrolled with any court or other authority in that jurisdiction or that any stamp, registration or similar tax be paid on or in relation to the Finance Documents or the Sinosure Insurance Policy or the transactions contemplated by the Finance Documents or the Sinosure Insurance Policy.

17.10 IMF

- (a) It is a member in good standing and eligible to use the resources of the IMF and is able to draw or make use of funds available to it under any IMF funding programme and no such programme has been cancelled or suspended.
- (b) It is not aware, nor is it of the belief that, the Transaction Documents breach, or may breach, or conflict with any rules, regulations, directives or requirements of the IMF or the World Bank which apply to either the Borrower or Ghana.

17.11 No default

- (a) No Event of Default is continuing or might reasonably be expected to result from the making of any Utilisation.
- (b) No other event or circumstance is outstanding which constitutes a default under any other agreement or instrument which is binding on it or to which its assets are subject which might have a Material Adverse Effect.

17.12 No misleading information

- (a) No information contained in any document provided by it to the Agent in accordance with Schedule 2 (*Conditions precedent*) or to Sinasure in procuring the Sinasure Insurance Policy contained a misstatement of any material fact and such information did not omit to state a material fact or any fact necessary to make any statement contained therein not misleading at the date that information was supplied and it is not aware (having made due enquiry) of any fact which might make any such information untrue, incomplete, inaccurate or misleading in a material respect.
- (b) Without limiting the foregoing, any factual written information provided by or on behalf of the Borrower was true and accurate in all material respects as at the date it was provided or as at the date (if any) at which it is stated.
- (c) Any financial projections have been prepared on the basis of recent historical information and on the basis of reasonable assumptions at the time of such preparation.
- (d) Nothing has occurred or been omitted from the factual information referred to in paragraph (b) above and no information has been given or withheld that results in that information being untrue or misleading in any material respect.

17.13 Paripassu ranking

Its payment obligations under the Finance Documents rank at least paripassu with the claims of all its and Ghana's other unsecured and unsubordinated creditors.

17.14 No proceedings pending or threatened

No litigation, arbitration or administrative proceedings of or before any court, arbitral body or agency (including any arising from or relating to Environmental Law) which, if adversely determined, might reasonably be expected to have a Material Adverse Effect have (to the best of its knowledge and belief) been started or threatened against it.

17.15 Currency of judgment

A judgment by the courts of Ghana in an action brought with respect to any Finance Document may be expressed and enforced in US Dollars.

17.16 Authorised signatures

Any person specified as its authorised signatory under Schedule 2 (*Conditions precedent*) or paragraph (d) of Clause 18.2 (*Information: miscellaneous*) is authorised to sign Utilisation Requests (in the case of the Borrower only) and other notices on its behalf.

17.17 Solvency

- (a) The Borrower is not insolvent, bankrupt or unable to pay its debts (including subordinated and contingent debts).
- (b) The Borrower has not taken any action or taken, started or threatened any legal proceedings or other procedure or step in relation to anything referred to in Clause 20.5 (*Insolvency*).

17.18 Commercial Contract

The Borrower on behalf of each Ghanaian Counterparty represents and warrants that:

- (a) the Commercial Contract constitutes the legal, valid and binding obligation of each party thereto, enforceable against it in accordance with its terms; and
- (b) the Commercial Contract is in full force and effect, and no party is in breach of any material provision of the Commercial Contract.

17.19 Repetition

The Repeating Representations are deemed to be made by the Borrower by reference to the facts and circumstances then existing on the date of each Utilisation Request and the first day of each Interest Period.

18. INFORMATION UNDERTAKINGS

The undertakings in this Clause 18 remain in force from the date of this Agreement for so long as any amount is outstanding under the Finance Documents or any Commitment is in force.

18.1 Notice of adverse claims

The Borrower shall promptly upon becoming aware of the same being threatened or commenced, give to the Agent notice in writing of all litigation or administrative proceedings against the Borrower before or of any court, tribunal, arbitrator or governmental or municipal authority or any dispute with any governmental or municipal authority or any labour or other dispute of any kind that has or could reasonably be expected to have a Material Adverse Effect.

18.2 Information: miscellaneous

The Borrower shall supply to the Agent (in sufficient copies for all the Lenders, if the Agent so requests):

- (a) promptly, notice of any change in the authorised signatories of the signed by an authorised officer of the Borrower whose specimen signature has previously been provided to the Agent, accompanied (where relevant) by a specimen signature of each new signatory;
- (b) on the last day of each Interest Period, a brief summary of the equipment and materials supplied to the relevant Ghanaian Counterparties by the Chinese Supplier under the Commercial Contract during that Interest Period;
- (c) such further information regarding the financial condition, business and operations of the Borrower (including, without limitation, reasonable details of all External Indebtedness) as any Finance Party (through the Agent) may reasonably request provided that nothing in this Clause 18.2 shall require the Borrower to provide any information which the Borrower is prohibited from disclosing by law or which, under the terms of any contract or other arrangement binding on the Borrower, it is not permitted to disclose to its bankers nor any information relating to its External Indebtedness (not being information in relation to the amount, currency or maturity profile thereof) which is commercially sensitive; and

- (d) all documents or information as required by Sinosure or the Insured in relation to the Sinosure Insurance Policy.

18.3 Other Financial Information

The Borrower shall, from time to time on request of the Agent, furnish the Agent (in sufficient copies for all the Lenders, if the Agent so requests) with such other financial, statistical and general information about the Borrower and its Governmental Agencies as any Finance Party (through the Agent) may reasonably require.

18.4 Information accurate

The Borrower shall ensure that all information hereafter supplied by the Borrower to the Lender under the provisions of any Finance Document for any purpose of or connected with any such Finance Document or the Sinosure Insurance Policy will at the time of supply be complete and accurate in all material respects (taking into account the circumstances and context in which such information is given).

18.5 Notification of default

- (a) The Borrower shall notify the Agent of any Default (and the steps, if any, being taken to remedy it) promptly upon becoming aware of its occurrence.
- (b) Promptly upon a request by the Agent, the Borrower shall supply to the Agent a certificate signed by two of its authorised signatories on its behalf certifying that no Default is continuing (or if a Default is continuing, specifying the Default and the steps, if any, being taken to remedy it).

18.6 Breach of Commercial Contract

Without prejudice to the generality of Clause 18.5 (Notification of default), the Borrower shall notify the Agent immediately of:

- (a) any event of default (howsoever described) or other breach of the Commercial Contract; and
- (b) any event or circumstance that may with the giving of notice, lapse of time or otherwise give rise to any event of default (howsoever described) or other breach of the Commercial Contract.

18.7 Use of websites

- (a) The Borrower may satisfy its obligation under this Agreement to deliver any information in relation to those Lenders (the "**Website Lenders**") who accept this method of communication by posting this information onto an electronic website designated by the Borrower and the Agent (the "**Designated Website**") if:
 - (i) the Agent expressly agrees (after consultation with each of the Lenders) that it will accept communication of the information by this method;
 - (ii) both the Borrower and the Agent are aware of the address of and any relevant password specifications for the Designated Website; and

(iii) the information is in a format previously agreed between the Borrower and the Agent.

If any Lender (a "**Paper Form Lender**") does not agree to the delivery of information electronically then the Agent shall notify the Borrower accordingly and the Borrower shall supply the information to the Agent (in sufficient copies for each Paper Form Lender) in paper form. In any event the Borrower shall supply the Agent with at least one copy in paper form of any information required to be provided by it.

- (b) The Agent shall supply each Website Lender with the address of and any relevant password specifications for the Designated Website following designation of that website by the Borrower and the Agent.
- (c) The Borrower shall promptly upon becoming aware of its occurrence notify the Agent if:
 - (i) the Designated Website cannot be accessed due to technical failure;
 - (ii) the password specifications for the Designated Website change;
 - (iii) any new information which is required to be provided under this Agreement is posted onto the Designated Website;
 - (iv) any existing information which has been provided under this Agreement and posted onto the Designated Website is amended; or
 - (v) the Borrower becomes aware that the Designated Website or any information posted onto the Designated Website is or has been infected by any electronic virus or similar software.

If the Borrower notifies the Agent under paragraph (c)(i) or paragraph (c)(v) above, all information to be provided by the Borrower under this Agreement after the date of that notice shall be supplied in paper form unless and until the Agent and each Website Lender is satisfied that the circumstances giving rise to the notification are no longer continuing.

- (d) Any Website Lender may request, through the Agent, one paper copy of any information required to be provided under this Agreement which is posted onto the Designated Website. The Borrower shall comply with any such request within 10 Business Days.

18.8 "Know your customer" checks

- (a) If:
 - (i) the introduction of or any change in (or in the interpretation, administration or application of) any law or regulation made after the date of this Agreement;
 - (ii) any change in the status of the Borrower after the date of this Agreement; or
 - (iii) a proposed assignment or transfer by a Lender of any of its rights and obligations under this Agreement to a party that is not a Lender prior to such assignment or transfer,

obliges the Agent or any Lender (or, in the case of paragraph (iii) above, any prospective new Lender) to comply with "know your customer" or similar identification procedures in circumstances where the necessary information is not already available to it, the Borrower shall promptly upon the request of the Agent or any Lender supply, or procure the supply of, such documentation and

other evidence as is reasonably requested by the Agent (for itself or on behalf of any Lender) or any Lender (for itself or, in the case of the event described in paragraph (iii) above, on behalf of any prospective new Lender) in order for the Agent, such Lender or, in the case of the event described in paragraph (iii) above, any prospective new Lender to carry out and be satisfied it has complied with all necessary "know your customer" or other similar checks under all applicable laws and regulations pursuant to the transactions contemplated in the Finance Documents.

- (b) Each Lender shall promptly upon the request of the Agent supply, or procure the supply of, such documentation and other evidence as is reasonably requested by the Agent (for itself) in order for the Agent to carry out and be satisfied it has complied with all necessary "know your customer" or other similar checks under all applicable laws and regulations pursuant to the transactions contemplated in the Finance Documents.

19. GENERAL UNDERTAKINGS

The undertakings in this Clause 19 remain in force from the date of this Agreement for so long as any amount is outstanding under the Finance Documents or any Commitment is in force.

19.1 Authorisations

The Borrower shall promptly:

- (a) obtain, comply with and do all that is necessary to maintain in full force and effect; and
- (b) supply certified copies to the Agent of,

any Authorisation required under any law or regulation of Ghana to enable it to perform its obligations under the Finance Documents and to ensure the legality, validity, enforceability or admissibility in evidence in Ghana of any Finance Document.

19.2 Compliance with laws

The Borrower shall comply in all respects with all laws to which it may be subject, if failure so to comply would materially impair its ability to perform its obligations under the Finance Documents.

19.3 Negative pledge

- (a) The Borrower will not create or permit to subsist:
- (i) any lien, pledge, mortgage, trust, charge or other encumbrance or preferential arrangement which has the practical effect of constituting a security interest whether in effect on the date of this Agreement or thereafter (a "Lien") upon the whole or any part of its assets to secure any External Indebtedness of the Borrower or of any other person unless, at the same time or prior thereto, the Borrower's obligations under the Finance Documents either:
 - (A) are secured equally and rateably therewith; or
 - (B) have the benefit of such other security, guarantee, indemnity or other arrangement as shall be approved by, and in form and substance satisfactory to, the Lenders; or

(ii) any preference or priority in respect of any other External Indebtedness of the Borrower, unless all amounts payable by it under the Finance Documents are granted preference or priority equally and rateably therewith.

(b) Paragraph (a) above does not apply to:

(i) any Lien upon any asset (or any interest therein) at the time of purchase, improvement, construction, development or redevelopment thereof solely as security for the payment of the purchase, improvement, construction, development or redevelopment costs of such asset;

(ii) any Lien existing on any tangible asset at the time of its acquisition or arising after such acquisition pursuant to contractual commitments entered into prior to and not in contemplation of such acquisition, and extensions and renewals of such Lien which are limited to the original asset covered thereby and which secures any renewal or extension of the original secured financing;

(iii) any Lien which:

(A) arises pursuant to an attachment, distraint or similar legal process arising in connection with court proceedings so long as the execution or other enforcement thereof is effectively stayed and the claims secured thereby are being contested in good faith by appropriate proceedings; or

(B) secures the reimbursement obligation under any bond given in connection with the release of any asset from any Lien referred to in paragraph (a) above,

provided that in the case of each of paragraphs (iii)(A) and (iii)(B) above any such Lien is released or discharged within 12 Months of its imposition;

(iv) any Lien which arises out of the extension, renewal or replacement of any External Indebtedness that is permitted pursuant to paragraph (a)(i) above, provided that the principal amount of the External Indebtedness so secured is not increased; and

(v) any Lien which arises by operation of law, provided that any such Lien is not created or permitted to be created by the Borrower for the purpose of securing any External Indebtedness.

19.4 Paripassu

The Borrower shall ensure that its payment obligations under the Finance Documents rank at least paripassu in all respects with the claims of all its other unsecured and unsubordinated creditors.

19.5 Disposals

(a) The Borrower shall not enter into a single transaction or a series of transactions (whether related or not and whether voluntary or involuntary) to sell, lease, transfer or otherwise dispose of any asset.

- (b) Paragraph (a) above does not apply to any sale, lease, transfer or other disposal of an asset which does not have and is not likely to have a Material Adverse Effect.

19.6 Environmental claims

The Borrower shall promptly notify the Lender of any claim, received by it in respect of any actual or alleged breach of or liability under Environmental Law which would reasonably be expected to have a Material Adverse Effect.

19.7 Performance of Commercial Contract

Subject to Clause 19.8 (*Amendment of and exercise of rights under the Commercial Contract*), the Borrower shall ensure that each relevant Ghanaian Counterparty will:

- (a) duly perform and observe all its obligations, and enforce its rights under the Commercial Contract;
- (b) not novate, assign or transfer any of its rights or obligations under or in connection with the Commercial Contract;
- (c) not permit or agree to any novation, assignment or transfer by any counterparty to the Commercial Contract; and
- (d) not do (or omit to do) anything which reasonably could be expected to have an adverse effect on the performance by the Chinese Supplier or the relevant Ghanaian Counterparty of any of their respective obligations under the Commercial Contract.

19.8 Amendment of and exercise of rights under the Commercial Contract

- (a) Subject to paragraph (b) below the Borrower shall ensure that no relevant Ghanaian Counterparty will, without the prior consent of the Agent:
- (i) amend, supplement, vary, waive or modify or concur in the amendment, supplement, variation, waiver or modification of the Commercial Contract unless the amendment, supplement, variation, waiver or modification is not of a material nature and would still result in the completion of the Project in substantially the same manner contemplated in the Commercial Contract in the form in which it was delivered as a condition precedent in accordance with Schedule 2 (*Conditions precedent*);
 - (ii) cancel, terminate, rescind, suspend or surrender or exercise any right to cancel, terminate, rescind, suspend or surrender the Commercial Contract or any provision of the Commercial Contract unless the Commercial Contract has reached the end of its term and there are no outstanding obligations under the Transaction Documents;
 - (iii) release any counterparty from any obligation under the Commercial Contract;
 - (iv) waive any breach by any counterparty under the Commercial Contract or consent to any act or consent to any act or omission which would otherwise constitute such a breach;
 - (v) allow, permit, consent or agree to any variation of the price or scope of works (including any changes, modifications and/or additions to the works) provided for in the Commercial Contract unless the variation of the scope of works is not of a material nature and would

still result in the completion of the Project in substantially the same manner contemplated in the Commercial Contract in the form in which it was delivered as a condition precedent in accordance with Schedule 2 (*Conditions precedent*);

- (vi) issue any certificate of take over or acceptance of the works under the Commercial Contract or issue any certificate or other confirmation of satisfactory performance of any tests on completion or other tests prior to taking over or acceptance of the works under the Commercial Contract unless an appropriately qualified independent third party has confirmed in writing that such certificate or confirmation can be issued; or
 - (vii) allow or accept any claim for payment or issue any certificate in respect of a claim for payment (whether in respect of the amounts claimed or the works which are the subject of the relevant claim or otherwise) under the Commercial Contract or issue any certificate or other confirmation of satisfactory performance under the Commercial Contract unless an appropriately qualified independent third party has confirmed in writing that such payment should be made or certificate or confirmation can be issued (as applicable).
- (b) The Agent shall be required to act on the instructions of all Lenders in providing its consent to a matter referred to in paragraph (a) above if the consent:
- (i) relates to any of the matters in paragraph (a)(i) or (a)(ii) above;
 - (ii) would result in an extension to the term carrying out the applicable works under the Commercial Contract beyond the time provided for in the Commercial Contract in the form in which it was delivered as a condition precedent in accordance with Schedule 2 (*Conditions precedent*);
 - (iii) would result in an increase in the price to be paid for the Project and/or carrying out the applicable works under the Commercial Contract; or
 - (iv) relates to a matter which, if approved, could reasonably be expected to result in a Material Adverse Effect.
- (c) The Borrower shall (and the Borrower shall ensure that each relevant Ghanaian Counterparty will) exercise all its rights, powers and discretions under the Commercial Contract, except as to operational matters under the Commercial Contract which do not materially affect the interests of the Finance Parties, in accordance with the instructions of the Agent.

19.9 Sinosure Insurance Policy

The Borrower shall not take any action that may adversely affect the interests and rights of the Insured under the Sinosure Insurance Policy.

20. EVENTS OF DEFAULT

Each of the events or circumstances set out in Clause 20 is an Event of Default (save for Clause 20.17 (*Acceleration*)).

20.1 Non-payment

The Borrower does not pay on the due date any amount payable pursuant to a Finance Document at the place at and in the currency in which it is expressed to be payable unless:

- (a) its failure to pay is caused by administrative or technical error; and
- (b) payment is made within 3 Business Days of its due date.

20.2 Other obligations

- (a) The Borrower does not comply with any provision of the Transaction Documents (other than those referred to in Clause 20.1 (*Non-payment*)).
- (b) No Event of Default under paragraph (a) above in relation to Clause 19.1 (*Authorisations*) will occur if the failure to comply is capable of remedy and is remedied within 15 Business Days of the earlier of (A) the Agent giving notice to the Borrower and (B) the Borrower becoming aware of the failure to comply.

20.3 Misrepresentation

Any representation or statement made or deemed to be made by the Borrower in the Finance Documents or any other document delivered by or on behalf of the Borrower under or in connection with any Finance Document is or proves to have been incorrect or misleading in any material respect when made or deemed to be made.

20.4 Cross default

- (a) Any External Indebtedness of any Ghanaian Agency is not paid when due nor within any originally applicable grace period.
- (b) Any External Indebtedness of any Ghanaian Agency is declared to be or otherwise becomes due and payable prior to its specified maturity as a result of an event of default (however described).
- (c) Any commitment for any External Indebtedness of any Ghanaian Agency is cancelled or suspended by a creditor of any Ghanaian Agency as a result of an event of default (however described).
- (d) Any creditor of any Ghanaian Agency becomes entitled to declare any External Indebtedness of any Ghanaian Agency due and payable prior to its specified maturity as a result of an event of default (however described).
- (e) No Event of Default will occur under this Clause 20.4 if the aggregate amount of External Indebtedness and commitment for External Indebtedness falling within paragraphs (a) to (d) above is less than U.S.\$10,000,000 (or its equivalent in any other currency or currencies).

20.5 Insolvency

- (a) The Borrower is unable or admits inability to pay its External Indebtedness as it falls due, suspends making payments on all or a particular class of its External Indebtedness or, by reason of actual or anticipated financial difficulties, commences negotiations with its creditors generally or

a class thereof with a view to rescheduling such of its External Indebtedness which is owed to such creditors.

- (b) The Borrower becomes bankrupt or insolvent.

20.6 Judgment, creditors' process

- (a) The Borrower fails to comply with, or pay any sum in an amount equal to or greater than U.S.\$10,000,000 (or its equivalent in any other currency or currencies) due from it under, any final judgment, arbitral award or order made or given by a court or an arbitral tribunal having jurisdiction over it.
- (b) Except for any frivolous or vexatious proceedings which the Borrower is contesting in good faith and which is not discharged, waived or stayed within 60 days from commencement, any expropriation, attachment, sequestration, distress or execution affects any asset or assets of the Borrower or Ghana having an aggregate value of U.S.\$10,000,000 (or its equivalent in any other currency or currencies).

20.7 Unlawfulness

- (a) It is or becomes unlawful for:
 - (i) the Borrower to perform any of its obligations under any of the Finance Documents to which it is a party; or
 - (ii) Sinosure to perform any of its obligations under the Sinosure Insurance Policy.
- (b) The validity of any Finance Documents or any Loan is contested by the Borrower or any Ghanaian Agency which is authorised by law to do so and, acting alone or together with another such Ghanaian Agency, has the legal power and authority to declare the Finance Documents or any Loan invalid or unenforceable, or the Borrower denies any of its obligations under the Finance Documents or the Loan (whether by a general suspension of payments or a moratorium on the payment of debt or otherwise), or any constitutional provision, treaty, convention, law, regulation, official communiqué, decree, ordinance or policy of Ghana, or any final and non-appealable decision by any court in Ghana, having jurisdiction, shall purport to render any provision of the Finance Documents or any Loan invalid or unenforceable or shall purport to prevent or delay the performance or observance by the Borrower of any of its obligations thereunder.
- (c) Any constitutional provision, treaty, convention, law, regulation, ordinance, consent, approval, licence or other authority necessary to enable the Borrower or Sinosure to make or perform its obligations under the Finance Documents, the Sinosure Insurance Policy or any Loan, or for the validity or enforceability thereof shall expire, be withheld, revoked, terminated or otherwise cease to remain in full force and effect, or the same shall be modified in a manner which adversely affects or will adversely affect any rights or claims of the Finance Parties.

20.8 Repudiation

The Borrower or Sinosure repudiates a Finance Document or the Sinosure Insurance Policy or evidences an intention to repudiate a Finance Document or the Sinosure Insurance Policy.

20.9 Material adverse change

The Majority Lenders determine that a Material Adverse Effect exists, has occurred or might occur.

20.10 Consents

Any action, condition or thing (including the obtaining of any necessary Authorisation) at any time required to be taken fulfilled, obtained or done in order:

- (a) to enable the Borrower or Sinosure to enter into, exercise its rights and perform and comply with its obligations under the Finance Documents or the Sinosure Insurance Policy;
- (b) to ensure that those obligations are valid, legally binding and (subject to any qualifications made in any legal opinion accepted by the Agent pursuant to Clause 4 (*Conditions of Utilisation*)) enforceable; or
- (c) to make any Finance Document to which the Borrower is a party admissible in evidence in the courts of Ghana,

is not taken, fulfilled, obtained or done, any such consent ceases to be in full force and effect without modification or any material condition in or relating to any such consent is not complied with (unless that consent or condition is no longer required or applicable).

20.11 Moratorium on External Indebtedness

The government of Ghana, central bank of Ghana or any Ghanaian Agency declares a moratorium, standstill or similar suspension of payments in respect of its External Indebtedness or the External Indebtedness of any person incorporated, domiciled, resident or situated in Ghana.

20.12 Litigation

Any litigation, arbitration or administrative proceeding or any dispute with any governmental or municipal authority or any labour or other dispute of any kind is current, pending or threatened against the Borrower or any of its assets which has or would reasonably be expected to have a Material Adverse Effect.

20.13 Foreign Exchange Restrictions

Any foreign exchange law is enacted or introduced which has or would reasonably be expected to have, in the opinion of the Agent, the effect of prohibiting, restricting or delaying any payment that the Borrower is required to make pursuant to the terms of the Finance Documents.

20.14 Events affecting Ghana

A deterioration occurs in the political or economic situation in Ghana or an act of war or hostilities, invasion, armed conflict or act of foreign enemy, revolution, insurrection, insurgency or threat thereof occurs in or involving Ghana which (in any case) might have a Material Adverse Effect.

Sinosure Insurance Policy

The Sinosure Insurance Policy is fully or partially withdrawn, suspended, terminated or cancelled or otherwise ceases to be in full force and effect or binding on and enforceable against Sinosure.

20.15 Commercial Contract

- (a) The Commercial Contract is cancelled, suspended, terminated, declared void or revoked.
- (b) At any time it is or becomes unlawful for any party to the Commercial Contract to perform or comply with any of its material obligations thereunder, or any of the material obligations of any party to the Commercial Contract are not or cease to be legal, valid and binding.
- (c) Any party to the Commercial Contract fails to perform or comply with any of the material obligations expressed to be assumed by it thereunder.
- (d) An event of force majeure occurs under the Commercial Contract.

20.16 Acceleration

On and at any time after the occurrence of an Event of Default the Agent may, and shall if so directed by the Majority Lenders, by notice to the Borrower:

- (a) cancel the Total Commitments whereupon they shall immediately be cancelled;
- (b) declare that all or part of the Loans, together with accrued interest, and all other amounts accrued or outstanding under the Finance Documents be immediately due and payable, whereupon they shall become immediately due and payable; and/or
- (c) declare that all or part of the Loans be payable on demand, whereupon they shall immediately become payable on demand by the Agent on the instructions of the Majority Lenders.

SECTION 8
CHANGES TO PARTIES

21. CHANGES TO THE LENDERS

21.1 Assignments and transfers by the Lenders

Subject to this Clause 21, a Lender (the "Existing Lender") may:

- (a) assign any of its rights; or
- (b) transfer by novation any of its rights and obligations,

under the Finance Documents to another bank or financial institution or to a trust, fund, Sinosure or other entity which is regularly engaged in or established for the purpose of making, purchasing or investing in loans, securities or other financial assets (the "New Lender").

21.2 Sinosure

An assignment or transfer of an Existing Lender's rights under any Finance Document may be made in favour of Sinosure.

21.3 Conditions of assignment or transfer

- (a) The consent of the Borrower is not required for an assignment or transfer by novation by an Existing Lender.
- (b) The consent of Sinosure is required for an assignment or transfer by an Existing Lender of any of its obligations under the Finance Documents in respect of its Available Commitment in accordance with the terms of the Sinosure Insurance Policy or as otherwise required by Sinosure.
- (c) An assignment will only be effective on:
 - (i) receipt by the Agent (whether in the Assignment Agreement or otherwise) of written confirmation from the New Lender (in form and substance satisfactory to the Agent) that the New Lender will assume the same obligations to the other Finance Parties as it would have been under if it was an Original Lender; and
 - (ii) performance by the Agent of all necessary "know your customer" or other similar checks under all applicable laws and regulations in relation to such assignment to a New Lender, the completion of which the Agent shall promptly notify to the Existing Lender and the New Lender.
- (d) A transfer will only be effective if the procedure set out in Clause 21.6 (*Procedure for transfer*) is complied with.
- (e) If:
 - (i) a Lender assigns or transfers any of its rights or obligations under the Finance Documents and its interests in respect of the Sinosure Insurance Policy (including rights against Sinosure and/or the Insured) or changes its Facility Office; and

- (ii) as a result of circumstances existing at the date the assignment, transfer or change occurs, the Borrower would be obliged to make a payment to the New Lender or Lender acting through its new Facility Office under Clause 12 (*Tax gross up and indemnities*) or Clause 13 (*Increased costs*),

then the New Lender or Lender acting through its new Facility Office is only entitled to receive payment under those Clauses to the same extent as the Existing Lender or Lender acting through its previous Facility Office would have been if the assignment, transfer or change had not occurred. This paragraph (e) shall not apply in respect of an assignment or transfer made in the ordinary course of the primary syndication of the Facility.

- (f) Each New Lender, by executing the relevant Transfer Certificate or Assignment Agreement, confirms, for the avoidance of doubt, that the Agent has authority to execute on its behalf any amendment or waiver that has been approved by or on behalf of the requisite Lender or Lenders in accordance with this Agreement on or prior to the date on which the transfer or assignment becomes effective in accordance with this Agreement and that it is bound by that decision to the same extent as the Existing Lender would have been had it remained a Lender.

21.4 Assignment or transfer fee

The New Lender shall, on the date upon which an assignment or transfer takes effect, pay to the Agent (for its own account) a fee of U.S.\$5,000.

21.5 Limitation of responsibility of Existing Lenders

- (a) Unless expressly agreed to the contrary, an Existing Lender makes no representation or warranty and assumes no responsibility to a New Lender for:
 - (i) the legality, validity, effectiveness, adequacy or enforceability of the Finance Documents, the Sinosure Insurance Policy or any other documents;
 - (ii) the financial condition of the Borrower;
 - (iii) the financial condition of Sinosure;
 - (iv) the performance and observance by the Borrower of its obligations under the Finance Documents or any other documents or by Sinosure of its obligations under the Sinosure Insurance Policy; or
 - (v) the accuracy of any statements (whether written or oral) made in or in connection with any Finance Document, the Sinosure Insurance Policy or any other document, and any representations or warranties implied by law are excluded.
- (b) Each New Lender confirms to the Existing Lender and the other Finance Parties that it:
 - (i) has made (and shall continue to make) its own independent investigation and assessment of the financial condition and affairs of the Borrower and its related entities and Sinosure in connection with its participation in this Agreement and has not relied exclusively on any information provided to it by the Existing Lender in connection with any Finance Document or the Sinosure Insurance Policy; and

- (ii) will continue to make its own independent appraisal of the creditworthiness of the Borrower and its related entities and Sinasure whilst any amount is or may be outstanding under the Finance Documents or any Commitment is in force.
- (c) Nothing in any Finance Document obliges an Existing Lender to:
 - (i) accept a re-transfer or re-assignment from a New Lender of any of the rights and obligations assigned or transferred under this Clause 21; or
 - (ii) support any losses directly or indirectly incurred by the New Lender by reason of the non-performance by the Borrower of its obligations under the Finance Documents, the Sinasure Insurance Policy (if any) or by Sinasure of its obligations under the Sinasure Insurance Policy, or otherwise.

21.6 Procedure for transfer

- (a) Subject to the conditions set out in Clause 21.3 (*Conditions of assignment or transfer*) a transfer is effected in accordance with paragraph (c) below when the Agent executes an otherwise duly completed Transfer Certificate delivered to it by the Existing Lender and the New Lender. The Agent shall, subject to paragraph (b) below, as soon as reasonably practicable after receipt by it of a duly completed Transfer Certificate appearing on its face to comply with the terms of this Agreement and delivered in accordance with the terms of this Agreement, execute that Transfer Certificate.
- (b) The Agent shall only be obliged to execute a Transfer Certificate delivered to it by the Existing Lender and the New Lender once it is satisfied it has complied with all necessary "know your customer" or other similar checks under all applicable laws and regulations in relation to the transfer to such New Lender.
- (c) Subject to Clause 21.10 (*Pro rata interest settlement*), on the Transfer Date:
 - (i) to the extent that in the Transfer Certificate the Existing Lender seeks to transfer by novation its rights and obligations under the Finance Documents the Borrower and the Existing Lender shall be released from further obligations towards one another under the Finance Documents and their respective rights against one another under the Finance Documents shall be cancelled (being the "**Discharged Rights and Obligations**");
 - (ii) the Borrower and the New Lender shall assume obligations towards one another and/or acquire rights against one another which differ from the Discharged Rights and Obligations only insofar as the Borrower and the New Lender have assumed and/or acquired the same in place of the Borrower and the Existing Lender;
 - (iii) the Agent, the Arranger, the New Lender and other Lenders shall acquire the same rights and assume the same obligations between themselves as they would have acquired and assumed had the New Lender been an Original Lender with the rights and/or obligations acquired or assumed by it as a result of the transfer and to that extent the Agent, the Arranger and the Existing Lender shall each be released from further obligations to each other under the Finance Documents; and
 - (iv) the New Lender shall become a Party as a "Lender".

21.7 Procedure for assignment

- (a) Subject to the conditions set out in Clause 21.3 (*Conditions of assignment or transfer*) an assignment may be effected in accordance with paragraph (c) below when the Agent executes an otherwise duly completed Assignment Agreement delivered to it by the Existing Lender and the New Lender. The Agent shall, subject to paragraph (b) below, as soon as reasonably practicable after receipt by it of a duly completed Assignment Agreement appearing on its face to comply with the terms of this Agreement and delivered in accordance with the terms of this Agreement, execute that Assignment Agreement.
- (b) The Agent shall only be obliged to execute an Assignment Agreement delivered to it by the Existing Lender and the New Lender once it is satisfied it has complied with all necessary "know your customer" or other similar checks under all applicable laws and regulations in relation to the assignment to such New Lender.
- (c) Subject to Clause 21.10 (*Pro rata interest settlement*), on the Transfer Date:
 - (i) the Existing Lender will assign absolutely to the New Lender the rights under the Finance Documents expressed to be the subject of the assignment in the Assignment Agreement;
 - (ii) the Existing Lender will be released by the Borrower and the other Finance Parties from the obligations owed by it (the "**Relevant Obligations**") and expressed to be the subject of the release in the Assignment Agreement; and
 - (iii) the New Lender shall become a Party as a "Lender" and will be bound by obligations equivalent to the Relevant Obligations.
- (d) Lenders may utilise procedures other than those set out in this Clause 21.7 to assign their rights under the Finance Documents (but not, without the consent of the Borrower or unless in accordance with Clause 21.6 (*Procedure for transfer*), to obtain a release by the Borrower from the obligations owed to the Borrower by the Lenders nor the assumption of equivalent obligations by a New Lender) **provided that** they comply with the conditions set out in Clause 21.3 (*Conditions of assignment or transfer*).

21.8 Copy of Transfer Certificate or Assignment Agreement to Borrower

The Agent shall, as soon as reasonably practicable after it has executed a Transfer Certificate or an Assignment Agreement, send to the Borrower a copy of that Transfer Certificate or Assignment Agreement.

21.9 Security over Lenders' rights

In addition to the other rights provided to Lenders under this Clause 21, each Lender may without consulting with or obtaining consent from the Borrower, at any time charge, assign or otherwise create Security in or over (whether by way of collateral or otherwise) all or any of its rights under any Finance Document to secure obligations of that Lender including, without limitation:

- (a) any charge, assignment or other Security to secure obligations to a federal reserve or central bank; and

- (b) in the case of any Lender which is a fund, any charge, assignment or other Security granted to any holders (or trustee or representatives of holders) of obligations owed, or securities issued, by that Lender as security for those obligations or securities,

except that no such charge, assignment or Security shall:

- (i) release a Lender from any of its obligations under the Finance Documents or substitute the beneficiary of the relevant charge, assignment or Security for the Lender as a party to any of the Finance Documents; or
- (ii) require any payments to be made by the Borrower other than or in excess of, or grant to any person any more extensive rights than, those required to be made or granted to the relevant Lender under the Finance Documents.

21.10 Pro rata interest settlement

If the Agent has notified the Lenders that it is able to distribute interest payments on a "pro rata basis" to Existing Lenders and New Lenders then (in respect of any transfer pursuant to Clause 21.6 (*Procedure for transfer*) or any assignment pursuant to Clause 21.7 (*Procedure for assignment*) the Transfer Date of which, in each case, is after the date of such notification and is not on the last day of an Interest Period):

- (a) any interest or fees in respect of the relevant participation which are expressed to accrue by reference to the lapse of time shall continue to accrue in favour of the Existing Lender up to but excluding the Transfer Date ("**Accrued Amounts**") and shall become due and payable to the Existing Lender (without further interest accruing on them) on the last day of the current Interest Period (or, if the Interest Period is longer than 6 Months, on the next of the dates which falls at 6 Monthly intervals after the first day of that Interest Period); and
- (b) the rights assigned or transferred by the Existing Lender will not include the right to the Accrued Amounts, so that, for the avoidance of doubt:
 - (i) when the Accrued Amounts become payable, those Accrued Amounts will be payable to the Existing Lender; and
 - (ii) the amount payable to the New Lender on that date will be the amount which would, but for the application of this Clause 21.10, have been payable to it on that date, but after deduction of the Accrued Amounts.

22. NO CHANGE TO THE BORROWER

The Borrower may not assign any of its rights or transfer any of its rights or obligations under the Finance Documents.

SECTION 9
THE FINANCE PARTIES

23. ROLE OF THE AGENT, THE ARRANGER AND THE INSURED

23.1 Appointment of the Agent

- (a) Each other Finance Party appoints the Agent to act as its agent under and in connection with the Finance Documents.
- (b) Each other Finance Party authorises the Agent to exercise the rights, powers, authorities and discretions specifically given to the Agent under or in connection with the Finance Documents together with any other incidental rights, powers, authorities and discretions.

23.2 Duties of the Agent

- (a) Subject to paragraph (b) below, the Agent shall promptly forward to a Party the original or a copy of any document which is delivered to the Agent for that Party by any other Party.
- (b) Without prejudice to Clause 21.8 (*Copy of Transfer Certificate or Assignment Agreement to Borrower*), paragraph (a) above shall not apply to any Transfer Certificate or to any Assignment Agreement.
- (c) Except where a Finance Document specifically provides otherwise, the Agent is not obliged to review or check the adequacy, accuracy or completeness of any document it forwards to another Party.
- (d) If the Agent receives notice from a Party referring to this Agreement, describing a Default and stating that the circumstance described is a Default, it shall promptly notify the Finance Parties.
- (e) If the Agent is aware of the non-payment of any principal, interest, commitment fee or other fee payable to a Finance Party (other than the Agent or the Arranger) under this Agreement or receives notice from a Party on the occurrence of any covered risk (howsoever described in the Sinosure Insurance Policy) under the Sinosure Insurance Policy it shall promptly notify the other Finance Parties.
- (f) The Agent's duties under the Finance Documents are solely mechanical and administrative in nature.
- (g) The Agent shall have no other duties save as expressly provided for in the Finance Documents.

23.3 Role of the Arranger

Except as specifically provided in the Finance Documents, the Arranger has no obligations of any kind to any other Party under or in connection with any Finance Document.

23.4 No fiduciary duties

- (a) Nothing in this Agreement constitutes the Agent or the Arranger as a trustee or fiduciary of any other person.
- (b) Neither the Agent nor the Arranger shall be bound to account to any Lender for any sum or the profit element of any sum received by it for its own account.

23.5 Business with the Borrower

The Agent and the Arranger may accept deposits from, lend money to and generally engage in any kind of banking or other business with the Borrower.

23.6 Rights and discretions of the Agent

- (a) The Agent may rely on:
 - (i) any representation, notice or document believed by it to be genuine, correct and appropriately authorised and shall have no duty to verify any signature on any document; and
 - (ii) any statement purportedly made by a director, authorised signatory or employee of any person regarding any matters which may reasonably be assumed to be within his knowledge or within his power to verify.
- (b) The Agent may assume (unless it has received notice to the contrary in its capacity as agent for the Lenders) that:
 - (i) no Default has occurred (unless it has actual knowledge of a Default arising under Clause 20.1 (*Non-payment*)); and
 - (ii) any right, power, authority or discretion vested in any Party or the Majority Lenders has not been exercised.
- (c) The Agent may engage, pay for and rely on the advice or services of any lawyers, accountants, surveyors or other experts.
- (d) The Agent may act in relation to the Finance Documents through its personnel and agents.
- (e) The Agent may disclose to any other Party any information it reasonably believes it has received as agent under this Agreement.
- (f) Notwithstanding any other provision of any Finance Document to the contrary, neither the Agent nor the Arranger is obliged to do or omit to do anything if it would or might in its reasonable opinion constitute a breach of any law or regulation or a breach of a fiduciary duty or duty of confidentiality.

23.7 Majority Lenders' instructions

- (a) Unless a contrary indication appears in a Finance Document, the Agent shall (i) exercise any right, power, authority or discretion vested in it as Agent in accordance with any instructions given to it by the Majority Lenders (or, if so instructed by the Majority Lenders, refrain from exercising any right, power, authority or discretion vested in it as Agent) and (ii) not be liable for any act (or omission) if it acts (or refrains from taking any action) in accordance with an instruction of the Majority Lenders.
- (b) Unless a contrary indication appears in a Finance Document, any instructions given by the Majority Lenders will be binding on all the Finance Parties.
- (c) The Agent may refrain from acting in accordance with the instructions of the Majority Lenders (or, if appropriate, the Lenders) or under paragraph (d) below until it has received such security as it

may require for any cost, loss or liability (together with any associated Indirect Tax) which it may incur in complying with the instructions.

- (d) In the absence of instructions from the Majority Lenders (or, if appropriate, the Lenders), the Agent may act (or refrain from taking action) as it considers to be in the best interest of the Lenders.
- (e) The Agent is not authorised to act on behalf of a Lender (without first obtaining that Lender's consent) in any legal or arbitration proceedings relating to any Finance Document.

23.8 Responsibility for documentation

Neither the Agent nor the Arranger:

- (a) is responsible for the adequacy, accuracy and/or completeness of any information (whether oral or written) supplied by the Agent, the Arranger, the Borrower or any other person given in or in connection with any Finance Document; or
- (b) is responsible for the legality, validity, effectiveness, adequacy or enforceability of any Finance Document or any other agreement, arrangement or document entered into, made or executed in anticipation of or in connection with any Finance Document; or
- (c) is responsible for any determination as to whether any information provided or to be provided to any Finance Party is non-public information the use of which may be regulated or prohibited by applicable law or regulation relating to insider dealing or otherwise.

23.9 Exclusion of liability

- (a) Without limiting paragraph (b) below, the Agent will not be liable for any action taken by it or for omitting to take action under or in connection with any Finance Document, unless directly caused by its gross negligence or wilful misconduct.
- (b) No Party (other than the Agent) may take any proceedings against any officer, employee or agent of the Agent in respect of any claim it might have against the Agent or in respect of any act or omission of any kind by that officer, employee or agent in relation to any Finance Document and any officer, employee or agent of the Agent may rely on this Clause.
- (c) The Agent will not be liable for any delay (or any related consequences) in crediting an account with an amount required under the Finance Documents to be paid by the Agent if the Agent has taken all necessary steps as soon as reasonably practicable to comply with the regulations or operating procedures of any recognised clearing or settlement system used by the Agent for that purpose.
- (d) Nothing in this Agreement shall oblige the Agent or the Arranger to carry out any "know your customer" or other checks in relation to any person on behalf of any Lender and each Lender confirms to the Agent and the Arranger that it is solely responsible for any such checks it is required to carry out and that it may not rely on any statement in relation to such checks made by the Agent or the Arranger.

23.10 Role of the Insured

The Insured shall hold the benefits of the Sinosure Insurance Policy on behalf of the Lenders from time to time.

23.11 Lenders' indemnity to the Agent and the Insured

- (a) Each Lender shall (in proportion to its share of the Total Commitments or, if the Total Commitments are then zero, to its share of the Total Commitments immediately prior to their reduction to zero) indemnify the Agent, within 3 Business Days of demand, against any cost, loss or liability incurred by the Agent (otherwise than by reason of the Agent's gross negligence or wilful misconduct) in acting as Agent under the Finance Documents (unless the Agent has been reimbursed by the Borrower pursuant to a Finance Document).
- (b) Each Lender shall (in proportion to its Available Commitment and participation in the Loans then outstanding to the Available Facility and all the Loans then outstanding) indemnify the Insured, within 3 Business Days of demand, against all cost, loss or liability incurred by the Insured (otherwise than by reason of the Insured's gross negligence or wilful misconduct) in acting as the Insured or the insured party under the Sinasure Insurance Policy, unless and to the extent that the Insured has been reimbursed by the Borrower pursuant to the Finance Documents.

23.12 Resignation of the Agent

- (a) The Agent may resign and appoint one of its Affiliates as successor by giving notice to the other Finance Parties and the Borrower.
- (b) Alternatively the Agent may resign by giving 30 days' notice to the other Finance Parties and the Borrower, in which case the Majority Lenders (after consultation with the Borrower) may appoint a successor Agent.
- (c) If the Majority Lenders have not appointed a successor Agent in accordance with paragraph (b) above within 20 days after notice of resignation was given, the retiring Agent (after consultation with the Borrower) may appoint a successor Agent .
- (d) The retiring Agent shall make available to the successor Agent such documents and records and provide such assistance as the successor Agent may reasonably request for the purposes of performing its functions as Agent under the Finance Documents.
- (e) The Agent's resignation notice shall only take effect upon the appointment of a successor.
- (f) Upon the appointment of a successor, the retiring Agent shall be discharged from any further obligation in respect of the Finance Documents but shall remain entitled to the benefit of this Clause 23. Its successor and each of the other Parties shall have the same rights and obligations amongst themselves as they would have had if such successor had been an original Party.
- (g) After consultation with the Borrower, the Majority Lenders may, by notice to the Agent, require it to resign in accordance with paragraph (b) above. In this event, the Agent shall resign in accordance with paragraph (b) above.

23.13 Confidentiality

- (a) In acting as agent for the Finance Parties, the Agent shall be regarded as acting through its agency division which shall be treated as a separate entity from any other of its divisions or departments.

- (b) If information is received by another division or department of the Agent, it may be treated as confidential to that division or department and the Agent shall not be deemed to have notice of it.

23.14 Relationship with the Lenders

- (a) Subject to Clause 21.10 (*Pro rata interest settlement*), the Agent may treat the person shown in its records as Lender at the opening of business (in the place of the Agent's principal office as notified to the Finance Parties from time to time) as the Lender acting through its Facility Office:

- (i) entitled to or liable for any payment due under any Finance Document on that day; and
- (ii) entitled to receive and act upon any notice, request, document or communication or make any decision or determination under any Finance Document made or delivered on that day,

unless it has received not less than 5 Business Days prior notice from that Lender to the contrary in accordance with the terms of this Agreement.

- (b) Any Lender may by notice to the Agent appoint a person to receive on its behalf all notices, communications, information and documents to be made or despatched to that Lender under the Finance Documents. Such notice shall contain the address, fax number and (where communication by electronic mail or other electronic means is permitted under Clause 28.5 (*Electronic communication*)) electronic mail address and/or any other information required to enable the sending and receipt of information by that means (and, in each case, the department or officer, if any, for whose attention communication is to be made) and be treated as a notification of a substitute address, fax number, electronic mail address, department and officer by that Lender for the purposes of Clause 28.2 (*Addresses*) and paragraph (a)(iii) of Clause 28.5 (*Electronic communication*) and the Agent shall be entitled to treat such person as the person entitled to receive all such notices, communications, information and documents as though that person were that Lender.

23.15 Credit appraisal by the Lenders

Without affecting the responsibility of the Borrower for information supplied by it or on its behalf in connection with any Finance Document, each Lender confirms to the Agent and the Arranger that it has been, and will continue to be, solely responsible for making its own independent appraisal and investigation of all risks arising under or in connection with any Finance Document and the Sinasure Insurance Policy including but not limited to:

- (a) the financial condition, status and nature of the Borrower or Sinasure;
- (b) the legality, validity, effectiveness, adequacy or enforceability of any Finance Document, the Sinasure Insurance Policy and any other agreement, arrangement or document entered into, made or executed in anticipation of, under or in connection with any Finance Document and the Sinasure Insurance Policy;
- (c) whether that Lender has recourse, and the nature and extent of that recourse, against any Party or any of its respective assets under or in connection with any Finance Document or the Sinasure Insurance Policy (if applicable), the transactions contemplated by the Finance Documents, the Sinasure Insurance Policy or any other agreement, arrangement

or document entered into, made or executed in anticipation of, under or in connection with any Finance Document or the Sinasure Insurance Policy; and

- (d) the adequacy, accuracy and/or completeness of any information provided by the Agent, any Party or by any other person under or in connection with any Finance Document, the Sinasure Insurance Policy, the transactions contemplated by the Finance Documents or any other agreement, arrangement or document entered into, made or executed in anticipation of, under or in connection with any Finance Document or the Sinasure Insurance Policy.

23.16 Reference Banks

If a Reference Bank which is a Lender (or the Lender of which it is an Affiliate) ceases to be a Lender, the Agent shall (in consultation with the Borrower) appoint another Lender or an Affiliate of a Lender to replace that Reference Bank.

23.17 Agent's Management Time

Any amount payable to the Agent under Clause 14.3 (*Indemnity to the Agent*), Clause 16 (*Costs and expenses*) and Clause 23.11 (*Lenders' indemnity to the Agent and the Insured*) shall include the cost of utilising the Agent's management time or other resources and will be calculated on the basis of such reasonable daily or hourly rates as the Agent may notify to the Borrower and the Lenders, and is in addition to any fee paid or payable to the Agent under Clause 11 (*Fees*).

23.18 Deduction from amounts payable by the Agent

If any Party owes an amount to the Agent under the Finance Documents the Agent may, after giving notice to that Party, deduct an amount not exceeding that amount from any payment to that Party which the Agent would otherwise be obliged to make under the Finance Documents and apply the amount deducted in or towards satisfaction of the amount owed. For the purposes of the Finance Documents that Party shall be regarded as having received any amount so deducted.

24. CONDUCT OF BUSINESS BY THE FINANCE PARTIES

No provision of this Agreement will:

- (a) interfere with the right of any Finance Party to arrange its affairs (tax or otherwise) in whatever manner it thinks fit;
- (b) oblige any Finance Party to investigate or claim any credit, relief, remission or repayment available to it or the extent, order and manner of any claim; or
- (c) oblige any Finance Party to disclose any information relating to its affairs (tax or otherwise) or any computations in respect of Tax.

25. SHARING AMONG THE FINANCE PARTIES

25.1 Payments to Finance Parties

If a Finance Party (a "**Recovering Finance Party**") receives or recovers any amount from the Borrower other than in accordance with Clause 26 (*Payment mechanics*) (a "**Recovered Amount**") and applies that amount to a payment due under the Finance Documents then:

- (a) the Recovering Finance Party shall, within 3 Business Days, notify details of the receipt or recovery to the Agent;
- (b) the Agent shall determine whether the receipt or recovery is in excess of the amount the Recovering Finance Party would have been paid had the receipt or recovery been received or made by the Agent and distributed in accordance with Clause 26 (*Payment mechanics*), without taking account of any Tax which would be imposed on the Agent in relation to the receipt, recovery or distribution; and
- (c) the Recovering Finance Party shall, within 3 Business Days of demand by the Agent, pay to the Agent an amount (the "**Sharing Payment**") equal to such receipt or recovery less any amount which the Agent determines may be retained by the Recovering Finance Party as its share of any payment to be made, in accordance with Clause 26.5 (*Partial payments*).

25.2 **Redistribution of payments**

The Agent shall treat the Sharing Payment as if it had been paid by the Borrower and distribute it between the Finance Parties (other than the Recovering Finance Party) (the "**Sharing Finance Parties**") in accordance with Clause 26.5 (*Partial payments*) towards the obligations of the Borrower to the Sharing Finance Parties.

25.3 **Recovering Finance Party's rights**

On a distribution by the Agent under Clause 25.2 (*Redistribution of payments*), of a payment received by a Recovering Finance Party from the Borrower, as between the Borrower and the Recovering Finance Party, an amount of the Recovered Amount equal to the Sharing Payment will be treated as not having been paid by the Borrower.

25.4 **Reversal of redistribution**

If any part of the Sharing Payment received or recovered by a Recovering Finance Party becomes repayable and is repaid by that Recovering Finance Party, then:

- (a) each Sharing Finance Party shall, upon request of the Agent, pay to the Agent for the account of that Recovering Finance Party an amount equal to the appropriate part of its share of the Sharing Payment (together with an amount as is necessary to reimburse that Recovering Finance Party for its proportion of any interest on the Sharing Payment which that Recovering Finance Party is required to pay) (the "**Redistributed Amount**"); and
- (b) as between the Borrower and each relevant Sharing Finance Party, an amount equal to the relevant Redistributed Amount will be treated as not having been paid by the Borrower.

25.5 **Exceptions**

- (a) This Clause 25 shall not apply to the extent that the Recovering Finance Party would not, after making any payment pursuant to this Clause, have a valid and enforceable claim against the Borrower.

(b) A Recovering Finance Party is not obliged to share with any other Finance Party any amount which the Recovering Finance Party has received or recovered as a result of taking legal or arbitration proceedings, if:

- (i) it notified that other Finance Party of the legal or arbitration proceedings; and
- (ii) that other Finance Party had an opportunity to participate in those legal or arbitration proceedings but did not do so as soon as reasonably practicable having received notice and did not take separate legal or arbitration proceedings.

SECTION 10
ADMINISTRATION

26. PAYMENT MECHANICS

26.1 Payments to the Agent

- (a) On each date on which the Borrower or a Lender is required to make a payment under a Finance Document, the Borrower or Lender shall make the same available to the Agent (unless a contrary indication appears in a Finance Document) for value on the due date at the time and in such funds specified by the Agent as being customary at the time for settlement of transactions in the relevant currency in the place of payment.
- (b) Payment shall be made to such account in the principal financial centre of the country of that currency with such bank as the Agent specifies.

26.2 Distributions by the Agent

- (a) Each payment received by the Agent under the Finance Documents for another Party shall, subject to Clause 26.3 (*Distributions to the Borrower*) and Clause 26.4 (*Clawback*), be made available by the Agent as soon as practicable after receipt to the Party entitled to receive payment in accordance with this Agreement (in the case of a Lender, for the account of its Facility Office), to such account as that Party may notify to the Agent by not less than 5 Business Days' notice with a bank in the principal financial centre of the country of that currency.
- (b) The Agent shall distribute payments received by it in relation to all or any part of a Loan to the Lender indicated in the records of the Agent as being so entitled on that date provided that the Agent is authorised to distribute payments to be made on the date on which any transfer becomes effective pursuant to Clause 21 (*Changes to the Lenders*) to the Lender so entitled immediately before such transfer took place regardless of the period to which such sums relate.

26.3 Distributions to the Borrower

The Agent may (with the Borrower's consent or in accordance with Clause 27 (*Set-off*)) apply any amount received by it for the Borrower in or towards payment (on the date and in the currency and funds of receipt) of any amount due from the Borrower under the Finance Documents or in or towards purchase of any amount of any currency to be so applied.

26.4 Clawback

- (a) Where a sum is to be paid to the Agent under the Finance Documents for another Party, the Agent is not obliged to pay that sum to that other Party (or to enter into or perform any related exchange contract) until it has been able to establish to its satisfaction that it has actually received that sum.
- (b) If the Agent pays an amount to another Party and it proves to be the case that the Agent had not actually received that amount, then the Party to whom that amount (or the proceeds of any related exchange contract) was paid by the Agent shall on demand refund the same to the Agent together with interest on that amount from the date of payment to the date of receipt by the Agent, calculated by the Agent to reflect its cost of funds.

26.5 Partial payments

- (a) If the Agent receives a payment that is insufficient to discharge all the amounts then due and payable by the Borrower under the Finance Documents, the Agent shall apply that payment towards the obligations of the Borrower under the Finance Documents in the following order:
 - (i) first, in or towards payment pro rata of any unpaid fees, costs and expenses of the Agent or the Arranger under the Finance Documents;
 - (ii) secondly, in or towards payment pro rata of any accrued interest, fee or commission due but unpaid under this Agreement;
 - (iii) thirdly, in or towards payment pro rata of any principal due but unpaid under this Agreement; and
 - (iv) fourthly, in or towards payment pro rata of any other sum due but unpaid under the Finance Documents.
- (b) The Agent shall, if so directed by the Majority Lenders, vary the order set out in paragraphs (a)(ii) to (iv) above.
- (c) Paragraphs (a) and (b) above will override any appropriation made by the Borrower.

26.6 No set-off by the Borrower

All payments to be made by the Borrower under the Finance Documents shall be calculated and be made without (and free and clear of any deduction for) set-off or counterclaim.

26.7 Business Days

- (a) Any payment which is due to be made on a day that is not a Business Day shall be made on the next Business Day in the same calendar month (if there is one) or the preceding Business Day (if there is not).
- (b) During any extension of the due date for payment of any principal or Unpaid Sum under this Agreement interest is payable on the principal or Unpaid Sum at the rate payable on the original due date.

26.8 Currency of account

- (a) Subject to paragraphs (b) to (e) below, United States dollars is the currency of account and payment for any sum due from the Borrower under any Finance Document.
- (b) A repayment of a Loan or Unpaid Sum or a part of a Loan or Unpaid Sum shall be made in the currency in which that Loan or Unpaid Sum is denominated on its due date.
- (c) Each payment of interest shall be made in the currency in which the sum in respect of which the interest is payable was denominated when that interest accrued.
- (d) Each payment in respect of costs, expenses or Taxes shall be made in the currency in which the costs, expenses or Taxes are incurred.
- (e) Any amount expressed to be payable in a currency other than United States dollars shall be paid in that other currency.

26.9 Change of currency

- (a) Unless otherwise prohibited by law, if more than one currency or currency unit are at the same time recognised by the central bank of any country as the lawful currency of that country, then:
- (i) any reference in the Finance Documents to, and any obligations arising under the Finance Documents in, the currency of that country shall be translated into, or paid in, the currency or currency unit of that country designated by the Agent (after consultation with the Borrower); and
 - (ii) any translation from one currency or currency unit to another shall be at the official rate of exchange recognised by the central bank for the conversion of that currency or currency unit into the other, rounded up or down by the Agent (acting reasonably).
- (b) If a change in any currency of a country occurs, this Agreement will, to the extent the Agent (acting reasonably and after consultation with the Borrower) specifies to be necessary, be amended to comply with any generally accepted conventions and market practice in the London interbank market and otherwise to reflect the change in currency.

27. SET-OFF

A Finance Party may set off any matured obligation due from the Borrower under the Finance Documents (to the extent beneficially owned by that Finance Party) against any matured obligation owed by that Finance Party to the Borrower, regardless of the place of payment, booking branch or currency of either obligation. If the obligations are in different currencies, the Finance Party may convert either obligation at a market rate of exchange in its usual course of business for the purpose of the set-off.

28. NOTICES

28.1 Communications in writing

Any communication to be made under or in connection with the Finance Documents shall be made in writing and, unless otherwise stated, may be made by fax or letter.

28.2 Addresses

The address and fax number (and the department or officer, if any, for whose attention the communication is to be made) of each Party for any communication or document to be made or delivered under or in connection with the Finance Documents is:

- (a) in the case of the Borrower, that identified with its name below;
- (b) in the case of each Lender, that notified in writing to the Agent on or prior to the date on which it becomes a Party; and
- (c) in the case of the Agent, that identified with its name below,

or any substitute address, fax number or department or officer as the Party may notify to the Agent (or the Agent may notify to the other Parties, if a change is made by the Agent) by not less than 5 Business Days' notice.

28.3 Delivery

- (a) Subject to Clause 28.3, any communication or document made or delivered by one person to another under or in connection with the Finance Documents will only be effective:
 - (i) if by way of fax, when received in legible form; or
 - (ii) if by way of letter, when it has been left at the relevant address or 10 Business Days after being deposited in the post postage prepaid in an envelope addressed to it at that address,

and, if a particular department or officer is specified as part of its address details provided under Clause 28.2 (*Addresses*), if addressed to that department or officer.

- (b) Any communication or document to be made or delivered to the Agent will be effective only when actually received by the Agent and then only if it is expressly marked for the attention of the department or officer identified with the Agent's signature below (or any substitute department or officer as the Agent shall specify for this purpose).
- (c) All notices from or to the Borrower shall be sent through the Agent.

28.4 Notification of address and fax number

Promptly upon receipt of notification of an address and fax number or change of address or fax number pursuant to Clause 28.2 (*Addresses*) or changing its own address or fax number, the Agent shall notify the other Parties.

28.5 Electronic communication

- (a) Any communication to be made between the Agent and a Lender under or in connection with the Finance Documents may be made by electronic mail or other electronic means, if the Agent and the relevant Lender:
 - (i) agree that, unless and until notified to the contrary, this is to be an accepted form of communication;
 - (ii) notify each other in writing of their electronic mail address and/or any other information required to enable the sending and receipt of information by that means; and
 - (iii) notify each other of any change to their address or any other such information supplied by them.
- (b) Any electronic communication made between the Agent and a Lender will be effective only when actually received in readable form and in the case of any electronic communication made by a Lender to the Agent only if it is addressed in such a manner as the Agent shall specify for this purpose.

28.6 English language

- (a) Any notice given under or in connection with any Finance Document must be in English.
- (b) All other documents provided under or in connection with any Finance Document must be:
 - (i) in English; or

- (ii) if not in English, and if so required by the Agent, accompanied by a certified English translation and, in this case, the English translation will prevail unless the document is a constitutional, statutory or other official document.

29. CALCULATIONS AND CERTIFICATES

29.1 Accounts

In any litigation or arbitration proceedings arising out of or in connection with a Finance Document, the entries made in the accounts maintained by a Finance Party are prima facie evidence of the matters to which they relate.

29.2 Certificates and Determinations

Any certification or determination by a Finance Party of a rate or amount under any Finance Document is, in the absence of manifest error, conclusive evidence of the matters to which it relates.

29.3 Day count convention

Any interest, commission or fee accruing under a Finance Document will accrue from day to day and is calculated on the basis of the actual number of days elapsed and a year of 360 days or, in any case where the practice in the London interbank market differs, in accordance with that market practice.

30. PARTIAL INVALIDITY

If, at any time, any provision of the Finance Documents is or becomes illegal, invalid or unenforceable in any respect under any law of any jurisdiction, neither the legality, validity or enforceability of the remaining provisions nor the legality, validity or enforceability of such provision under the law of any other jurisdiction will in any way be affected or impaired.

31. REMEDIES AND WAIVERS

No failure to exercise, nor any delay in exercising, on the part of any Finance Party, any right or remedy under the Finance Documents shall operate as a waiver, nor shall any single or partial exercise of any right or remedy prevent any further or other exercise or the exercise of any other right or remedy. The rights and remedies provided in this Agreement are cumulative and not exclusive of any rights or remedies provided by law.

32. AMENDMENTS AND WAIVERS

32.1 Required consents

(a) Subject to:

- (i) applicable Ghanaian law; and
- (ii) Clause 32.2 (*Exceptions*) any term of the Finance Documents may be amended or waived only with the consent of the Majority Lenders and the Borrower and any such amendment or waiver will be binding on all Parties.

- (b) The Agent may effect, on behalf of any Finance Party, any amendment or waiver permitted by this Clause.

32.2 Exceptions

- (a) An amendment or waiver that has the effect of changing or which relates to:
- (i) the definition of "Majority Lenders" in Clause 1.1 (*Definitions*);
 - (ii) an extension to the date of payment of any amount under the Finance Documents;
 - (iii) a reduction in the Margin or a reduction in the amount of any payment of principal, interest, fees or commission payable;
 - (iv) an increase in or an extension of any Commitment;
 - (v) a change to the Borrower;
 - (vi) any provision which expressly requires the consent of all the Lenders; or
 - (vii) Clause 2.2 (*Finance Parties' rights and obligations*), Clause 21 (*Changes to the Lenders*), Clause 25 (*Sharing among the Finance Parties*) or this Clause 32,
- shall not be made without the prior consent of all the Lenders.
- (b) An amendment or waiver that has the effect of changing or which relates to the Sinasure Insurance Policy (except any amendment which is (i) of a minor or technical nature; (ii) is made to correct a manifest error; and (iii) does not affect the validity of the Sinasure Insurance Policy) shall not be made without the prior consent of the Insured and all the Lenders.
- (c) An amendment or waiver which relates to the rights or obligations of the Agent or the Arranger (each in their capacity as such) may not be effected without the consent of the Agent or, as the case may be, the Arranger.

33. CONFIDENTIALITY

33.1 Confidential Information

Each Finance Party agrees to keep all Confidential Information confidential and not to disclose it to anyone, save to the extent permitted by Clause 33.2 (*Disclosure of Confidential Information*) and Clause 33.3 (*Disclosure to numbering service providers*), and to ensure that all Confidential Information is protected with security measures and a degree of care that would apply to its own confidential information.

33.2 Disclosure of Confidential Information

Any Finance Party may disclose:

- (a) to any of its Affiliates, Related Funds, head office and any other branch and any of its or their officers, directors, employees, professional advisers, auditors, partners and Representatives such Confidential Information as that Finance Party shall consider appropriate if any person to whom the Confidential Information is to be given pursuant to this paragraph (a) is informed in writing of its confidential nature and that some or all of such Confidential Information may be price-sensitive information except that there shall be

no such requirement to so inform if the recipient is subject to professional obligations to maintain the confidentiality of the information or is otherwise bound by requirements of confidentiality in relation to the Confidential Information;

(b) to Sinosure or to any person:

- (i) to (or through) whom it assigns or transfers (or may potentially assign or transfer) all or any of its rights and/or obligations under one or more Finance Documents and to any of that person's Affiliates, Related Funds, Representatives and professional advisers;
- (ii) with (or through) whom it enters into (or may potentially enter into), whether directly or indirectly, any sub-participation in relation to, or any other transaction under which payments are to be made or may be made by reference to, one or more Finance Documents and/or the Borrower and to any of that person's Affiliates, Related Funds, Representatives and professional advisers;
- (iii) appointed by any Finance Party or by a person to whom paragraph (b)(i) or (b)(ii) above applies to receive communications, notices, information or documents delivered pursuant to the Finance Documents on its behalf (including, without limitation, any person appointed under paragraph (b) of Clause 23.14 (*Relationship with the Lenders*));
- (iv) who invests in or otherwise finances (or may potentially invest in or otherwise finance), directly or indirectly, any transaction referred to in paragraph (b)(i) or (b)(ii) above;
- (v) to whom information is required or requested to be disclosed by any court of competent jurisdiction or any governmental, banking, taxation or other regulatory authority or similar body, the rules of any relevant stock exchange or pursuant to any applicable law or regulation;
- (vi) to whom or for whose benefit that Finance Party charges, assigns or otherwise creates Security (or may do so) pursuant to Clause 21.9 (*Security over Lenders' rights*);
- (vii) to whom information is required to be disclosed in connection with, and for the purposes of, any litigation, arbitration, administrative or other investigations, proceedings or disputes;
- (viii) who is a Party; or
- (ix) with the consent of the Borrower;

in each case, such Confidential Information as that Finance Party shall consider appropriate if:

- (A) in relation to paragraphs (b)(i), (b)(ii) and (b)(iii) above, the person to whom the Confidential Information is to be given has entered into a Confidentiality Undertaking except that there shall be no requirement for a Confidentiality Undertaking if the recipient is a professional adviser and is subject to

professional obligations to maintain the confidentiality of the Confidential Information;

(B) in relation to paragraph (b)(iv) above, the person to whom the Confidential Information is to be given has entered into a Confidentiality Undertaking or is otherwise bound by requirements of confidentiality in relation to the Confidential Information they receive and is informed that some or all of such Confidential Information may be price-sensitive information;

(C) in relation to paragraphs (b)(v), (b)(vi) and (b)(vii) above, the person to whom the Confidential Information is to be given is informed of its confidential nature and that some or all of such Confidential Information may be price-sensitive information except that there shall be no requirement to so inform if, in the opinion of that Finance Party, it is not practicable so to do in the circumstances;

- (c) to any person appointed by that Finance Party or by a person to whom paragraph (b)(i) or (b)(ii) above applies to provide administration or settlement services in respect of one or more of the Finance Documents including without limitation, in relation to the trading of participations in respect of the Finance Documents, such Confidential Information as may be required to be disclosed to enable such service provider to provide any of the services referred to in this paragraph (c) if the service provider to whom the Confidential Information is to be given has entered into a confidentiality agreement substantially in the form of the LMA Master Confidentiality Undertaking for Use With Administration/Settlement Service Providers or such other form of confidentiality undertaking agreed between the Borrower and the relevant Finance Party;
- (d) to any rating agency (including its professional advisers) such Confidential Information as may be required to be disclosed to enable such rating agency to carry out its normal rating activities in relation to the Finance Documents, any Finance Party and/or the Borrower if the rating agency to whom the Confidential Information is to be given is informed of its confidential nature and that some or all of such Confidential Information may be price-sensitive information.

33.3 Disclosure to numbering service providers

- (a) Any Finance Party may disclose to any national or international numbering service provider appointed by that Finance Party to provide identification numbering services in respect of this Agreement, the Facility and/or the Borrower the following information:
- (i) names of Borrower;
 - (ii) country of domicile of Borrower;
 - (iii) place of incorporation of Borrower;
 - (iv) date of this Agreement;
 - (v) the names of the Agent and the Arranger;
 - (vi) date of each amendment and restatement of this Agreement;

- (vii) amount of Total Commitments;
- (viii) currencies of the Facility;
- (ix) type of Facility;
- (x) ranking of Facility;
- (xi) Termination Date for the Facility;
- (xii) changes to any of the information previously supplied pursuant to paragraphs (i) to (xi) above; and
- (xiii) such other information agreed between such Finance Party and the Borrower,

to enable such numbering service provider to provide its usual syndicated loan numbering identification services.

- (b) The Parties acknowledge and agree that each identification number assigned to this Agreement, the Facility and/or the Borrower by a numbering service provider and the information associated with each such number may be disclosed to users of its services in accordance with the standard terms and conditions of that numbering service provider.
- (c) The Borrower represents that none of the information set out in paragraphs (i) to (xiii) of paragraph (a) above is, nor will at any time be, unpublished price-sensitive information.
- (d) The Agent shall notify the Borrower and the other Finance Parties of:
 - (i) the name of any numbering service provider appointed by the Agent in respect of this Agreement, the Facility and/or the Borrower; and
 - (ii) the number or, as the case may be, numbers assigned to this Agreement, the Facility and/or the Borrower by such numbering service provider.

33.4 Entire agreement

This Clause 33 (*Confidentiality*) and Clause 23.13 (*Confidentiality*) constitute the entire agreement between the Parties in relation to the obligations of the Finance Parties under the Finance Documents regarding Confidential Information and supersedes any previous agreement, whether express or implied, regarding Confidential Information.

33.5 Inside information

Each of the Finance Parties acknowledges that some or all of the Confidential Information is or may be price-sensitive information and that the use of such information may be regulated or prohibited by applicable legislation including securities law relating to insider dealing and market abuse and each of the Finance Parties undertakes not to use any Confidential Information for any unlawful purpose.

33.6 Notification of disclosure

Each of the Finance Parties agrees (to the extent permitted by law and regulation) to inform the Borrower:

- (a) of the circumstances of any disclosure of Confidential Information made pursuant to paragraph (b)(v) of Clause 33.2 (*Disclosure of Confidential Information*) except where such disclosure is made to any of the persons referred to in that paragraph during the ordinary course of its supervisory or regulatory function; and
- (b) upon becoming aware that Confidential Information has been disclosed in breach of this Clause 33 (*Confidentiality*).

33.7 Continuing obligations

The obligations in this Clause 33 (*Confidentiality*) are continuing and, in particular, shall survive and remain binding on each Finance Party for a period of 12 months from the earlier of:

- (a) the date on which all amounts payable by the Borrower under or in connection with this Agreement have been paid in full and all Commitments have been cancelled or otherwise cease to be available; and
- (b) the date on which such Finance Party otherwise ceases to be a Finance Party.

34. COUNTERPARTS

Each Finance Document may be executed in any number of counterparts, and this has the same effect as if the signatures on the counterparts were on a single copy of the Finance Document.

SECTION 11

GOVERNING LAW AND ENFORCEMENT

35. GOVERNING LAW

This Agreement and any non-contractual obligations arising out of or in connection with it are governed, interpreted and enforced by English law.

36. ENFORCEMENT

36.1 Jurisdiction

- (a) Any dispute arising out of or in connection with this Agreement (including a dispute regarding the existence, validity or termination of this Agreement or this Clause 36 or any non-contractual obligation arising out of or in connection with this Agreement) (a "Dispute") shall be resolved by arbitration in London, England at the London Court of International Arbitration ("LCIA") conducted in the English language by 3 arbitrators pursuant to the LCIA Rules save that, unless the Parties agree otherwise, the third arbitrator, who shall act as chairman of the tribunal, shall be nominated by the two arbitrators nominated by or on behalf of the Parties. If not so nominated within 30 days of the date of nomination of the later of the two Party-nominated arbitrators to be nominated, the third arbitrator shall be chosen by the LCIA. No arbitrator shall be of the same nationality as any Party.
- (b) The following shall apply to any disputes arising out of or in connection with this Agreement and out of or in connection with any other Finance Document in respect of which a request for arbitration has been served. In relation to any such disputes if, in the absolute discretion of the first arbitral tribunal to be appointed in any of the disputes, they are so closely connected that it is expedient for them to be resolved in the same proceedings, that arbitral tribunal shall have the power to order that the proceedings to resolve that dispute shall be consolidated with those to resolve any of the other disputes, provided that no date for the final hearing of the first arbitration has been fixed. If that arbitral tribunal so orders, the parties to each dispute which is a subject of its order shall be treated as having consented to that dispute being finally decided:
 - (i) by the arbitral tribunal that ordered the consolidation unless the LCIA decides that that arbitral tribunal would not be suitable or impartial; and
 - (ii) in accordance with the procedure, at the seat and in the language specified in the relevant Finance Document under which the arbitral tribunal that ordered the consolidation was appointed, save as otherwise agreed by all parties to the consolidated proceedings or, in the absence of any such agreement, ordered by the arbitral tribunal in the consolidated proceedings.

36.2 Service of process

Without prejudice to any other mode of service allowed under any relevant law, the Borrower:

- (a) irrevocably appoints the Ghana High Commission at 13 Belgrave Square, London SW1X 8PN as its agent for service of process in relation to any proceedings in connection with any Finance Document; and

- (b) agrees that failure by a process agent to notify the Borrower of the process will not invalidate the proceedings concerned.

36.3 Consent to enforcement etc.

The Borrower irrevocably and generally consents in respect of any proceedings anywhere to the giving of any relief or the issue of any process in connection with those proceedings including, without limitation, the making, enforcement or execution against any assets whatsoever (other than Ghanaian Assets) of any order or judgment which may be made or given in those proceedings.

36.4 Waiver of immunity

The Borrower irrevocably waives any claim to immunity in relation to any arbitration or court proceedings arising out of or connected with this Agreement, including without limitation, immunity from:

- (i) jurisdiction of any court or tribunal;
- (ii) service of process;
- (iii) injunctive or other interim relief, or any order for specific performance or recovery of land; and
- (iv) any process for execution of any award or judgment against its property (other than Ghanaian Assets).

In addition, in respect of any proceedings arising out of or connected with the enforcement and/or execution of any award or judgment made against it, the Borrower hereby submits to the jurisdiction of any court in which any such proceedings are brought.

36.5 Waiver of trial by jury

EACH PARTY WAIVES ANY RIGHT IT MAY HAVE TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION IN CONNECTION WITH ANY FINANCE DOCUMENT OR ANY TRANSACTION CONTEMPLATED BY ANY FINANCE DOCUMENT. THIS AGREEMENT MAY BE FILED AS A WRITTEN CONSENT TO TRIAL BY COURT.

This Agreement has been entered into on the date stated at the beginning of this Agreement.

**SCHEDULE 1
THE ORIGINAL LENDERS**

Name of Original Lenders	Commitment (U.S.\$)
INDUSTRIAL AND COMMERCIAL BANK OF CHINA LIMITED	Not exceeding 47,687,510.18
and,	
BANK OF CHINA	Not exceeding 47,687,510.18

SCHEDULE 2

CONDITIONS PRECEDENT

1. The Borrower

- (a) A Certificate of Incumbency and Authority issued by the Minister of Finance of Ghana, naming the person(s) authorised to execute the Finance Documents and all other documents ancillary thereto (including, without limitation, a specimen of the signature of each person so authorised) on behalf of the Borrower.
- (b) Documentary evidence that the Chinese Supplier and the Buyer have entered into relevant amendment agreement/addendum to the Commercial Contract.
- (c) Documentary evidence of the approval of the Parliament of Ghana (including, without limitation, the approval of the entry into and performance by the Borrower of the Finance Documents and the approval of the entry into and performance by the Buyer of the Commercial Contract (as amended by any amendment agreement/addendum signed by and between the Chinese Supplier and the Buyer in relation to the Project).
- (d) A certificate of an authorised signatory of the Borrower certifying that each copy document relating to it specified in this Schedule 2 is correct, complete and in full force and effect as at a date no earlier than the date of this Agreement.

2. Authorisations

Evidence satisfactory to the Agent that all other Authorisations required by any law or regulation of Ghana, China or England or otherwise in order to:

- (a) enable the Borrower lawfully to enter into, exercise their respective rights and perform and comply with their respective obligations under the Finance Documents to which it is a party;
- (b) ensure that those obligations are legally binding and enforceable upon the Borrower; and
- (c) make those Finance Documents admissible in evidence in the courts of Ghana, China and England,

have been or will be obtained, fulfilled and done.

3. Legal opinions

- (a) A legal opinion of Hunton Andrews Kurth LLP, legal advisers to the Arranger and the Agent as to the laws of England and Wales, substantially in the form distributed to the Original Lenders prior to signing this Agreement.
- (b) A legal opinion of Bentsi-Enchill, Letsa&Ankomah, legal advisers to the Arranger and the Agent as to the laws of Ghana, substantially in the form distributed to the Original Lenders prior to signing this Agreement.
- (c) A legal opinion of the Attorney General of Ghana, substantially in the form distributed to the Original Lenders prior to signing this Agreement.

4. Transaction Documents

Each of the following documents, duly executed by the parties thereto:

- (a) this Agreement;
- (b) each Fee Letter; and
- (c) the Commercial Contract.

5. Other documents and evidence

- (a) Evidence that any process agent referred to in Clause 36.2 (*Service of process*), has accepted its appointment.
- (b) Evidence that the fees, costs and expenses then due from the Borrower pursuant to Clause 11 (*Fees*) have been paid or will be paid by the first Utilisation Date.
- (c) Evidence that any stamp duty payable on the Transaction Documents pursuant to the laws of Ghana and China has been fully paid by the Borrower.
- (d) Except in relation to the first Utilisation Request and the payment of the Sinosure Premium, evidence that the Sinosure Insurance Policy has been issued and is in full force and effect.
- (e) Except in relation to the first Utilisation Request and the payment of the Sinosure Premium, a copy of the Supplier Certificate issued to the Agent in the form set out in Schedule 3 Part II (or evidence otherwise satisfactory to the Agent).
- (f) Evidence of receipt by the Chinese Supplier of the Advance Payment.
- (g) Confirmation that the Finance Parties have completed all "know your customer" checks required by law or regulation to be undertaken by them in relation to the Borrower.
- (h) The Lender has obtained all necessary foreign exchange approvals from the People's Bank of China.
- (i) Confirmation that all approvals, authorisations and consents required in the Republic of Ghana in relation to the Commercial Contract (including, but not limited to, the approval of the Parliament of Ghana, Public Procurement Authority Approval and any Ministry of Finance approval and/or document) have been obtained and are effective.
- (j) A copy of the Financial Advisory Agreement and a confirmation letter in relation thereto.
- (k) A copy of any other Authorisation or other document, opinion or assurance which the Agent considers to be necessary or desirable (if it has notified the Borrower accordingly) in connection with the entry into and performance of the transactions contemplated by any Transaction Document or for the validity and enforceability of any Transaction Document.

SCHEDULE 3

REQUESTS
PART I
UTILISATION REQUEST

From: The Republic of Ghana acting through and represented by the Ministry of Finance

To: Industrial and Commercial Bank of China Limited

Dated:

Dear Sirs

The Republic of Ghana acting through and represented by the Ministry of Finance - Facility Agreement dated [] (the "Agreement") in an amount not exceeding U.S.\$95,375,020.36

1. We refer to the Agreement. This is a Utilisation Request. Terms defined in the Agreement have the same meaning in this Utilisation Request unless given a different meaning in this Utilisation Request.
2. We wish to borrow a Loan on the following terms:

Proposed Utilisation Date: [] or, if that is not a Business Day, the next Business Day)

Amount: [] or, if less, the Available Facility
3. Please make a Utilisation of the above mentioned amount to:

[account number of the Chinese Supplier] / [account number of Sinosure] in the name of [Chinese Supplier] / [Sinosure].
4. We enclose herewith the Supplier Certificate (and all attachments thereto).
5. We confirm that each condition specified in Clause 4.2 (*Further conditions precedent*) is satisfied on the date of this Utilisation Request.
6. This Utilisation Request is irrevocable.

Yours faithfully

.....

authorised signatory for

The Republic of Ghana acting through and represented by the Ministry of Finance

PART II
SUPPLIER CERTIFICATE

From: [Chinese Supplier]

To: Industrial and Commercial Bank of China Limited as Agent

Dated: []

Dear Sirs

The Republic of Ghana acting through and represented by the Ministry of Finance - Facility Agreement dated [] (the "Agreement") in an amount not exceeding U.S.\$95,375,020.36

1. We refer to the Agreement. We understand that the Borrower has requested a drawing of a Loan under the Agreement to finance a payment due in respect of the following invoices [*insert the relevant invoice numbers*] (each an "Invoice", and together the "Invoices"), and we give this certificate in connection with the Borrower's requested drawing. Terms defined in the Agreement shall have the same meaning in this Supplier Certificate.
2. We refer to [*insert details of the Commercial Contract*] (the "**Commercial Contract**") and the Invoices. Each Invoice showing the total invoice amount and invoice due date is attached to this certificate together with the following supporting documents in respect of such Invoice:
 - either
 - (i) if such Invoice relates to a supply of Materials (as such term is defined in the Commercial Contract):
 - (a) complete set of bill of lading and airway bill;
 - (b) copy of packing list;
 - (c) copy of inspection certificate; and
 - (d) certificate of origin;
 - or
 - (ii) if such Invoice relates to installation of a Section (as such term is defined in the Commercial Contract):
 - (a) details of the Section which has been completed, tested and commissioned; and
 - (b) taking-over certificate of the relevant Section issued by the Buyer's representative confirming the payment due and specifying the amount.
3. We hereby confirm that we have received (other than from the proceeds of a Loan) the Advance Payment.
4. We hereby confirm that:
 - (a) the Eligible Goods and Services in respect of the Invoices were supplied or provided [on []]/[during the period [] to []]; and
 - (b) not less than 60 per cent. of the Eligible Goods and Services in respect of the fixed lump sum price of the Commercial Contract is of Chinese origin,

and, in support of this paragraph 4, we attach:

- (i) a list setting out the details of such Eligible Goods and Services; and
 - (ii) export documents duly presented to the Chinese customs authorities.
5. The amount requested under the Utilisation Request to which this Supplier Certificate is attached relates to the Eligible Goods and Services set out in paragraph 4 above with origin and source in accordance with our declaration to and as agreed by Sinasure.
6. We hereby warrant that:
- (a) the Commercial Contract is legal, valid and binding, has not been terminated or materially amended or waived to the extent it may have an impact on the Sinasure Insurance Policy issued or to be issued in connection with the deliveries under the Commercial Contract and we have not taken any action intended to lead to a termination of [future deliveries under the Commercial Contract];
 - (b) [the Eligible Goods and Services [supplied and/or provided] under the Commercial Contract are [manufactured by and/or rendered by] [us];] and
 - (c) we have obtained in relation to each Invoice our authorisations, consents or approvals from the relevant authorities if and when required.
7. This Supplier Certificate is irrevocable.

For and on behalf of [Chinese Supplier]

Name:

Title:

SCHEDULE 4
FORM OF TRANSFER CERTIFICATE

To: Industrial and Commercial Bank of China Limited as Agent

From: [] (the "Existing Lender") and [] (the "New Lender")

Dated:

The Republic of Ghana acting through and represented by the Ministry of Finance - Facility Agreement dated [] (the "Agreement") in an amount not exceeding U.S.\$95,375,020.36

1. We refer to the Agreement. This is a Transfer Certificate. Terms defined in the Agreement have the same meaning in this Transfer Certificate unless given a different meaning in this Transfer Certificate.
2. We refer to Clause 21.6 (*Procedure for transfer*):
 - (a) The Existing Lender and the New Lender agree to the Existing Lender transferring to the New Lender by novation all or part of the Existing Lender's Commitment, rights and obligations referred to in the Schedule in accordance with Clause 21.6 (*Procedure for transfer*).
 - (b) The proposed Transfer Date is [].
 - (c) The Facility Office and address, fax number and attention details for notices of the New Lender for the purposes of Clause 28.2 (*Addresses*) are set out in the Schedule.
3. The New Lender expressly acknowledges the limitations on the Existing Lender's obligations set out in paragraph (c) of Clause 21.5 (*Limitation of responsibility of Existing Lenders*).
4. This Transfer Certificate may be executed in any number of counterparts and this has the same effect as if the signatures on the counterparts were on a single copy of this Transfer Certificate.
5. This Transfer Certificate and any non-contractual obligations arising out of or in connection with it are governed by English law.
6. This Transfer Certificate has been entered into on the date stated at the beginning of this Transfer Certificate.

THE SCHEDULE
Commitment/rights and obligations to be transferred

[insert relevant details]

[Facility Office address, fax number and attention details for notices and account details for payments.]

[Existing Lender]

[New Lender]

By:

By:

This Transfer Certificate is accepted by the Agent and the Transfer Date is confirmed as [].

Industrial and Commercial Bank of China Limited

By:

SCHEDULE 5
FORM OF ASSIGNMENT AGREEMENT

To: Industrial and Commercial Bank of China Limited as Agent and The Republic of Ghana acting through and represented by the Ministry of Finance

From: [] (the "Existing Lender") and [] (the "New Lender")

Dated:

The Republic of Ghana acting through and represented by the Ministry of Finance - Facility Agreement dated [] (the "Agreement") in an amount not exceeding U.S.\$95,375,020.36

1. We refer to the Agreement. This is an Assignment Agreement. Terms defined in the Agreement have the same meaning in this Assignment Agreement unless given a different meaning in this Assignment Agreement.
2. We refer to Clause 21.7 (*Procedure for assignment*):
 - (a) The Existing Lender assigns absolutely to the New Lender all the rights of the Existing Lender under the Agreement and the other Finance Documents which relate to that portion of the Existing Lender's Commitments and participations in Loans under the Agreement as specified in the Schedule.
 - (b) The Existing Lender is released from all the obligations of the Existing Lender which correspond to that portion of the Existing Lender's Commitments and participations in Loans under the Agreement specified in the Schedule.
 - (c) The New Lender becomes a Party as a Lender and is bound by obligations equivalent to those from which the Existing Lender is released under paragraph (b) above.
3. The proposed Transfer Date is [].
4. On the Transfer Date the New Lender becomes Party to the Finance Documents as a Lender.
5. The Facility Office and address, fax number and attention details for notices of the New Lender for the purposes of Clause 28.2 (*Addresses*) are set out in the Schedule.
6. The New Lender expressly acknowledges the limitations on the Existing Lender's obligations set out in paragraph (c) of Clause 21.5 (*Limitation of responsibility of Existing Lenders*).
7. This Assignment Agreement acts as notice to the Agent (on behalf of each Finance Party) and, upon delivery in accordance with Clause 21.8 (*Copy of Transfer Certificate or Assignment Agreement to Borrower*), to the Borrower of the assignment referred to in this Assignment Agreement.
8. This Assignment Agreement may be executed in any number of counterparts and this has the same effect as if the signatures on the counterparts were on a single copy of this Assignment Agreement.
9. This Assignment Agreement and any non-contractual obligations arising out of or in connection with it are governed by English law.

10. This Assignment Agreement has been entered into on the date stated at the beginning of this Assignment Agreement.

THE SCHEDULE

Rights to be assigned and obligations to be released and undertaken

[insert relevant details]

[Facility Office address, fax number and attention details for notices and account details for payments.]

[Existing Lender]

[New Lender]

By:

By:

This Assignment Agreement is accepted by the Agent and the Transfer Date is confirmed as [].

Signature of this Assignment Agreement by the Agent constitutes confirmation by the Agent of receipt of notice of the assignment referred to herein, which notice the Agent receives on behalf of each Finance Party.

Industrial and Commercial Bank of China Limited

By:

SCHEDULE 6

TIMETABLES

"D – " refers to the number of Business Days before the relevant Utilisation Date/the first day of the relevant Interest Period.

Delivery of a duly completed Utilisation Request (Clause 5.1 (<i>Delivery of a Utilisation Request</i>))	D – 15 10:00 a.m. Beijing time
Agent notifies the Lenders of the Loan in accordance with Clause 5.6 (<i>Lenders' participation</i>)	D – 3 11:00 a.m. Beijing time
LIBOR is fixed	Quotation Day as of 11:00 a.m. London time

The Borrower[To be provided by Ghanaian MOF]

The Republic of Ghana acting through and represented by the Ministry of Finance

Address: Ministry of Finance
Ministries, P.O Box MB40
Accra
Ghana

Fax No: +233(0)302668016

Tel No: +233(0)302747197 ext. 1315 or
+233(0)302686150

Email:

Attention: Director, Debt Management Division

By: Name:
Title: Minister for Finance

_____(Signature)

The Arranger

Industrial and Commercial Bank of China Limited

By: Name: [To be provided by ICBC]

Title: Deputy General Manager of Banking Department

_____(Signature)

The Original Lenders

Industrial and Commercial Bank of China Limited

By: Name: [To be provided by ICBC]
 Title: Deputy General Manager of Banking Department

_____ (Signature)

Bank of China [To be provided by BOC]

By: Name:
 Title:

_____ (Signature)

The Insured

Industrial and Commercial Bank of China Limited

By: Name: [To be provided by ICBC]

Title: Deputy General Manager of Banking Department

_____(Signature)

Bank of China[To be provided by BOC]

By: Name:

Title:

_____(Signature)

The Agent

Industrial and Commercial Bank of China Limited

Address: No. 55, Fuxingmennei Avenue, Xicheng District, Beijing, China, 100140

Fax No: +86-10-81011270

Tel No: +86-10-81012455

Attention: Mr. Guo Kunming

By: Name: [To be provided by ICBC]

Title: Deputy General Manager of Banking Department

(Signature)

PARLIAMENT OF GHANA LIBRARY

2. Facility Agreement from Societe General Ghana Limited

FACILITY AGREEMENT

BETWEEN

SOCIETE GENERALE GHANA LIMITED
(hereinafter called "the Lender")

AND

THE MINISTRY OF FINANCE.
(hereinafter called "the Borrower")

In consideration of the Bank making available to the Borrower the following banking facilities: -

<u>1</u>	<u>TYPE OF FACILITY</u>	<u>LIMIT</u>
	Medium Term Loan	- US\$15,450,000.00
	[FIFTEEN MILLION FOUR HUNDRED AND FIFTY THOUSAND UNITED STATES DOLLARS]	

IT IS HEREBY AGREED AS FOLLOWS: -

2 DEFINITIONS AND INTERPRETATION

2.1 **Definitions**

2.2 "Agreement" has the meaning ascribed to it in this document.

2.3 "Banking Day" means a full day on which banks are open for business in Accra, Saturdays and Sundays and Public Holidays excluded.

2.4 "Borrower" means the Ministry of Finance

2.5 "Default" means an Event of Default or any event or circumstance specified in Clause 21 (*Event of Default*) which would (with the expiry of a grace period, the giving of notice, the making of any determination under the Document or any combination of any of the foregoing) be an Event of Default

2.6 "Dollar", "US Dollars" "USD" or "US\$" means the lawful currency for the time being of the United States of America

2.7 "Lender" means Societe Generale Ghana Limited (SGGH)

- 2.8 **"Maturity Date"** means date stated in clause 5
- 2.9 **"Sanctioned Person"** means any person who is a designated target of Sanctions or is otherwise a subject of Sanctions (including without limitation as a result of being (a) owned or controlled directly or indirectly by any person which is a designated target of Sanctions, or (b) organized under the laws of, or a citizen or resident of, any country that is subject to general or Country-wide Sanctions).
- 2.10 **"Sanctions"** means any economic or financial sanctions, trade embargoes or similar measures enacted, administered or enforced by any of the following (or by any agency of any of the following):
- (a) the United Nations;
 - (b) the United States of America; or
 - (c) the European Union or any present or future member state thereof.

2.11 **Interpretation**

Any reference to a provision of a law or regulation is a reference to that provision as the same may be amended or replaced

A **"person"** includes any individual, firm, company, corporation, government, state or agency of a state or any association, trust, joint venture, consortium, partnership or other entity (whether or not having separate legal personality).

Headings of Clauses, paragraphs and Schedules are given for ease of reference only and shall not be taken into account when interpreting this Agreement. Any term defined in the singular must be interpreted as having the same meaning in the plural and vice versa.

3 **Purpose**

The Borrower agrees and undertakes to use the proceeds of the facilities as follows: -

To support the Government of Ghana to provide up to fifteen per cent (15%) of the Commercial Contract with China International Water and Electric Corporation for the Second Phase of the Self-Help Electrification Program (SHEP).

The Borrower shall not use any of the proceeds from the facilities above in their entirety or partially, for repayment of long-term indebtedness or for any other purpose without the Bank's prior written consent.

4 **Repayment***

Repayment of the facilities shall be as follows: -

- 4.1 **Moratorium:** There shall be a one (1) year moratorium on the payment of both principal and interest.
- 4.2 **Ten (10) consecutive semi-annual payments of principal instalments of USD 1,545,000.00 each plus interest commencing on and ending in 2025. This would be paid in United States Dollars (USD).**

5 Maturity

5.1 The facility shall mature as follows: -

72 Months from the first drawdown.

5.2 However the Borrower agrees and undertakes to repay the outstanding debit balance on any account on demand or termination by the Bank.

6 Fees

A. Facility Management
0.50% flat

B. Arrangement Fee
0.75% per annum

C. Commitment Fee
0.75% flat

7.0 Interest Rate

7.1 A rate of 6 months USD Libor plus a margin of 4.50% shall apply to the Facility. The effective interest rate shall be determined in the date of first drawdown and shall be fixed for the tenor of the facility.

7.2 All Interest payable is to be computed on the basis of three hundred and sixty (360) days a year and actual days elapsed. **PROVIDED ALWAYS** that if any interest payable shall remain unpaid for one month, the interest in arrears shall be added to the total balance outstanding and shall thenceforth bear interest. It is hereby agreed that the interest rate applicable shall have effect before and after judgment.

8.0 Penal Interest

8.1 Without limiting the remedies available to the Bank under this agreement or otherwise, if the Borrower fails to make any payment of principal or interest payable (including interest payable pursuant to this section) or any other payment provided for in this agreement when due, the Borrower shall pay penalty interest at the rate 2% above the regular rate indicated ; and the interest shall accrue from the date the relevant payment became due until the date of actual payment (whether before or after judgment).

8.2 In the event the facility expires, any amount due and not paid shall attract a penal interest at a margin of 5% above the regular interest rate.

9.0 Source of repayment

9.1 The Facility shall be repaid from payments made from the Consolidated Fund of the Republic of Ghana.

10.0 Conditions Precedent

The Bank shall not disburse and the Borrower cannot utilize the banking facility granted herein unless the Borrower shall have submitted and Bank shall have received in a form and substance satisfactory to the Bank the following:

- i. Receipt of the Borrower's formal application for the facility
- ii. Executed SG Ghana Facility Agreement.
- iii. Submission of Parliamentary approval.
- iv. Certificate of the Borrower indicating its authorized signatories together with their specimen signatures.
- v. Evidence of payment of all fees due under the facility.
- vi. Execution of commercial agreement between China International Water and Electric Corporation (CWE) .

11.0 Conditions Subsequent

11.1 Borrower shall continuously make monthly servicing of principal and interest.

11.2 Submission by the Borrower of half-yearly Technical Construction Reports

12.0 Drawdown

12.1 The Borrower may request disbursement of the Facility by delivering to the Bank, at least ten (10) Business days prior to the proposed date of disbursement, a request signed by its authorized signatory indicating the exact date of drawdown and the Bank account to which the disbursed amount should be credited.

13.0 Availability

13.1 The Facility shall be available for a period of one (1) year from the date of execution of this agreement by which period the entire facility should have been drawn by the Borrower.

14.0 Prepayment

14.1 The Borrower may prepay on any repayment date all or part of the Facility on not less than thirty (30) days notice to the Bank subject to the payment of a prepayment penalty equal to five (5) per cent of the prepaid amount.

14.2 Any prepayment amount shall be for a minimum amount of one million United States Dollars (USD1,000,000) or in multiple amounts thereof.

15.0 Confidentiality

Unless otherwise required by applicable law, either party to this Agreement shall not disclose the terms and conditions of this agreement nor any confidential information made available to it pursuant to the terms of this Agreement PROVIDED THAT the Bank will make the information on this facility available to a Licensed Credit Bureau approved by the Bank of Ghana as required by the Credit Reporting Act 2007, Act 726 and any Sanctions Authority and also any default without satisfactory arrangement with the Bank shall be reported to the approved Licensed Credit Bureau and the Sanctions Authority after formal demand has been made on the Borrower in respect thereof.

The Bank is hereby authorized to also share information on this facility with its Parent Company, Societe Generale S.A or other subsidiaries within the said Group.

16.0 Representations and Warranties

16.1 The Borrower warrants to the Bank that: -

16.1.1 At the date of acceptance of this offer and execution of this agreement all information provided about its affairs as well as the covenants herein are true and correct in all material respects.

16.1.2 No event of default or potential default has occurred and is continuing.

16.1.3 It is not aware (actual or constructive) of any event that has occurred or is about to occur including but not limited to change in relevant regulations that may materially or adversely affect the Borrower's ability to perform its obligations hereunder.

16.1.4 It has power and authority to execute, deliver and perform its obligations under this agreement (and any related documents) and to use the facility; all necessary action has been taken (and not revoked) to authorize the execution, delivery and performance of this agreement (and any related document) and this agreement constitutes a legally valid and binding obligation enforceable in accordance with its terms.

16.1.5 Neither the Borrower, nor, to its knowledge, any officer, agent or employee is a Sanctioned Person.

16.1.6 **Sanctioned Person** means any natural person or entity who is a designated target of Sanctions or is otherwise a subject of Sanctions (including without limitation as a result of being (a) owned or controlled directly or indirectly by any person which is a designated target of Sanctions, or (b) organised under the laws of, or a citizen or resident of, any country that is subject to general or country-wide Sanctions).

16.1.7 **Sanctions** means any economic or financial sanctions, trade embargoes or similar measures enacted, administered or enforced by any of the following (or by any agency of any of the following):

- (a) the United Nations;
- (b) the United States of America; or
- (c) the European Union or any present or future Member State thereof.

17.0 Borrower's Undertakings

The Borrower shall, for the entire duration of the Facility:

(a) not directly or indirectly, use the proceeds of the Facility (or lend, contribute or otherwise make available such proceeds to any person) in any manner that would result in a violation of Sanctions by the Bank (including as a result of these proceeds having been used to fund or facilitate the business or transactions of a Sanctioned Person, or of a person associated therewith, or as a result of these funds having been made available to a Sanctioned Person or having benefited such person), and

(b) ensure that no person that is a Sanctioned Person will have any right to the funds repaid or remitted by the Borrower to the Bank in connection with the Facility, and that no revenue or benefit derived from any activity or transactions with a Sanctioned Person will be used to discharge amounts owing to the Bank in respect of the Facility.

18.0 Change In Circumstances (or equivalent Illegality)

- 18.1 If it is or becomes unlawful in any applicable jurisdiction for the Bank to perform any of its obligations as contemplated by this Contract or to fund, disburse or maintain its commitment under this Contract, or (B) if the Borrower is or becomes a Sanctioned Person:
- 18.2 the Bank shall (or, in the case of (B) above, may) promptly notify the Borrower upon becoming aware thereof;
- 18.3 upon the Bank notifying the Borrower (or, in the case of (B) above, if the Bank so specifies in its notice or any subsequent notice), the amount available under this Contract will be immediately cancelled; and
- 18.4 the Borrower shall (in the case of (B) above, if the Bank so specifies in its notice or any subsequent notice) repay the amounts owing under this Contract to the Bank on the date specified by the Bank in its notice.

19.0 Waiver

- 19.1 Notwithstanding that the Bank has sole discretion to waive any of the covenants herein, no delay or failure by the Bank in enforcing against the Borrower any term or condition of this agreement or no partial exercise by the Bank of any right hereunder shall be deemed to be a waiver of the rights of the Bank under this agreement.
- 19.2 No waiver or delay in exercising a right or remedy due to the Bank on any occasion should be construed as a waiver thereof subsequently.

20.0 Assignment

- 20.1 The Bank may: (1) assign any of its rights; or (2) transfer by any of its rights and obligations, under the agreement.
- 20.2 The Borrower cannot assign any of its rights, benefits nor obligations under the agreement without the prior written consent of the Bank (such consent not to be unreasonably withheld).

21.0 Termination/Suspension

- 21.1 The Bank has the right to terminate, suspend and/or call in the facility if the terms and conditions stipulated in this agreement are not met including:
- 21.2 Failure to pay any sum when due.
- 21.3 False or untrue representations and warranties made prior to and during the tenure of the facility.
- 21.4 Where the Bank has reason to believe that the Borrower may not be able to abide by the terms and conditions of the facility.
- 21.5 Failure to abide by any other covenant term or condition detailed in this agreement.

21.6 In the event of suspension the right of the Borrower to draw upon the facility shall continue to be suspended until the event which gave rise to such suspension shall have ceased to exist to the satisfaction of the Bank or until the Bank shall have notified the Borrower that the right to draw upon the facility has been restored.

21.7 Notwithstanding any suspension or termination pursuant to the above, all the provisions of this agreement shall continue in full force and effect to the benefit and protection of the Bank's interest.

22.0 Events Of Default

22.1 If at any time and for any reason, whether within or beyond the control of the Borrower, any of the following events should occur: -

22.2 Breach of any of the above covenants.

22.3 Occurrence of any default on the clauses contained in this Facility Agreement.

22.4 Any default in facility/loan repayments:

22.5 A false representation or breach of any undertaking:
It shall constitute a breach and the Bank reserves the right to call in the facility. Then, and in any such event, and at any time thereafter, if such event is continuing, the Bank may by notice in writing to the Borrower demand immediate repayment of the facility.

23.0 Demand

23.1 Without prejudice to the nature of the Facility and any rights the Bank may otherwise have the Bank may at any time with immediate effect by a notice in writing to the Borrower: -

23.2 cancel the facility whereupon no further utilization may be made of the facility; and/or

23.3 demand repayment of all monies outstanding (whether or not then otherwise due) under the facility; and/or

24.0 Set Off

In the event of the Borrower defaulting in the repayment terms or any other condition(s) in this agreement the Bank shall be at liberty to set off and apply any and all deposits (general or special, time or demand, provisional or final) at any time held or other indebtedness at any time owing by the Bank to or for the credit of the Borrower - against any and all of the obligations of the Borrower which may now or hereinafter exist under this agreement or any other Agreement and whether such deposit, indebtedness or obligations may be unmatured or contingent. The Bank's rights hereunder are in addition and without

prejudice to other rights and remedies including without limitation, other rights of set off which it may have.

25.0 Notices

25.1 Any notice or other communication to a party to this Agreement shall be made in writing and sent by swift, fax, international express courier or registered mail, or hand-delivered mail against receipt to the following addresses or swift and fax numbers:

For the Borrower:

Ministry of Finance
P.O Box M40
Accra
Republic of Ghana
Attention: Samuel Arkurst
Telephone: +233 302 661 358
Fax: +233 302 668 016
Email: irudmd@mofep.pov.gh/dirdmd@mofep.gov.gh

For the Lender:

Societe Generale Ghana Limited 2nd Crescent Royalt Castle Road
Kokomlemle, Ring Road Central, Accra

Attention: Daniel Sarpong
Telephone: +233 302 202037
Fax: +233 302 248920
Email: Daniel.Sarpong@socgen.com

Or such address, swift or fax number as that party may from time to time notify to the other party.

25.2 In the case of communications sent by swift or fax, such communications shall be deemed to have been received on the Banking Day following the date of transmission (provided they have been received in a legible form); in the case of international express courier or hand-delivered mail against receipt, such communications shall be deemed to have been received on the day they are received by the recipient; and, in the case of registered mail, such communications shall be deemed to have been received on the date they are tendered to the recipient.

25.3 All communications shall be in English.

25.4 Electronic communication

25.4.1 Any communication to be made between the Parties under or in connection with the Finance Documents may be made by electronic mail or other electronic means (including, without limitation, by way of posting to a secure website) if the Parties:

(A) Notify each other in writing of their electronic mail address and/or any other information required to enable the transmission of information by that means; and

(B) Notify each other of any change to their address or any other such information supplied by them by not less than five Banking Days' notice.

25.4.2 Any such electronic communication above to be made between the Borrower and the Lender may only be made in that way to the extent that the two Parties agree that, unless and until notified to the contrary, this is to be an accepted form of communication.

25.4.3 Any such electronic communication as specified above made between the two Parties will be effective only when actually received (or made available) in readable form. Any electronic communication which becomes effective, in accordance with the above, after 5.00pm shall be deemed only to become effective on the following day.

26.0 Miscellaneous

26.1 The Borrower shall promptly inform the Bank of the occurrence of any significant event likely to have a substantial effect on the Borrower's ability to service its indebtedness or on its continued financial viability.

26.2 The Borrower shall not use any of the proceeds from the facility/ies above in their entirety or partially, for purposes other than that stated in the Facility Offer Letter except with the prior written consent of the Bank.

27.0 GOVERNING LAW AND JURISDICTION

27.1 This Agreement and any non-contractual obligations connected with it are governed by Ghanaian law.

27.2 The courts of Ghana have exclusive jurisdiction to settle any dispute arising out of or in connection with this Agreement (including a dispute regarding the existence, validity or termination of this Agreement or any non-contractual obligations in connection with this Agreement) (a "Dispute").

27.3 The Parties agree that the courts of Ghana are the most appropriate and convenient courts to settle Disputes and, subject to the provisions below, no Party will argue to the contrary or initiate or pursue any proceedings relating to the Dispute in any jurisdiction other than Ghana.

27.4 Clause 26.3 is for the benefit of the Lender only. As a result, the Lender shall not be prevented from taking proceedings relating to a Dispute in any other courts with jurisdiction. To the extent allowed by law, the Lender may take concurrent proceedings in any number of jurisdictions.

28.0 Waiver Of Immunity

28.1 The Borrower irrevocably and unconditionally:

28.1.1 Agrees not to claim in any jurisdiction, for itself or in respect of its assets, immunity from suit, execution, attachment (whether in aid of execution, before judgment or otherwise) or other legal process and waives such present or future immunity, whether claimed or not:

28.1.2 Consents generally to the giving of any relief or the issue of any process in connection with any proceedings, including the making, enforcement or execution against any assets and property of any nature (irrespective of its use or intended use) of any award, order or judgment which may be made or given in any proceedings, Provided however, that the Borrower does not waive immunity in respect of assets and property to the extent that they are:

- (A) Protected by the diplomatic or consular privileges under the State Immunity Act of 1978; or
- (B) Military aircraft, naval vessels or other defence related assets; or
- (C) Petroleum assets to the extent that such waiver would be contrary to Ghanaian public laws.

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED THIS AGREEMENT ON THE DATE INDICATED BELOW

DATED THISDAY OF, 2019

SIGNED for and on behalf)
of the SOCIETE GENERALE GHANA)
LIMITED)

in the presence of:)

.....)

SIGNED for and on behalf)
of THE MINISTRY OF FINANCE (GHANA))

in the presence of:)

.....)

PARLIAMENT OF GUYANA

CONFIDENTIAL

3. Commercial Agreement

ADDENDUM NO. 3

BETWEEN



**GOVERNMENT OF GHANA
(MINISTRY OF ENERGY)**

AND



**CHINA INTERNATIONAL
WATER & ELECTRIC CORP.
(CWE)**

FOR

**THE SELF-HELP ELECTRIFICATION
PROGRAMME IN FIVE REGIONS--PHASE II**

MARCH, 2019

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ADDENDUM NO.3

THIS **ADDENDUM** is made this 21ST day of MARCH 2019

BETWEEN

THE GOVERNMENT OF THE REPUBLIC OF GHANA represented by the Ministry of Energy or its duly authorised representative(s), of P.O. Box SD 40 Ministries Post Office, Ministries, Accra, Ghana (hereinafter called the Employer) of the one part,

AND

CHINA INTERNATIONAL WATER AND ELECTRIC CORPORATION, a company duly incorporated under the laws of the People's Republic of China and having its principal place of business at No. 3 Liupukang Street, Xicheng District, Beijing 100011, China (the "Contractor") on the other part.

The Employer and Contractor are hereinafter jointly referred to as the "Parties" and individually as the "Party".

WHEREAS

1. The Employer and the Contractor executed a Commercial Contract Agreement (hereinafter called the "Commercial Contract") dated 30th December, 2013 for the Self Help Electrification Programme (SHEP) in Five Regions;
2. The Parties amended the Commercial Contract by the execution of an Addendum to the Commercial Contract dated 30th March, 2016 by which the implementation of the Commercial Contract and the Contract Price were split up into two (2) phases;
3. The Parties subsequently executed Addendum No. 2 to the Commercial Contract dated 11th April, 2016 by which clauses 7 and 14 of the Particular Conditions of the Commercial Contract were amended;
4. The implementation of phase one (1) of the Commercial Contract is expected to be completed in March, 2019; and,
5. The Parties have decided to implement the second phase (phase 2) of the Commercial Contract by the extension of electricity to Five Hundred and Eighty-Two (582) communities in thirty-eight (38) districts of the five (5) regions.

Handwritten signature

Handwritten initials

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. Definitions

Terms and expressions used in all previous contractual documents between the Parties shall have the same meaning in this Addendum unless otherwise defined herein.

2. Conditions of Contract

2.1 Clause 1 of Addendum No.2 is hereby amended to read "The following documents and Annexures to this Agreement shall be deemed to form and be read and construed as an integral part of this Contract, namely:

1. The Minutes of the Value for Money Negotiations
2. Addendum No.3
3. Addendum No. 2 dated 11th April, 2016
4. Addendum dated 30th March, 2016
5. The Contract Agreement
6. Particular Conditions of Contract
7. General Conditions of Contract, namely the FIDIC Conditions of Contract for EPC/Turnkey (1st Edition, 1999)
8. The Employer's Requirements
9. Public Procurement Authority's Approval on Single Sourcing
10. The Contractor's Offer
11. The Annexures to the Contract
12. Any other documents forming part of the Contract.

2.2 Clause 3 of Addendum No.2 which amended Paragraph 1 of Clause 14 (Contract Price and payment) of the Particular Conditions of Contract of the Commercial Contract is hereby amended to read as follows:

"The Employer shall pay to the Contractor as its fee for the Works, a total sum not to exceed One Hundred and Three Million United States Dollars (US\$ 103,000,000.00) for the implementation of phase 2 of the project in thirty-eight (38) districts of the five (5) regions.

CWA

- 2.3 Clause 2.2 of Addendum which amended Point 1 of Clause 14.4 (Schedule of Payments Advance Payment and Terms of Payment) of the Particular Conditions of Contract of the Commercial Contract is hereby amended to read as follows:

14.4 Schedule of Payments Advance Payment and Terms of Payment

1. Fifteen (15%) percent of the Contract Price shall be paid upon the satisfaction of all the conditions precedent stated in Clause 7 of the Commercial Agreement and as amended in the Addendum and Addendum NO. 2 save the condition on the issuance by Employer of the Advance Payment and receipt of the Employer of the Advance Payment Guarantee.

3. Implementation of the Project

The phase 2 of the project shall be implemented in thirty-eight (38) districts of the five (5) regions. The list of beneficiary communities are attached herewith as Annex (List of beneficiary Communities)

4. Effective Date


This Addendum No. 3 shall come into force upon its execution by the Parties.

5. Amendments/Waivers

5.1 The Parties agree that with the exception of terms and conditions of the Commercial Contract, Addendum and Addendum No. 2 specifically amended herein, the provisions of this Addendum shall not constitute a waiver, modification or amendment of the obligations and or any other terms and conditions stated in the Commercial Contract, Addendum, Addendum No.2 or in any other document and that the conditions and obligations as contained in the aforesaid document continue to be in full force and effect and to bind both the Employer and the Contractor herein.

5.2 Notwithstanding clause 5.1, either Party may initiate an amendment of any provision of the Commercial Agreement following a submission of the amendment proposal to the other Party.

5.3 No amendment of the Commercial Contract shall be valid unless it is in writing, is dated, expressly refers to the Commercial Contract, and is signed by a duly authorized representative of each party thereto.



1.1.1.1.1

6. **Governing Law**

This Addendum No.3 shall be governed in accordance with the laws of the Republic of Ghana.

IN WITNESS whereof the Parties hereto have caused this Addendum No. 3 to be executed the day and year first above written.

On behalf of the Employer

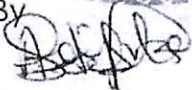
Signature: 

Name **MONICA ASARE (MRS)**

Title **ACT. CHIEF DIRECTOR**



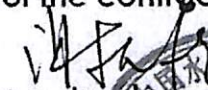
Witnessed By

Signature 

Name **SEYRAM W. ADABUA**

Title **SENIOR LEGAL COUNSEL**

On behalf of the contractor

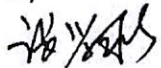
Signature 

Name **Xie Dany**

Title **Director of CWS**



Witnessed By

Signature 

Name **Zhong Xueli**

Title **Chief Accountant.**

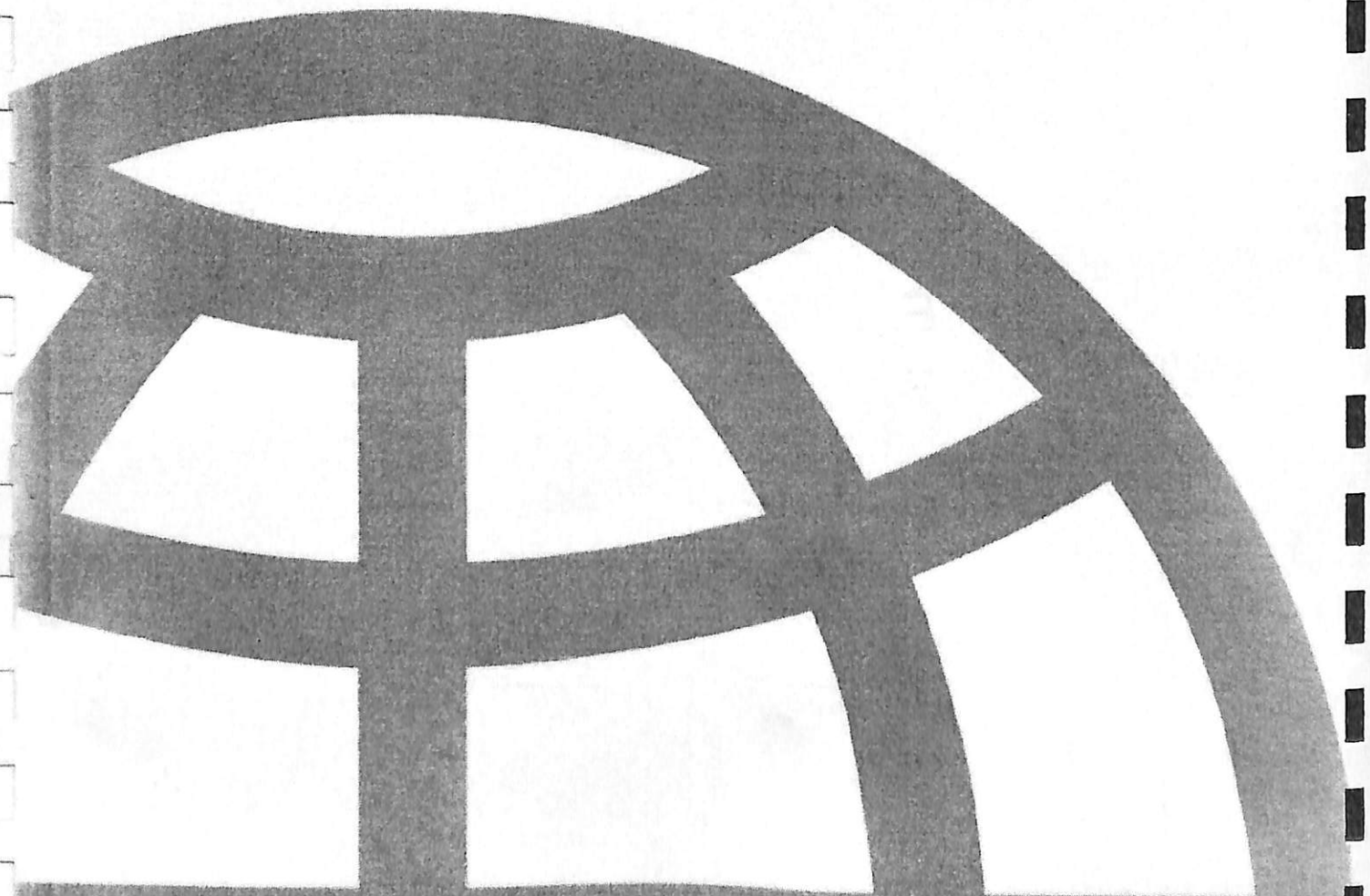


Fédération Internationale des Ingénieurs-Conseils
International Federation of Consulting Engineers
Internationale Vereinigung Beratender Ingenieure
Federación Internacional de Ingenieros Consultores

Conditions of Contract for **EPC/Turnkey Projects**

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GENERAL CONDITIONS
GUIDANCE FOR THE PREPARATION OF PARTICULAR CONDITIONS
FORMS OF LETTER OF TENDER, CONTRACT AGREEMENT AND
DISPUTE ADJUDICATION AGREEMENT



ISBN 2 - 88432 - 021 - 0

FIRST EDITION 1999



FIDIC is an international federation of national Member Associations of consulting engineers.

FIDIC was founded in 1913 by three national associations of consulting engineers within Europe. The objectives of forming the federation were to promote in common the professional interests of the Member Associations and to disseminate information of interest to their members. Today, FIDIC membership covers some 90 countries from all parts of the globe and encompassing most of the private practice consulting engineers.

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Published by
International Federation of Consulting Engineers (FIDIC)
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GENERAL CONDITIONS

**GUIDANCE FOR THE
PREPARATION OF
PARTICULAR CONDITIONS**

**FIDIC® Conditions of Contract
for EPC/Turnkey Projects**

**FORMS OF LETTER OF
TENDER, CONTRACT
AGREEMENT AND
DISPUTE ADJUDICATION
AGREEMENT**

First Edition 1999
ISBN 2-88432-021-0

FEDERATION INTERNATIONALE DES INGENIEURS-CONSEILS
INTERNATIONAL FEDERATION OF CONSULTING ENGINEERS
INTERNATIONALE VEREINIGUNG BERATENDER INGENIEURE
FEDERACION INTERNACIONAL DE INGENIEROS CONSULTORES



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Errata to the First Edition 1999 inside back cover

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INTRODUCTORY NOTE TO FIRST EDITION

FIDIC's Red and Yellow Books (i.e. standard forms of contract for works of civil engineering construction and for electrical and mechanical works) have been in widespread use for several decades, and have been recognised - among other things - for their principles of balanced risk sharing between the Employer and the Contractor. These risk sharing principles have been beneficial for both parties, the Employer signing a contract at a lower price and only having further costs when particular unusual risks actually eventuate, and the Contractor avoiding pricing such risks which are not easy to evaluate. The principles of balanced risk sharing are continued in the new "Construction" and "Plant and Design-Build" Books.

During recent years it has been noticed that much of the construction market requires a form of contract where certainty of final price, and often of completion date, are of extreme importance. Employers on such turnkey projects are willing to pay more - sometimes considerably more - for their project if they can be more certain that the agreed final price will not be exceeded. Among such projects can be found many projects financed by private funds, where the lenders require greater certainty about a project's costs to the Employer than is allowed for under the allocation of risks provided for by FIDIC's traditional forms of contracts. Often the construction project (the EPC - Engineer, Procure, Construct - Contract) is only one part of a complicated commercial venture, and financial or other failure of this construction project will jeopardize the whole venture.

For such projects it is necessary for the Contractor to assume responsibility for a wider range of risks than under the traditional Red and Yellow Books. To obtain increased certainty of the final price, the Contractor is often asked to cover such risks as the occurrence of poor or unexpected ground conditions, and that what is set out in the requirements prepared by the Employer actually will result in the desired objective. If the Contractor is to carry such risks, the Employer obviously must give him the time and opportunity to obtain and consider all relevant information before the Contractor is asked to sign on a fixed contract price. The Employer must also realize that asking responsible contractors to price such risks will increase the construction cost and result in some projects not being commercially viable.

Even under such contracts the Employer does carry certain risks such as the risks of war, terrorism and the like and the other risks of Force Majeure, and it is always possible, and sometimes advisable, for the Parties to discuss other risk sharing arrangements before entering into the Contract. In the case of BOT (Build-Operate-Transfer) type projects, which are normally negotiated as a package, the allocation of risk provided for in the turnkey construction Contract negotiated initially between the Sponsors and the EPC Contractor may need to be adjusted in order to take into account the final allocation of all risks between the various contracts forming the total package.

Apart from the more recent and rapid development of privately financed projects demanding contract terms ensuring increased certainty of price, time and performance, it has long been apparent that many employers, particularly in the public sector, in a wide range of countries have demanded similar contract terms, at least for turnkey contracts. They have often irreverently taken the FIDIC Red or Yellow Books and altered the terms so that risks placed on the Employer in the FIDIC Books have been transferred to the Contractor, thus effectively removing FIDIC's traditional principles of balanced risk sharing. This need of many employers has not gone unnoticed, and FIDIC has considered it better for all parties for this need to be openly recognised and regularised. By providing a standard FIDIC form for use in such contracts, the Employer's requirements for more risk to be taken by the Contractor are clearly stated. Thus the Employer does not have to attempt to alter a standard form intended for another risk arrangement, and the Contractor is fully aware of

the increased risks he must bear. Clearly the Contractor will rightly increase his tender price to account for such extra risks.

This form for EPC/Turnkey Projects is thus intended to be suitable, not only for EPC Contracts within a BOT or similar type venture, but also for all the many projects, both large and smaller, particularly E & M (Electrical and Mechanical) and other process plant projects, being carried out around the world by all types of employers, often in a civil law environment, where the government departments or private developers wish to implement their project on a fixed-price turnkey basis and with a strictly two party approach.

Employers using this form must realise that the "Employer's Requirements" which they prepare should describe the principle and basic design of the plant on a functional basis. The Tenderer should then be permitted and required to verify all relevant information and data and make any necessary investigations. He shall also carry out any necessary design and detailing of the specific equipment and plant he is offering, allowing him to offer solutions best suited to his equipment and experience. Therefore the tendering procedure has to permit discussions between the Tenderer and the Employer about technical matters and commercial conditions. All such matters, when agreed, shall then form part of the signed Contract.

Thereafter the Contractor should be given freedom to carry out the work in his chosen manner, provided the end result meets the performance criteria specified by the Employer. Consequently, the Employer should only exercise limited control over and should in general not interfere with the Contractor's work. Clearly the Employer will wish to know and follow progress of the work and be assured that the time programme is being followed. He will also wish to know that the work quality is as specified, that third parties are not being disturbed, that performance tests are met, and otherwise that the "Employer's Requirements" are being complied with.

A feature of this type of contract is that the Contractor has to prove the reliability and performance of his plant and equipment. Therefore special attention is given to the "Tests on Completion", which often take place over a considerable time period, and Taking Over shall take place only after successful completion of these tests.

FIDIC recognizes that privately-financed projects are usually subject to more negotiation than publicly-financed ones and that therefore changes are likely to have to be made in any standard form of contract proposed for projects within a BOT or similar type venture. Among other things, such form may need to be adapted to take account of the special, if not unique, characteristics of each project, as well as the requirements of lenders and others providing financing. Nevertheless, such changes do not do away with the need for a standard form.

These Conditions of Contract for EPC/Turnkey Projects are not suitable for use in the following circumstances:

- If there is insufficient time or information for tenderers to scrutinise and check the Employer's Requirements or for them to carry out their designs, risk assessment studies and estimating (taking particular account of Sub-Clauses 4.12 and 5.1).
- If construction will involve substantial work underground or work in other areas which tenderers cannot inspect.
- If the Employer intends to supervise closely or control the Contractor's work, or to review most of the construction drawings.
- If the amount of each interim payment is to be determined by an official or other intermediary.

FIDIC recommends that the Conditions of Contract for Plant and Design-Build be used in the above circumstances for Works designed by (or on behalf of) the Contractor.

ACKNOWLEDGEMENTS

Fédération Internationale des Ingénieurs-Conseils (FIDIC) extends special thanks to the following members of its Update Task Group: Christopher Wade (Group Leader), SWECO-VBB, Sweden; Peter L Booen (Principal Drafter), GIBB Ltd, UK; Hermann Bayerlein, Fichtner, Germany; Christopher R Seppala (Legal Adviser), White & Case, France; and José F Speziale, IATASA, Argentina.

The preparation was carried out under the general direction of the FIDIC Contracts Committee which comprised John B Bowcock, Consulting Engineer, UK (Chairman); Michael Mortimer-Hawkins, SwedPower, Sweden; and Axel-Volkmar Jaeger, Schmidt Reuter Partner, Germany; together with K B (Tony) Norris as Special Adviser.

Drafts were reviewed by many persons and organisations, including those listed below. Their comments were duly studied by the Update Task Group and, where considered appropriate, have influenced the wording of the clauses. Mushtaq Ahmad, NESPAK, Pakistan; Peter Batty, Post Buckley International, USA; Roeland Bertrams, Clifford Chance, Netherlands; Charles G Borthwick, SwedPower, Sweden; Manfred Breege, Lahmeyer International, Germany; Pablo Bueno, TYPSA, Spain; Nael G Bunni, Consulting Engineer, Ireland; Ian Fraser, Beca Carter Hollings & Ferner, New Zealand; Roy Goode, Oxford University, UK; Dan W Graham, Bristows Cooke & Carpmael, UK; Mark Griffiths, Griffiths & Armour, UK; Geoffrey F Hawker, Consulting Engineer, UK; Hesse & Steinberger, VDMA, Germany; Poul E Hvilsted, Elsamprojekt, Denmark; Lennart Iwar, Lindahl, Sweden; Gordon L Jaynes, Whitman Breed Abbott & Morgan, UK; Tony Jensen (Chairman of FIDIC Quality Management Committee), COWI, Denmark; Martin Klapper, Hoggood and Ganim, Australia; Philip Loots & Associates, South Africa; Neil McCole, Merz and McLellan, UK; Matthew Needham-Laing, Victoria Russell & Paul J Taylor, Berrymans Lace Mawer, UK; J Gordon Rees, Binnie Black & Veatch, UK; Tim Reynolds, Constant & Constant, UK; David R Wightman & Gerlando Butera, Nabarro Nathanson, UK; the Association of Japanese Consulting Engineers; the Construction Industry Authority of the Philippines; the Dutch Vereniging voor Bouwrecht; the European International Contractors (EIC); ORGANISME de Liaison Industries Métalliques Européennes (ORGALIME); the International Association of Dredging Contractors; the International Bar Association; the Asian Development Bank; and the World Bank. Acknowledgement of reviewers does not mean that such persons or organizations approve of the wording of all clauses. In particular, EIC and ORGALIME have expressed reservations about some clauses of this EPC Contract.

FIDIC wishes to record its appreciation of the time and effort devoted by all the above.

The ultimate decision on the form and content of the document rests with FIDIC.

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FOREWORD

The Fédération Internationale des Ingénieurs-Conseils (FIDIC) published, in 1999, First Editions of four new standard forms of contract:

Conditions of Contract for Construction,

which are recommended for building or engineering works designed by the Employer or by his representative, the Engineer. Under the usual arrangements for this type of contract, the Contractor constructs the works in accordance with a design provided by the Employer. However, the works may include some elements of Contractor-designed civil, mechanical, electrical and/or construction works.

Conditions of Contract for Plant and Design-Build,

which are recommended for the provision of electrical and/or mechanical plant, and for the design and execution of building or engineering works. Under the usual arrangements for this type of contract, the Contractor designs and provides, in accordance with the Employer's requirements, plant and/or other works; which may include any combination of civil, mechanical, electrical and/or construction works.

Conditions of Contract for EPC/Turnkey Projects,

which may be suitable for the provision on a turnkey basis of a process or power plant, of a factory or similar facility, or of an infrastructure project or other type of development, where (i) a higher degree of certainty of final price and time is required, and (ii) the Contractor takes total responsibility for the design and execution of the project, with little involvement of the Employer. Under the usual arrangements for turnkey projects, the Contractor carries out all the Engineering, Procurement and Construction (EPC): providing a fully-equipped facility, ready for operation (at the "turn of the key").

Short Form of Contract,

which is recommended for building or engineering works of relatively small capital value. Depending on the type of work and the circumstances, this form may also be suitable for contracts of greater value, particularly for relatively simple or repetitive work or work of short duration. Under the usual arrangements for this type of contract, the Contractor constructs the works in accordance with a design provided by the Employer or by his representative (if any), but this form may also be suitable for a contract which includes, or wholly comprises, Contractor-designed civil, mechanical, electrical and/or construction works.

The forms are recommended for general use where tenders are invited on an international basis. Modifications may be required in some jurisdictions, particularly if the Conditions are to be used on domestic contracts. FIDIC considers the official and authentic texts to be the versions in the English language.

In the preparation of these Conditions of Contract for EPC/Turnkey Projects, it was recognised that, while there are many sub-clauses which will be generally applicable, there are some sub-clauses which must necessarily vary to take account of the

circumstances relevant to the particular contract. The sub-clauses which were considered to be applicable to many (but not all) contracts have been included in the General Conditions, in order to facilitate their incorporation into each contract.

The General Conditions and the Particular Conditions will together comprise the Conditions of Contract governing the rights and obligations of the parties. It will be necessary to prepare the Particular Conditions for each individual contract, and to take account of those sub-clauses in the General Conditions which mention the Particular Conditions.

For this publication, the General Conditions were prepared on the following basis:

- (i) Interim payments, in respect of the lump sum Contract Price, will be made as work proceeds, and will typically be based on instalments specified in a schedule;
- (ii) If the wording in the General Conditions necessitates further data which would typically be prescribed by the Employer, then the sub-clause makes reference to this data being contained in the Particular Conditions or in the Employer's Requirements;
- (iii) where a sub-clause in the General Conditions deals with a matter on which different contract terms are likely to be applicable for different contracts, the principles applied in writing the sub-clause were:
 - (a) users would find it more convenient if any provisions which they did not wish to apply could simply be deleted or not invoked, than if additional text had to be written (in the Particular Conditions) because the General Conditions did not cover their requirements; or
 - (b) in other cases, where the application of (a) was thought to be inappropriate, the sub-clause contains the provisions which were considered applicable to most contracts.

For example, Sub-Clause 14.2 [*Advance Payment*] is included for convenience, not because of any FIDIC policy in respect of advance payments. This Sub-Clause becomes inapplicable (even if it is not deleted) if it is disregarded by not specifying the amount of the advance. It should therefore be noted that some of the provisions contained in the General Conditions may not be appropriate for an apparently-typical contract.

Further information on these aspects, example wording for other arrangements, and other explanatory material and a check-list and example wording to assist in the preparation of the Particular Conditions and the other tender documents, are included within this publication as Guidance for the Preparation of the Particular Conditions. Before incorporating any example wording, it must be checked to ensure that it is wholly suitable for the particular circumstances; if not, it must be amended.

Where example wording is amended, and in all cases where other amendments or additions are made, care must be taken to ensure that no ambiguity is created, either with the General Conditions or between the clauses in the Particular Conditions. It is essential that all these drafting tasks, and the entire preparation of the tender

documents, are entrusted to personnel with the relevant expertise, including the contractual, technical and procurement aspects.

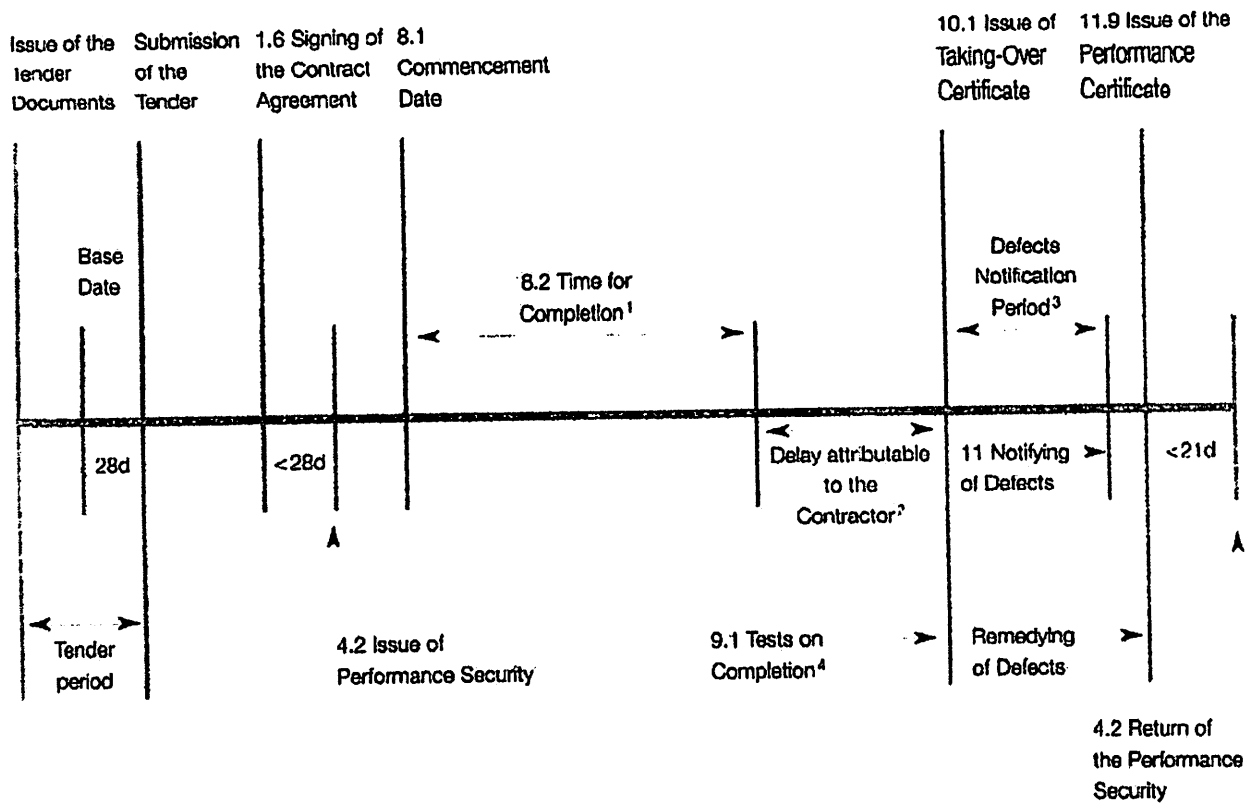
This publication concludes with example forms for the Letter of Tender, the Contract Agreement, and alternatives for the Dispute Adjudication Agreement. This Dispute Adjudication Agreement provides text for the agreement between the Employer, the Contractor and the person appointed to act either as sole adjudicator or as a member of a three-person dispute adjudication board; and incorporates (by reference) the terms in the Appendix to the General Conditions.

FIDIC intends to publish a guide to the use of its Conditions of Contract for Construction, for Plant and Design-Build, and for EPC/Turnkey Projects.

In order to clarify the sequence of Contract activities, reference may be made to the charts on the next two pages and to the Sub-Clauses listed below (some Sub-Clause numbers are also stated in the charts). The charts are illustrative and must not be taken into consideration in the interpretation of the Conditions of Contract.

1.1.3.1	&	13.7	Base Date
1.1.3.2	&	8.1	Commencement Date
1.1.6.6	&	4.2	Performance Security
1.1.3.3	&	8.2	Time for Completion (as extended under 8.4)
1.1.3.4	&	9.1	Tests on Completion
1.1.3.5	&	10.1	Taking-Over Certificate
1.1.3.6	&	12.1	Tests after Completion (if any)
1.1.3.7	&	11.1	Defects Notification Period (as extended under 11.3)
1.1.3.8	&	11.9	Performance Certificate

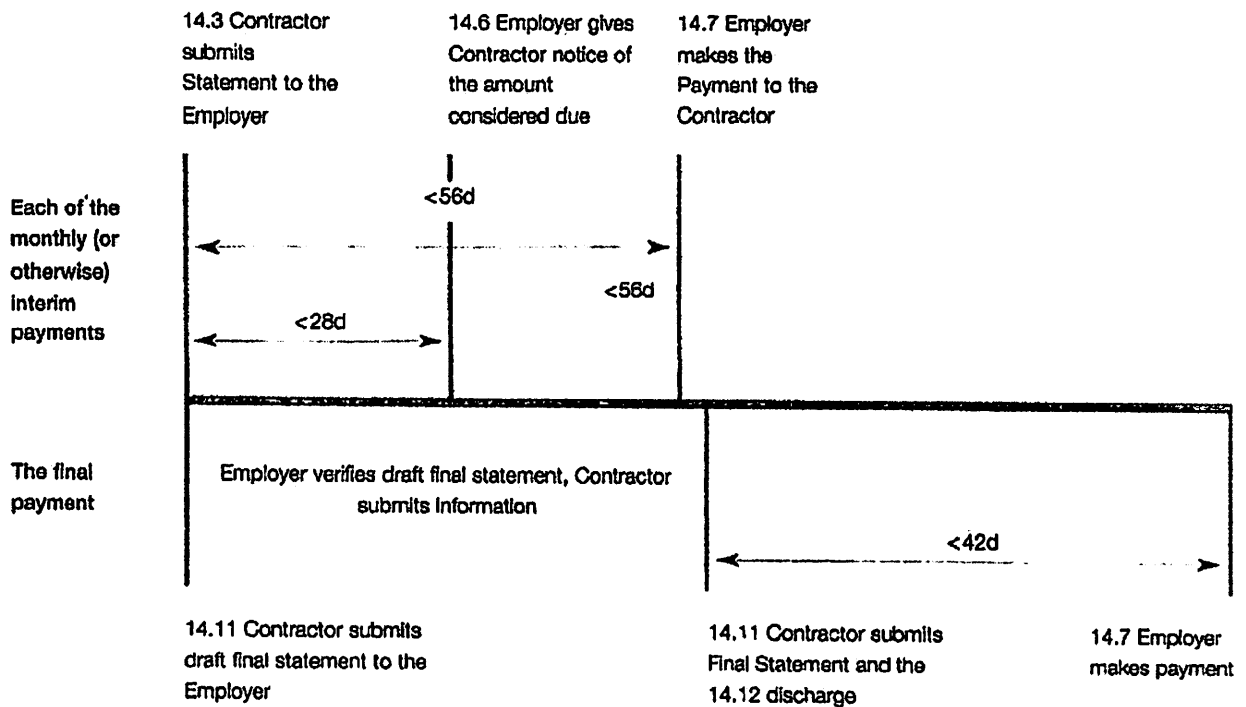
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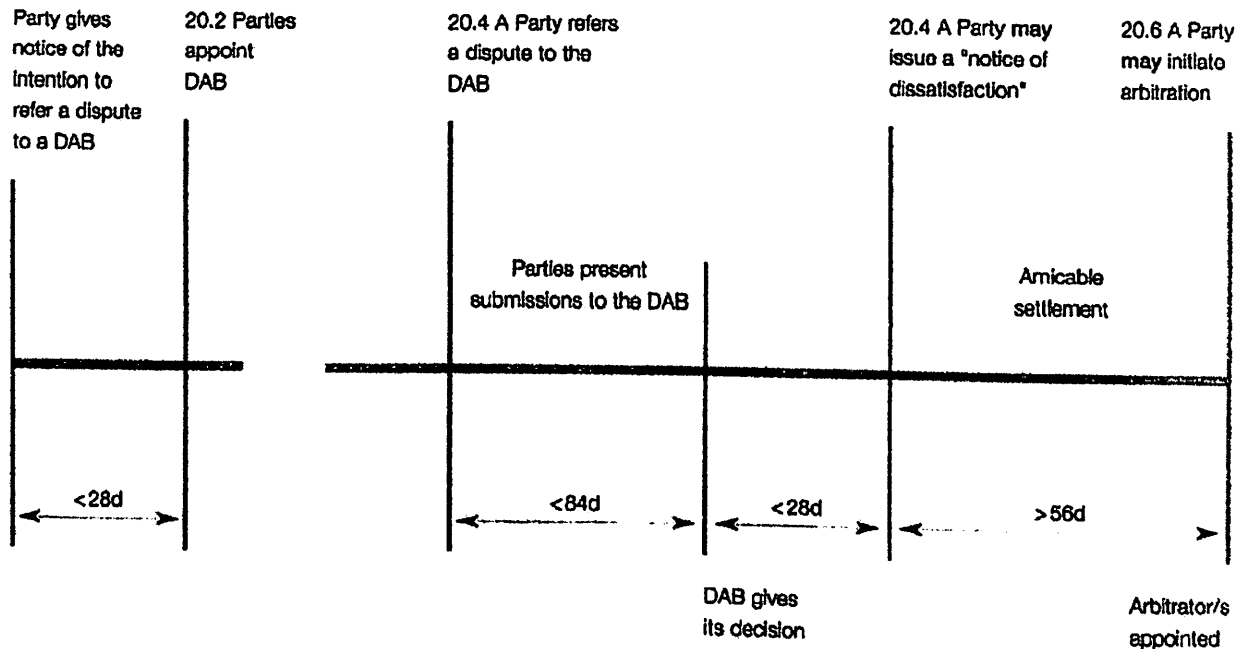
Typical sequence of Principal Events during Contracts for EPC/Turnkey Projects

1. The Time for Completion is to be stated (in the Particular Conditions) as a number of days, to which is added any extensions of time under Sub-Clause 8.4.
2. In order to indicate the sequence of events, the above diagram is based upon the example of the Contractor failing to comply with Sub-Clause 8.2.
3. The Defects Notification Period is to be stated (in the Particular Conditions) as a number of days, to which is added any extensions under Sub-Clause 11.3.
4. Depending on the type of Works, Tests after Completion may also be required.

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Typical sequence of Payment Events envisaged in Clause 14



Typical sequence of Dispute Events envisaged in Clause 20

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GENERAL CONDITIONS

GUIDANCE FOR THE
PREPARATION OF
PARTICULAR CONDITIONS

FIDIC® Conditions of Contract
for **EPC/Turnkey Projects**

FORMS OF LETTER OF
TENDER, CONTRACT
AGREEMENT AND
DISPUTE ADJUDICATION
AGREEMENT

General Conditions

FEDERATION INTERNATIONALE DES INGENIEURS-CONSEILS
INTERNATIONAL FEDERATION OF CONSULTING ENGINEERS
INTERNATIONALE VEREINIGUNG BERATENDER INGENIEURE
FEDERACION INTERNACIONAL DE INGENIEROS CONSULTORES



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General Conditions

1 General Provisions

1.1

Definitions

In the Conditions of Contract ("these Conditions"), which include Particular Conditions and these General Conditions, the following words and expressions shall have the meanings stated. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.

1.1.1

The Contract

1.1.1.1 "Contract" means the Contract Agreement, these Conditions, the Employer's Requirements, the Tender, and the further documents (if any) which are listed in the Contract Agreement.

1.1.1.2 "Contract Agreement" means the contract agreement referred to in Sub-Clause 1.6 [Contract Agreement], including any annexed memoranda.

1.1.1.3 "Employer's Requirements" means the document entitled employer's requirements, as included in the Contract, and any additions and modifications to such document in accordance with the Contract. Such document specifies the purpose, scope, and/or design and/or other technical criteria, for the Works.

1.1.1.4 "Tender" means the Contractor's signed offer for the Works and all other documents which the Contractor submitted therewith (other than these Conditions and the Employer's Requirements, if so submitted), as included in the Contract.

1.1.1.5 "Performance Guarantees" and "Schedule of Payments" mean the documents so named (if any), as included in the Contract.

1.1.2

Parties and Persons

1.1.2.1 "Party" means the Employer or the Contractor, as the context requires.

1.1.2.2 "Employer" means the person named as employer in the Contract Agreement and the legal successors in title to this person.

1.1.2.3 "Contractor" means the person(s) named as contractor in the Contract Agreement and the legal successors in title to this person(s).

1.1.2.4 "Employer's Representative" means the person named by the Employer in the Contract or appointed from time to time by the Employer under Sub-Clause 3.1 [The Employer's Representative], who acts on behalf of the Employer.

1.1.2.5 "Contractor's Representative" means the person named by the Contractor in the Contract or appointed from time to time by the Contractor under Sub-Clause 4.3 [Contractor's Representative], who acts on behalf of the Contractor.

1.1.2.6 "Employer's Personnel" means the Employer's Representative, the assistants referred to in Sub-Clause 3.2 [Other Employer's Personnel]

GENERAL CONDITIONS

GENERAL

PROVISIONS

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and all other staff, labour and other employees of the Employer and of the Employer's Representative; and any other personnel notified to the Contractor, by the Employer or the Employer's Representative, as Employer's Personnel.

1.1.3
Dates, Tests, Periods
and Completion

- 1.1.2.7 "Contractor's Personnel" means the Contractor's Representative and all personnel whom the Contractor utilises on Site, who may include the staff, labour and other employees of the Contractor and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works.
- 1.1.2.8 "Subcontractor" means any person named in the Contract as a subcontractor, or any person appointed as a subcontractor, for a part of the Works; and the legal successors in title to each of these persons.
- 1.1.2.9 "DAB" means the person or three persons so named in the Contract, or other person(s) appointed under Sub-Clause 20.2 [Appointment of the Dispute Adjudication Board], or Sub-Clause 20.3 [Failure to Agree Dispute Adjudication Board].
- 1.1.2.10 "FIDIC" means the Fédération Internationale des Ingénieurs-Conseils, the international federation of consulting engineers.
- 1.1.3.1 "Base Date" means the date 28 days prior to the latest date for submission of the Tender.
- 1.1.3.2 "Commencement Date" means the date notified under Sub-Clause 8.1 [Commencement of Works], unless otherwise defined in the Contract Agreement.
- 1.1.3.3 "Time for Completion" means the time for completing the Works or a Section (as the case may be) under Sub-Clause 8.2 [Time for Completion], as stated in the Particular Conditions (with any extension under Sub-Clause 8.4 [Extension of Time for Completion]), calculated from the Commencement Date.
- 1.1.3.4 "Tests on Completion" means the tests which are specified in the Contract or agreed by both Parties or instructed as a Variation, and which are carried out under Clause 9 [Tests on Completion] before the Works or a Section (as the case may be) are taken over by the Employer.
- 1.1.3.5 "Taking-Over Certificate" means a certificate issued under Clause 10 [Employer's Taking Over].
- 1.1.3.6 "Tests after Completion" means the tests (if any) which are specified in the Contract and which are carried out under Clause 12 [Tests after Completion] after the Works or a Section (as the case may be) are taken over by the Employer.
- 1.1.3.7 "Defects Notification Period" means the period for notifying defects in the Works or a Section (as the case may be) under Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects], as stated in the Particular Conditions (with any extension under Sub-Clause 11.3 [Extension of Defects Notification Period]), calculated from the date on which the Works or Section is completed as certified under Sub-Clause

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10.1 [Taking Over of the Works and Sections]. If no such period is stated in the Particular Conditions, the period shall be one year.

1.1.4
Money and Payments

1.1.3.8 "Performance Certificate" means the certificate issued under Sub-Clause 11.9 [Performance Certificate].

1.1.3.9 "day" means a calendar day and "year" means 365 days.

1.1.4.1 "Contract Price" means the agreed amount stated in the Contract Agreement for the design, execution and completion of the Works and the remedying of any defects, and includes adjustments (if any) in accordance with the Contract.

1.1.4.2 "Cost" means all expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.

1.1.4.3 "Final Statement" means the statement defined in Sub-Clause 14.11 [Application for Final Payment].

1.1.4.4 "Foreign Currency" means a currency in which part (or all) of the Contract Price is payable, but not the Local Currency.

1.1.4.5 "Local Currency" means the currency of the Country.

1.1.4.6 "Provisional Sum" means a sum (if any) which is specified in the Contract as a provisional sum, for the execution of any part of the Works or for the supply of Plant, Materials or services under Sub-Clause 13.5 [Provisional Sums].

1.1.4.7 "Retention Money" means the accumulated retention moneys which the Employer retains under Sub-Clause 14.3 [Application for Interim Payments] and pays under Sub-Clause 14.9 [Payment of Retention Money].

1.1.4.8 "Statement" means a statement submitted by the Contractor as part of an application for payment under Clause 14 [Contract Price and Payment].

1.1.5
Works and Goods

1.1.5.1 "Contractor's Equipment" means all apparatus, machinery, vehicles and other things required for the execution and completion of the Works and the remedying of any defects. However, Contractor's Equipment excludes Temporary Works, Employer's Equipment (if any), Plant, Materials and any other things intended to form or forming part of the Permanent Works.

1.1.5.2 "Goods" means Contractor's Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.

1.1.5.3 "Materials" means things of all kinds (other than Plant) intended to form or forming part of the Permanent Works, including the supply-only materials (if any) to be supplied by the Contractor under the Contract.

1.1.5.4 "Permanent Works" means the permanent works to be designed and executed by the Contractor under the Contract.

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- 1.1.5.5 "Plant" means the apparatus, machinery and vehicles intended to form or forming part of the Permanent Works.
- 1.1.5.6 "Section" means a part of the Works specified in the Particular Conditions as a Section (if any).
- 1.1.5.7 "Temporary Works" means all temporary works of every kind (other than Contractor's Equipment) required on Site for the execution and completion of the Permanent Works and the remedying of any defects.
- 1.1.5.8 "Works" mean the Permanent Works and the Temporary Works, or either of them as appropriate.
- 1.1.6 Other Definitions
- 1.1.6.1 "Contractor's Documents" means the calculations, computer programs and other software, drawings, manuals, models and other documents of a technical nature supplied by the Contractor under the Contract; as described in Sub-Clause 5.2 [Contractor's Documents].
- 1.1.6.2 "Country" means the country in which the Site (or most of it) is located, where the Permanent Works are to be executed.
- 1.1.6.3 "Employer's Equipment" means the apparatus, machinery and vehicles (if any) made available by the Employer for the use of the Contractor in the execution of the Works, as stated in the Employer's Requirements; but does not include Plant which has not been taken over by the Employer.
- 1.1.6.4 "Force Majeure" is defined in Clause 19 [Force Majeure].
- 1.1.6.5 "Laws" means all national (or state) legislation, statutes, ordinances and other laws, and regulations and by-laws of any legally constituted public authority.
- 1.1.6.6 "Performance Security" means the security (or securities, if any) under Sub-Clause 4.2 [Performance Security].
- 1.1.6.7 "Site" means the places where the Permanent Works are to be executed and to which Plant and Materials are to be delivered, and any other places as may be specified in the Contract as forming part of the Site.
- 1.1.6.8 "Variation" means any change to the Employer's Requirements or the Works, which is instructed or approved as a variation under Clause 13 [Variations and Adjustments].

1.2

Interpretation

In the Contract, except where the context requires otherwise:

- (a) words indicating one gender include all genders;
- (b) words indicating the singular also include the plural and words indicating the plural also include the singular;
- (c) provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing, and
- (d) "written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record.

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The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions.

1.3 Communications

Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices and requests, these communications shall be:

- (a) in writing and delivered by hand (against receipt), sent by mail or courier, or transmitted using any of the agreed systems of electronic transmission as stated in the Particular Conditions; and
- (b) delivered, sent or transmitted to the address for the recipient's communications as stated in the Contract. However:
 - (i) if the recipient gives notice of another address, communications shall thereafter be delivered accordingly; and
 - (ii) if the recipient has not stated otherwise when requesting an approval or consent, it may be sent to the address from which the request was issued.

Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed.

1.4 Law and Language

The Contract shall be governed by the law of the country (or other jurisdiction) stated in the Particular Conditions.

If there are versions of any part of the Contract which are written in more than one language, the version which is in the ruling language stated in the Particular Conditions shall prevail.

The language for communications shall be that stated in the Particular Conditions. If no language is stated there, the language for communications shall be the language in which the Contract (or most of it) is written.

1.5 Priority of Documents

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

- (a) the Contract Agreement,
- (b) the Particular Conditions,
- (c) these General Conditions,
- (d) the Employer's Requirements,
- (e) the Tender and any other documents forming part of the Contract.

1.6 Contract Agreement

The Contract shall come into full force and effect on the date stated in the Contract Agreement. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Employer.

1.7 Assignment

Neither Party shall assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, either Party:

- (a) may assign the whole or any part with the prior agreement of the other Party, at the sole discretion of such other Party, and

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- (b) may, as security in favour of a bank or financial institution, assign its right to any moneys due, or to become due, under the Contract.

1.8

Care and Supply of Documents

Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Employer. Unless otherwise stated in the Contract, the Contractor shall supply to the Employer six copies of each of the Contractor's Documents.

The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Employer's Requirements, the Contractor's Documents, and Variations and other communications given under the Contract. The Employer's Personnel shall have the right of access to all these documents at all reasonable times.

If a Party becomes aware of an error or defect of a technical nature in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.

1.9

Confidentiality

Both Parties shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out obligations under it or to comply with applicable Laws. The Contractor shall not publish, permit to be published, or disclose any particulars of the Works in any trade or technical paper or elsewhere without the previous agreement of the Employer.

1.10

Employer's Use of Contractor's Documents

As between the Parties, the Contractor shall retain the copyright and other intellectual property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.

The Contractor shall be deemed (by signing the Contract) to give to the Employer a non-terminable transferable non-exclusive royalty-free licence to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This licence shall:

- (a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,
- (b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and
- (c) in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contract, including replacements of any computers supplied by the Contractor.

The Contractor's Documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Employer for purposes other than those permitted under this Sub-Clause.

1.11

Contractor's Use of Employer's Documents

As between the Parties, the Employer shall retain the copyright and other intellectual property rights in the Employer's Requirements and other documents made by (or on behalf of) the Employer. The Contractor may, at his cost, copy, use, and obtain communication of these documents for the purposes of the Contract.

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They shall not, without the Employer's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the Contract.

1.12

Confidential Details

The Contractor shall not be required to disclose, to the Employer, any information which the Contractor described in the Tender as being confidential. The Contractor shall disclose any other information which the Employer may reasonably require in order to verify the Contractor's compliance with the Contract.

1.13

Compliance with Laws

The Contractor shall, in performing the Contract, comply with applicable Laws. Unless otherwise stated in the Particular Conditions:

- (a) the Employer shall have obtained (or shall obtain) the planning, zoning or similar permission for the Permanent Works, and any other permissions described in the Employer's Requirements as having been (or being) obtained by the Employer; and the Employer shall indemnify and hold the Contractor harmless against and from the consequences of any failure to do so; and
- (b) the Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licences and approvals, as required by the Laws in relation to the design, execution and completion of the Works and the remedying of any defects; and the Contractor shall indemnify and hold the Employer harmless against and from the consequences of any failure to do so.

1.14

Joint and Several Liability

If the Contractor constitutes (under applicable Laws) a joint venture, consortium or other unincorporated grouping of two or more persons:

- (a) these persons shall be deemed to be jointly and severally liable to the Employer for the performance of the Contract;
- (b) these persons shall notify the Employer of their leader who shall have authority to bind the Contractor and each of these persons; and
- (c) the Contractor shall not alter its composition or legal status without the prior consent of the Employer.

2 The Employer

2.1

Right of Access to the Site

The Employer shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the Particular Conditions. The right and possession may not be exclusive to the Contractor. If, under the Contract, the Employer is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Employer shall do so in the time and manner stated in the Employer's Requirements. However, the Employer may withhold any such right or possession until the Performance Security has been received.

If no such time is stated in the Particular Conditions, the Employer shall give the Contractor right of access to, and possession of, the Site with effect from the Commencement Date.

If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Employer to give any such right or possession within such time, the Contractor shall

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GENERAL CONDITIONS

give notice to the Employer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus reasonable profit, which shall be added to the Contract Price.

After receiving this notice, the Employer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

However, if and to the extent that the Employer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

2.2

Permits, Licences or Approvals

The Employer shall (where he is in a position to do so) provide reasonable assistance to the Contractor at the request of the Contractor:

- (a) by obtaining copies of the Laws of the Country which are relevant to the Contract but are not readily available, and
- (b) for the Contractor's applications for any permits, licences or approvals required by the Laws of the Country:
 - (i) which the Contractor is required to obtain under Sub-Clause 1.13 [Compliance with Laws],
 - (ii) for the delivery of Goods, including clearance through customs, and
 - (iii) for the export of Contractor's Equipment when it is removed from the Site.

2.3

Employer's Personnel

The Employer shall be responsible for ensuring that the Employer's Personnel and the Employer's other contractors on the Site:

- (a) co-operate with the Contractor's efforts under Sub-Clause 4.6 [Co-operation], and
- (b) take actions similar to those which the Contractor is required to take under sub-paragraphs (a), (b) and (c) of Sub-Clause 4.8 [Safety Procedures] and under Sub-Clause 4.18 [Protection of the Environment].

2.4

Employer's Financial Arrangements

The Employer shall submit, within 28 days after receiving any request from the Contractor, reasonable evidence that financial arrangements have been made and are being maintained which will enable the Employer to pay the Contract Price (as estimated at that time) in accordance with Clause 14 [Contract Price and Payment]. If the Employer intends to make any material change to his financial arrangements, the Employer shall give notice to the Contractor with detailed particulars.

2.5

Employer's Claims

If the Employer considers himself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Notification Period, he shall give notice and particulars to the Contractor. However, notice is not required for payments due under Sub-Clause 4.19 [Electricity, Water and Gas], under Sub-Clause 4.20 [Employer's Equipment and Free-Issue Material], or for other services requested by the Contractor.

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The notice shall be given as soon as practicable after the Employer became aware of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Notification Period shall be given before the expiry of such period.

The particulars shall specify the Clause or other basis of the claim, and shall include substantiation of the amount and/or extension to which the Employer considers himself to be entitled in connection with the Contract. The Employer shall then proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine (i) the amount (if any) which the Employer is entitled to be paid by the Contractor, and/or (ii) the extension (if any) of the Defects Notification Period in accordance with Sub-Clause 11.3 [*Extension of Defects Notification Period*].

The Employer may deduct this amount from any moneys due, or to become due, to the Contractor. The Employer shall only be entitled to set off against or make any deduction from an amount due to the Contractor, or to otherwise claim against the Contractor, in accordance with this Sub-Clause or with sub-paragraph (a) and/or (b) of Sub-Clause 14.6 [*Interim Payments*].

The **3** Employer's Administration

3.1 The Employer's Representative

The Employer may appoint an Employer's Representative to act on his behalf under the Contract. In this event, he shall give notice to the Contractor of the name, address, duties and authority of the Employer's Representative.

The Employer's Representative shall carry out the duties assigned to him, and shall exercise the authority delegated to him, by the Employer. Unless and until the Employer notifies the Contractor otherwise, the Employer's Representative shall be deemed to have the full authority of the Employer under the Contract, except in respect of Clause 15 [*Termination by Employer*].

If the Employer wishes to replace any person appointed as Employer's Representative, the Employer shall give the Contractor not less than 14 days' notice of the replacement's name, address, duties and authority, and of the date of appointment.

3.2 Other Employer's Personnel

The Employer or the Employer's Representative may from time to time assign duties and delegate authority to assistants, and may also revoke such assignment or delegation. These assistants may include a resident engineer, and/or independent inspectors appointed to inspect and/or test items of Plant and/or Materials. The assignment, delegation or revocation shall not take effect until a copy of it has been received by the Contractor.

Assistants shall be suitably qualified persons, who are competent to carry out these duties and exercise this authority, and who are fluent in the language for communications defined in Sub-Clause 1.4 [*Law and Language*].

3.3 Delegated Persons

All these persons, including the Employer's Representative and assistants, to whom duties have been assigned or authority has been delegated, shall only be authorised to issue instructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by a delegated person, in accordance with the delegation, shall have the same effect as though the act had been an act of the Employer. However:

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- (a) unless otherwise stated in the delegated person's communication relating to such act, it shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances;
- (b) any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Employer to reject the work, Plant or Materials; and
- (c) if the Contractor questions any determination or instruction of a delegated person, the Contractor may refer the matter to the Employer, who shall promptly confirm, reverse or vary the determination or instruction.

3.4

Instructions

The Employer may issue to the Contractor instructions which may be necessary for the Contractor to perform his obligations under the Contract. Each instruction shall be given in writing and shall state the obligations to which it relates and the Sub-Clause (or other term of the Contract) in which the obligations are specified. If any such instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply.

The Contractor shall take instructions from the Employer, or from the Employer's Representative or an assistant to whom the appropriate authority has been delegated under this Clause.

3.5

Determinations

Whenever these Conditions provide that the Employer shall proceed in accordance with this Sub-Clause 3.5 to agree or determine any matter, the Employer shall consult with the Contractor in an endeavour to reach agreement. If agreement is not achieved, the Employer shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.

The Employer shall give notice to the Contractor of each agreement or determination, with supporting particulars. Each Party shall give effect to each agreement or determination, unless the Contractor gives notice, to the Employer, of his dissatisfaction with a determination within 14 days of receiving it. Either Party may then refer the dispute to the DAB in accordance with Sub-Clause 20.4 [Obtaining Dispute Adjudication Board's Decision].

4 The Contractor

4.1

Contractor's General Obligations

The Contractor shall design, execute and complete the Works in accordance with the Contract, and shall remedy any defects in the Works. When completed, the Works shall be fit for the purposes for which the Works are intended as defined in the Contract.

The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.

The Works shall include any work which is necessary to satisfy the Employer's Requirements, or is implied by the Contract, and all works which (although not mentioned in the Contract) are necessary for stability or for the completion, or safe and proper operation, of the Works.

The Contractor shall be responsible for the adequacy, stability and safety of all Site operations, of all methods of construction and of all the Works.

The Contractor shall, whenever required by the Employer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Employer.

4.2

Performance Security

The Contractor shall obtain (at his cost) a Performance Security for proper performance, in the amount and currencies stated in the Particular Conditions. If an amount is not stated in the Particular Conditions, this Sub-Clause shall not apply.

The Contractor shall deliver the Performance Security to the Employer within 28 days after both Parties have signed the Contract Agreement. The Performance Security shall be issued by an entity and from within a country (or other jurisdiction) approved by the Employer, and shall be in the form annexed to the Particular Conditions or in another form approved by the Employer.

The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.

The Employer shall not make a claim under the Performance Security, except for amounts to which the Employer is entitled under the Contract in the event of:

- (a) failure by the Contractor to extend the validity of the Performance Security as described in the preceding paragraph, in which event the Employer may claim the full amount of the Performance Security,
- (b) failure by the Contractor to pay the Employer an amount due, as either agreed by the Contractor or determined under Sub-Clause 2.5 [Employer's Claims] or Clause 20 [Claims, Disputes and Arbitration], within 42 days after this agreement or determination,
- (c) failure by the Contractor to remedy a default within 42 days after receiving the Employer's notice requiring the default to be remedied, or
- (d) circumstances which entitle the Employer to termination under Sub-Clause 15.2 [Termination by Employer], irrespective of whether notice of termination has been given.

The Employer shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Employer was not entitled to make the claim.

The Employer shall return the Performance Security to the Contractor within 21 days after the Contractor has become entitled to receive the Performance Certificate.

4.3

Contractor's Representative

The Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract.

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Unless the Contractor's Representative is named in the Contract, the Contractor shall, prior to the Commencement Date, submit to the Employer for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked, or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.

The Contractor shall not, without the prior consent of the Employer, revoke the appointment of the Contractor's Representative or appoint a replacement.

The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.4 [*Instructions*].

The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Employer has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.

The Contractor's Representative and all these persons shall be fluent in the language for communications defined in Sub-Clause 1.4 [*Law and Language*].

4.4
Subcontractors

The Contractor shall not subcontract the whole of the Works.

The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were the acts or defaults of the Contractor. Where specified in the Particular Conditions, the Contractor shall give the Employer not less than 28 days' notice of:

- (a) the intended appointment of the Subcontractor, with detailed particulars which shall include his relevant experience,
- (b) the intended commencement of the Subcontractor's work, and
- (c) the intended commencement of the Subcontractor's work on the Site.

4.5
Nominated Subcontractors

In this Sub-Clause, "nominated Subcontractor" means a Subcontractor whom the Employer, under Clause 13 [*Variations and Adjustments*], instructs the Contractor to employ as a Subcontractor. The Contractor shall not be under any obligation to employ a nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Employer as soon as practicable, with supporting particulars.

4.6
Co-operation

The Contractor shall, as specified in the Contract or as instructed by the Employer, allow appropriate opportunities for carrying out work to:

- (a) the Employer's Personnel,
- (b) any other contractors employed by the Employer, and
- (c) the personnel of any legally constituted public authorities,

who may be employed in the execution on or near the Site of any work not included in the Contract.

Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to incur Cost in an amount which was not reasonably foreseeable by an

experienced contractor by the date for submission of the Tender. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.

The Contractor shall be responsible for his construction activities on the Site, and shall co-ordinate his own activities with those of other contractors to the extent (if any) specified in the Employer's Requirements.

If, under the Contract, the Employer is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents to the Employer in the time and manner stated in the Employer's Requirements.

4.7

Setting Out

The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Contract. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.

4.8

Safety Procedures

The Contractor shall:

- (a) comply with all applicable safety regulations,
- (b) take care for the safety of all persons entitled to be on the Site,
- (c) use reasonable efforts to keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons,
- (d) provide fencing, lighting, guarding and watching of the Works until completion and taking over under Clause 10 [Employer's Taking Over], and
- (e) provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land.

4.9

Quality Assurance

The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the Contract. The Employer shall be entitled to audit any aspect of the system.

Details of all procedures and compliance documents shall be submitted to the Employer for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Employer, evidence of the prior approval by the Contractor himself shall be apparent on the document itself.

Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.

4.10

Site Data

The Employer shall have made available to the Contractor for his information, prior to the Base Date, all relevant data in the Employer's possession on subsurface and hydrological conditions at the Site, including environmental aspects. The Employer shall similarly make available to the Contractor all such data which come into the Employer's possession after the Base Date.

The Contractor shall be responsible for verifying and interpreting all such data. The Employer shall have no responsibility for the accuracy, sufficiency or completeness of such data, except as stated in Sub-Clause 5.1 [General Design Responsibilities].

4.11
Sufficiency of the
Contract Price

The Contractor shall be deemed to have satisfied himself as to the correctness and sufficiency of the Contract Price.

Unless otherwise stated in the Contract, the Contract Price covers all the Contractor's obligations under the Contract (including those under Provisional Sums, if any) and all things necessary for the proper design, execution and completion of the Works and the remedying of any defects.

4.12
Unforeseeable
Difficulties

Except as otherwise stated in the Contract:

- (a) the Contractor shall be deemed to have obtained all necessary information as to risks, contingences and other circumstances which may influence or affect the Works;
- (b) by signing the Contract, the Contractor accepts total responsibility for having foreseen all difficulties and costs of successfully completing the Works; and
- (c) the Contract Price shall not be adjusted to take account of any unforeseen difficulties or costs.

4.13
Rights of Way and
Facilities

The Contractor shall bear all costs and charges for special and/or temporary rights-of-way which he may require, including those for access to the Site. The Contractor shall also obtain, at his risk and cost, any additional facilities outside the Site which he may require for the purposes of the Works.

4.14
Avoidance of
Interference

The Contractor shall not interfere unnecessarily or improperly with:

- (a) the convenience of the public, or
- (b) the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Employer or of others.

The Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

4.15
Access Route

The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site. The Contractor shall use reasonable efforts to prevent any road or bridge from being damaged by the Contractor's traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.

Except as otherwise stated in these Conditions:

- (a) the Contractor shall (as between the Parties) be responsible for any maintenance which may be required for his use of access routes;
- (b) the Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions;
- (c) the Employer shall not be responsible for any claims which may arise from the use or otherwise of any access route,
- (d) the Employer does not guarantee the suitability or availability of particular access routes, and
- (e) Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.

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GENERAL CONDITIONS

4.16
Transport of Goods

Unless otherwise stated in the Particular Conditions:

- (a) the Contractor shall give the Employer not less than 21 days' notice of the date on which any Plant or a major item of other Goods will be delivered to the Site;
- (b) the Contractor shall be responsible for packing, loading, transporting, receiving, unloading, storing and protecting all Goods and other things required for the Works; and
- (c) the Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from the transport of Goods, and shall negotiate and pay all claims arising from their transport.

4.17
Contractor's Equipment

The Contractor shall be responsible for all Contractor's Equipment. When brought on to the Site, Contractor's Equipment shall be deemed to be exclusively intended for the execution of the Works.

4.18
Protection of the Environment

The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.

The Contractor shall ensure that emissions, surface discharges and effluent from the Contractor's activities shall not exceed the values indicated in the Employer's Requirements, and shall not exceed the values prescribed by applicable Laws.

4.19
Electricity, Water and Gas

The Contractor shall, except as stated below, be responsible for the provision of all power, water and other services he may require.

The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details and prices are given in the Employer's Requirements. The Contractor shall, at his risk and cost, provide any apparatus necessary for his use of these services and for measuring the quantities consumed.

The quantities consumed and the amounts due (at these prices) for such services shall be agreed or determined in accordance with Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.

4.20
Employer's Equipment and Free-Issue Material

The Employer shall make the Employer's Equipment (if any) available for the use of the Contractor in the execution of the Works in accordance with the details, arrangements and prices stated in the Employer's Requirements. Unless otherwise stated in the Employer's Requirements:

- (a) the Employer shall be responsible for the Employer's Equipment, except that
- (b) the Contractor shall be responsible for each item of Employer's Equipment whilst any of the Contractor's Personnel is operating it, driving it, directing it or in possession or control of it.

The appropriate quantities and the amounts due (at such stated prices) for the use of Employer's Equipment shall be agreed or determined in accordance with Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.

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The Employer shall supply, free of charge, the "free-issue materials" (if any) in accordance with the details stated in the Employer's Requirements. The Employer shall, at his risk and cost, provide these materials at the time and place specified in the Contract. The Contractor shall then visually inspect them, and shall promptly give notice to the Employer of any shortage, defect or default in these materials. Unless otherwise agreed by both Parties, the Employer shall immediately rectify the notified shortage, defect or default.

After this visual inspection, the free-issue materials shall come under the care, custody and control of the Contractor. The Contractor's obligations of inspection, care, custody and control shall not relieve the Employer of liability for any shortage, defect or default not apparent from a visual inspection.

4.21

Progress Reports

Unless otherwise stated in the Particular Conditions, monthly progress reports shall be prepared by the Contractor and submitted to the Employer in six copies. The first report shall cover the period up to the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 days after the last day of the period to which it relates.

Reporting shall continue until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

Each report shall include:

- (a) charts and detailed descriptions of progress, including each stage of design, Contractor's Documents, procurement, manufacture, delivery to Site, construction, erection, testing, commissioning and trial operation;
- (b) photographs showing the status of manufacture and of progress on the Site;
- (c) for the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of:
 - (i) commencement of manufacture,
 - (ii) Contractor's inspections,
 - (iii) tests, and
 - (iv) shipment and arrival at the Site;
- (d) the details described in Sub-Clause 6.10 [*Records of Contractor's Personnel and Equipment*];
- (e) copies of quality assurance documents, test results and certificates of Materials;
- (f) list of Variations, notices given under Sub-Clause 2.5 [*Employer's Claims*] and notices given under Sub-Clause 20.1 [*Contractor's Claims*];
- (g) safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and
- (h) comparisons of actual and planned progress, with details of any events or circumstances which may jeopardize the completion in accordance with the Contract, and the measures being (or to be) adopted to overcome delays.

4.22

Security of the Site

Unless otherwise stated in the Particular Conditions:

- (a) the Contractor shall be responsible for keeping unauthorised persons off the Site, and

- (b) authorised persons shall be limited to the Contractor's Personnel and the Employer's Personnel; and to any other personnel notified to the Contractor, by (or on behalf of) the Employer, as authorised personnel of the Employer's other contractors on the Site.

4.23

Contractor's Operations on Site

The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained by the Contractor and agreed by the Employer as working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the Site and these additional areas, and to keep them off adjacent land.

During the execution of the Works, the Contractor shall keep the Site free from all unnecessary obstruction, and shall store or dispose of any Contractor's Equipment or surplus materials. The Contractor shall clear away and remove from the Site any wreckage, rubbish and Temporary Works which are no longer required.

Upon the issue of the Taking-Over Certificate for the Works, the Contractor shall clear away and remove all Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Defects Notification Period, such Goods as are required for the Contractor to fulfil obligations under the Contract.

4.24

Fossils

All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Employer. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.

The Contractor shall, upon discovery of any such finding, promptly give notice to the Employer, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Employer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost, which shall be added to the Contract Price.

After receiving this further notice, the Employer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

5 Design

5.1

General Design Obligations

The Contractor shall be deemed to have scrutinised, prior to the Base Date, the Employer's Requirements (including design criteria and calculations, if any). The Contractor shall be responsible for the design of the Works and for the accuracy of such Employer's Requirements (including design criteria and calculations), except as stated below.

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The Employer shall not be responsible for any error, inaccuracy or omission of any kind in the Employer's Requirements as originally included in the Contract and shall not be deemed to have given any representation of accuracy or completeness of any data or information, except as stated below. Any data or information received by the Contractor, from the Employer or otherwise, shall not relieve the Contractor from his responsibility for the design and execution of the Works.

However, the Employer shall be responsible for the correctness of the following portions of the Employer's Requirements and of the following data and information provided by (or on behalf of) the Employer:

- (a) portions, data and information which are stated in the Contract as being immutable or the responsibility of the Employer,
- (b) definitions of intended purposes of the Works or any parts thereof,
- (c) criteria for the testing and performance of the completed Works, and
- (d) portions, data and information which cannot be verified by the Contractor, except as otherwise stated in the Contract.

5.2

Contractor's Documents

The Contractor's Documents shall comprise the technical documents specified in the Employer's Requirements, documents required to satisfy all regulatory approvals, and the documents described in Sub-Clause 5.6 [*As-Built Documents*] and Sub-Clause 5.7 [*Operation and Maintenance Manuals*]. Unless otherwise stated in the Employer's Requirements, the Contractor's Documents shall be written in the language for communications defined in Sub-Clause 1.4 [*Law and Language*].

The Contractor shall prepare all Contractor's Documents, and shall also prepare any other documents necessary to instruct the Contractor's Personnel.

If the Employer's Requirements describe the Contractor's Documents which are to be submitted to the Employer for review, they shall be submitted accordingly, together with a notice as described below. In the following provisions of this Sub-Clause, (i) "review period" means the period required by the Employer for review, and (ii) "Contractor's Documents" exclude any documents which are not specified as being required to be submitted for review.

Unless otherwise stated in the Employer's Requirements, each review period shall not exceed 21 days, calculated from the date on which the Employer receives a Contractor's Document and the Contractor's notice. This notice shall state that the Contractor's Document is considered ready, both for review in accordance with this Sub-Clause and for use. The notice shall also state that the Contractor's Document complies with the Contract, or the extent to which it does not comply.

The Employer may, within the review period, give notice to the Contractor that a Contractor's Document falls (to the extent stated) to comply with the Contract. If a Contractor's Document so fails to comply, it shall be rectified, resubmitted and reviewed in accordance with this Sub-Clause, at the Contractor's cost.

For each part of the Works, and except to the extent that the Parties otherwise agree:

- (a) execution of such part of the Works shall not commence prior to the expiry of the review periods for all the Contractor's Documents which are relevant to its design and execution;
- (b) execution of such part of the Works shall be in accordance with these Contractor's Documents, as submitted for review; and

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- (c) if the Contractor wishes to modify any design or document which has previously been submitted for review, the Contractor shall immediately give notice to the Employer. Thereafter, the Contractor shall submit revised documents to the Employer in accordance with the above procedure.

Any such agreement (under the preceding paragraph) or any review (under this Sub-Clause or otherwise) shall not relieve the Contractor from any obligation or responsibility.

5.3

Contractor's Undertaking The Contractor undertakes that the design, the Contractor's Documents, the execution and the completed Works will be in accordance with:

- (a) the Laws in the Country, and
- (b) the documents forming the Contract, as altered or modified by Variations.

5.4

Technical Standards and Regulations The design, the Contractor's Documents, the execution and the completed Works shall comply with the Country's technical standards, building, construction and environmental Laws, Laws applicable to the product being produced from the Works, and other standards specified in the Employer's Requirements, applicable to the Works, or defined by the applicable Laws.

All these Laws shall, in respect of the Works and each Section, be those prevailing when the Works or Section are taken over by the Employer under Clause 10 [*Employer's Taking Over*]. References in the Contract to published standards shall be understood to be references to the edition applicable on the Base Date, unless stated otherwise.

If changed or new applicable standards come into force in the Country after the Base Date, the Contractor shall give notice to the Employer and (if appropriate) submit proposals for compliance. In the event that:

- (a) the Employer determines that compliance is required, and
- (b) the proposals for compliance constitute a variation,

then the Employer shall initiate a Variation in accordance with Clause 13 [*Variations and Adjustments*].

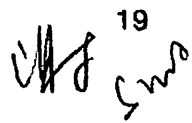
5.5

Training The Contractor shall carry out the training of Employer's Personnel in the operation and maintenance of the Works to the extent specified in the Employer's Requirements. If the Contract specifies training which is to be carried out before taking-over, the Works shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [*Taking Over of the Works and Sections*] until this training has been completed.

5.6

As-Built Documents The Contractor shall prepare, and keep up-to-date, a complete set of "as-built" records of the execution of the Works, showing the exact as-built locations, sizes and details of the work as executed. These records shall be kept on the Site and shall be used exclusively for the purposes of this Sub-Clause. Two copies shall be supplied to the Employer prior to the commencement of the Tests on Completion.

In addition, the Contractor shall supply to the Employer as-built drawings of the Works, showing all Works as executed, and submit them to the Employer for review

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under Sub-Clause 5.2 [Contractor's Documents]. The Contractor shall obtain the consent of the Employer as to their size, the referencing system, and other relevant details.

Prior to the issue of any Taking-Over Certificate, the Contractor shall supply to the Employer the specified numbers and types of copies of the relevant as-built drawings, in accordance with the Employer's Requirements. The Works shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections] until the Employer has received these documents.

5.7

Operation and Maintenance Manuals

Prior to commencement of the Tests on Completion, the Contractor shall supply to the Employer provisional operation and maintenance manuals in sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair the Plant.

The Works shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections] until the Employer has received final operation and maintenance manuals in such detail, and any other manuals specified in the Employer's Requirements for these purposes.

5.8

Design Error

If errors, omissions, ambiguities, inconsistencies, inadequacies or other defects are found in the Contractor's Documents, they and the Works shall be corrected at the Contractor's cost, notwithstanding any consent or approval under this Clause.

6 Staff and Labour

6.1

Engagement of Staff and Labour

Except as otherwise stated in the Employer's Requirements, the Contractor shall make arrangements for the engagement of all staff and labour, local or otherwise, and for their payment, housing, feeding and transport.

6.2

Rates of Wages and Conditions of Labour

The Contractor shall pay rates of wages, and observe conditions of labour, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by employers whose trade or industry is similar to that of the Contractor.

6.3

Persons in the Service of Others

The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Employer's Personnel.

6.4

Labour Laws

The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.

The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.

6.5

Working Hours

No work shall be carried out on the Site on locally recognised days of rest, or outside normal working hours, unless:

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- (a) otherwise stated in the Contract,
- (b) the Employer gives consent, or
- (c) the work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Employer.

6.6

Facilities for Staff and Labour

Except as otherwise stated in the Employer's Requirements, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide facilities for the Employer's Personnel as stated in the Employer's Requirements.

The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.

6.7

Health and Safety

The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Employer's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

The Contractor shall send, to the Employer, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Employer may reasonably require.

6.8

Contractor's Superintendence

Throughout the design and execution of the Works, and as long thereafter as is necessary to fulfill the Contractor's obligations, the Contractor shall provide all necessary superintendence to plan, arrange, direct, manage, inspect and test the work.

Superintendence shall be given by a sufficient number of persons having adequate knowledge of the language for communications (defined in Sub-Clause 1.4 [Law and Language]) and of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works.

6.9

Contractor's Personnel

The Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The Employer may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative if applicable, who:

- (a) persists in any misconduct or lack of care,
- (b) carries out duties incompetently or negligently,

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- (c) fails to conform with any provisions of the Contract, or
- (d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment.

If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

6.10

Records of Contractor's Personnel and Equipment

The Contractor shall submit, to the Employer, details showing the number of each class of Contractor's Personnel and of each type of Contractor's Equipment on the Site. Details shall be submitted each calendar month, in a form approved by the Employer, until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

6.11

Discorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, and to preserve peace and protection of persons and property on and near the Site.

7 Plant, Materials, and Workmanship

7.1

Manner of Execution

The Contractor shall carry out the manufacture of Plant, the production and manufacture of Materials, and all other execution of the Works:

- (a) in the manner (if any) specified in the Contract,
- (b) in a proper workmanlike and careful manner, in accordance with recognised good practice, and
- (c) with properly equipped facilities and non-hazardous Materials, except as otherwise specified in the Contract.

7.2

Samples

The Contractor shall submit samples to the Employer, for review in accordance with the procedures for Contractor's Documents described in Sub-Clause 5.2 [Contractor's Documents], as specified in the Contract and at the Contractor's cost. Each sample shall be labelled as to origin and intended use in the Works.

7.3

Inspection

The Employer's Personnel shall at all reasonable times:

- (a) have full access to all parts of the Site and to all places from which natural Materials are being obtained, and
- (b) during production, manufacture and construction (at the Site and, to the extent specified in the Contract, elsewhere), be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of manufacture of Plant and production and manufacture of Materials.

The Contractor shall give the Employer's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.

In respect of the work which Employer's Personnel are entitled to examine, inspect, measure and/or test, the Contractor shall give notice to the Employer whenever any such work is ready and before it is covered up, put out of sight, or packaged for

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storage or transport. The Employer shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Employer does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Employer, uncover the work and thereafter reinstate and make good, all at the Contractor's cost.

7.4
Testing

This Sub-Clause shall apply to all tests specified in the Contract, other than the Tests after Completion (if any).

The Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labour, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Employer, the time and place for the specified testing of any Plant, Materials and other parts of the Works.

The Employer may, under Clause 13 [Variations and Adjustments], vary the location or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.

The Employer shall give the Contractor not less than 24 hours' notice of the Employer's intention to attend the tests. If the Employer does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Employer, and the tests shall then be deemed to have been made in the Employer's presence.

If the Contractor suffers delay and/or incurs Cost from complying with these instructions or as a result of a delay for which the Employer is responsible, the Contractor shall give notice to the Employer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus reasonable profit, which shall be added to the Contract Price.

After receiving this notice, the Employer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

The Contractor shall promptly forward to the Employer duly certified reports of the tests. When the specified tests have been passed, the Employer shall endorse the Contractor's test certificate, or issue a certificate to him, to that effect. If the Employer has not attended the tests, he shall be deemed to have accepted the readings as accurate.

7.5
Rejection

If, as a result of an examination, inspection, measurement or testing, any Plant, Materials, design or workmanship is found to be defective or otherwise not in accordance with the Contract, the Employer may reject the Plant, Materials, design or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected item complies with the Contract.

If the Employer requires this Plant, Materials, design or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and

retesting cause the Employer to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay these costs to the Employer.

7.6

Remedial Work

Notwithstanding any previous test or certification, the Employer may instruct the Contractor to:

- (a) remove from the Site and replace any Plant or Materials which is not in accordance with the Contract,
- (b) remove and re-execute any other work which is not in accordance with the Contract, and
- (c) execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise.

If the Contractor fails to comply with any such instruction, which complies with Sub-Clause 3.4 [Instructions], the Employer shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay to the Employer all costs arising from this failure.

7.7

Ownership of Plant and Materials

Each Item of Plant and Materials shall, to the extent consistent with the Laws of the Country, become the property of the Employer at whichever is the earlier of the following times, free from liens and other encumbrances:

- (a) when it is delivered to the Site;
- (b) when the Contractor is entitled to payment of the value of the Plant and Materials under Sub-Clause 8.10 [Payment for Plant and Materials in Event of Suspension].

7.8

Royalties

Unless otherwise stated in the Employer's Requirements, the Contractor shall pay all royalties, rents and other payments for:

- (a) natural Materials obtained from outside the Site, and
- (b) the disposal of material from demolitions and excavations and of other surplus material (whether natural or man-made), except to the extent that disposal areas within the Site are specified in the Contract.

Commencement, Delays and Suspension

8.1

Commencement of Works

Unless otherwise stated in the Contract Agreement:

- (a) the Employer shall give the Contractor not less than 7 days' notice of the Commencement Date; and
- (b) the Commencement Date shall be within 42 days after the date on which the Contract comes into full force and effect under Sub-Clause 1.6 [Contract Agreement].

The Contractor shall commence the design and execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.

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8.2
Time for Completion

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:

- (a) achieving the passing of the Tests on Completion, and
- (b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [*Taking Over of the Works and Sections*].

8.3
Programme

The Contractor shall submit a time programme to the Employer within 28 days after the Commencement Date. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor's obligations. Unless otherwise stated in the Contract, each programme shall include:

- (a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each major stage of the Works,
- (b) the periods for reviews under Sub-Clause 5.2 [*Contractor's Documents*],
- (c) the sequence and timing of inspections and tests specified in the Contract, and
- (d) a supporting report which includes:
 - (i) a general description of the methods which the Contractor intends to adopt for the execution of each major stage of the Works, and
 - (ii) the approximate number of each class of Contractor's Personnel and of each type of Contractor's Equipment for each major stage.

Unless the Employer, within 21 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Employer's Personnel shall be entitled to rely upon the programme when planning their activities.

The Contractor shall promptly give notice to the Employer of specific probable future events or circumstances which may adversely affect or delay the execution of the Works. In this event, or if the Employer gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated Intentions, the Contractor shall submit a revised programme to the Employer in accordance with this Sub-Clause.

8.4
Extension of Time for
Completion

The Contractor shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [*Taking Over of the Works and Sections*] is or will be delayed by any of the following causes:

- (a) a Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [*Variation Procedure*]),
- (b) a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions, or
- (c) any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors on the Site.

If the Contractor considers himself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Employer in accordance with Sub-

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Clause 20.1 [Contractor's Claims]. When determining each extension of time under Sub-Clause 20.1, the Employer shall review previous determinations and may increase, but shall not decrease, the total extension of time.

8.5

Delays Caused by Authorities

If the following conditions apply, namely:

- (a) the Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in the Country,
- (b) these authorities delay or disrupt the Contractor's work, and
- (c) the delay or disruption was not reasonably foreseeable by an experienced contractor by the date for submission of the Tender,

then this delay or disruption will be considered as a cause of delay under subparagraph (b) of Sub-Clause 8.4 [Extension of Time for Completion].

8.6

Rate of Progress

If, at any time:

- (a) actual progress is too slow to complete within the Time for Completion, and/or
- (b) progress has fallen (or will fall) behind the current programme under Sub-Clause 8.3 [Programme],

other than as a result of a cause listed in Sub-Clause 8.4 [Extension of Time for Completion], then the Employer may instruct the Contractor to submit, under Sub-Clause 8.3 [Programme], a revised programme and supporting report describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion.

Unless the Employer notifies otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor's Personnel and/or Goods, at the risk and cost of the Contractor. If these revised methods cause the Employer to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay these costs to the Employer, in addition to delay damages (if any) under Sub-Clause 8.7 below.

8.7

Delay Damages

If the Contractor fails to comply with Sub-Clause 8.2 [Time for Completion], the Contractor shall subject to Sub-Clause 2.5 [Employer's Claims] pay delay damages to the Employer for this default. These delay damages shall be the sum stated in the Particular Conditions, which shall be paid for every day which shall elapse between the relevant Time for Completion and the date stated in the Taking-Over Certificate. However, the total amount due under this Sub-Clause shall not exceed the maximum amount of delay damages (if any) stated in the Particular Conditions.

These delay damages shall be the only damages due from the Contractor for such default, other than in the event of termination under Sub-Clause 15.2 [Termination by Employer] prior to completion of the Works. These damages shall not relieve the Contractor from his obligation to complete the Works, or from any other duties, obligations or responsibilities which he may have under the Contract.

8.8

Suspension of Work

The Employer may at any time instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.

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The Employer may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the Contractor, the following Sub-Clauses 8.9, 8.10 and 8.11 shall not apply.

8.9
Consequences of
Suspension

If the Contractor suffers delay and/or incurs Cost from complying with the Employer's instructions under Sub-Clause 8.8 [*Suspension of Work*] and/or from resuming the work, the Contractor shall give notice to the Employer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and
- (b) payment of any such Cost, which shall be added to the Contract Price.

After receiving this notice, the Employer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine these matters.

The Contractor shall not be entitled to an extension of time for, or to payment of the Cost incurred in, making good the consequences of the Contractor's faulty design, workmanship or materials, or of the Contractor's failure to protect, store or secure in accordance with Sub-Clause 8.8 [*Suspension of Work*].

8.10
Payment for Plant and
Materials in Event of
Suspension

The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant and/or Materials which have not been delivered to Site, if:

- (a) the work on Plant or delivery of Plant and/or Materials has been suspended for more than 28 days, and
- (b) the Contractor has marked the Plant and/or Materials as the Employer's property in accordance with the Employer's instructions.

8.11
Prolonged Suspension

If the suspension under Sub-Clause 8.8 [*Suspension of Work*] has continued for more than 84 days, the Contractor may request the Employer's permission to proceed. If the Employer does not give permission within 28 days after being requested to do so, the Contractor may, by giving notice to the Employer, treat the suspension as an omission under Clause 13 [*Variations and Adjustments*] of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give notice of termination under Sub-Clause 16.2 [*Termination by Contractor*].

8.12
Resumption of Work

After the permission or instruction to proceed is given, the Parties shall jointly examine the Works and the Plant and Materials affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant or Materials, which has occurred during the suspension.

9 Tests on Completion

9.1
Contractor's
Obligations

The Contractor shall carry out the Tests on Completion in accordance with this Clause and Sub-Clause 7.4, [*Testing*] after providing the documents in accordance with Sub-Clause 5.6 [*As-Built Documents*] and Sub-Clause 5.7 [*Operation and Maintenance Manuals*].

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The Contractor shall give to the Employer not less than 21 days' notice of the date after which the Contractor will be ready to carry out each of the Tests on Completion. Unless otherwise agreed, Tests on Completion shall be carried out within 14 days after this date, on such day or days as the Employer shall instruct.

Unless otherwise stated in the Particular Conditions, the Tests on Completion shall be carried out in the following sequence:

- (a) pre-commissioning tests, which shall include the appropriate inspections and ("dry" or "cold") functional tests to demonstrate that each item of Plant can safely under-take the next stage, (b);
- (b) commissioning tests, which shall include the specified operational tests to demonstrate that the Works or Section can be operated safely and as specified, under all available operating conditions; and
- (c) trial operation, which shall demonstrate that the Works or Section perform reliably and in accordance with the Contract.

During trial operation, when the Works are operating under stable conditions, the Contractor shall give notice to the Employer that the Works are ready for any other Tests on Completion, including performance tests to demonstrate whether the Works conform with criteria specified in the Employer's Requirements and with the Performance Guarantees.

Trial operation shall not constitute a taking-over under Clause 10 [Employer's Taking Over]. Unless otherwise stated in the Particular Conditions, any product produced by the Works during trial operation shall be the property of the Employer.

In considering the results of the Tests on Completion, appropriate allowances shall be made for the effect of any use of the Works by the Employer on the performance or other characteristics of the Works. As soon as the Works, or a Section, have passed each of the Tests on Completion described in sub-paragraph (a), (b) or (c), the Contractor shall submit a certified report of the results of these Tests to the Employer.

9.2
Delayed Tests

If the Tests on Completion are being unduly delayed by the Employer, Sub-Clause 7.4 [Testing] (fifth paragraph) and/or Sub-Clause 10.3 [Interference with Tests on Completion] shall be applicable.

If the Tests on Completion are being unduly delayed by the Contractor, the Employer may by notice require the Contractor to carry out the Tests within 21 days after receiving the notice. The Contractor shall carry out the Tests on such day or days within that period as the Contractor may fix and of which he shall give notice to the Employer

If the Contractor fails to carry out the Tests on Completion within the period of 21 days, the Employer's Personnel may proceed with the Tests at the risk and cost of the Contractor. These Tests on Completion shall then be deemed to have been carried out in the presence of the Contractor and the results of the Tests shall be accepted as accurate.

9.3
Retesting

If the Works, or a Section, fail to pass the Tests on Completion, Sub-Clause 7.5 [Rejection] shall apply, and the Employer or the Contractor may require the failed Tests, and Tests on Completion on any related work, to be repeated under the same terms and conditions.

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9.4
Failure to Pass Tests on
Completion

If the Works, or a Section, fail to pass the Tests on Completion repeated under Sub-Clause 9.3 [Retesting], the Employer shall be entitled to:

- (a) order further repetition of Tests on Completion under Sub-Clause 9.3;
- (b) If the failure deprives the Employer of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Employer shall have the same remedies as are provided in sub-paragraph (c) of Sub-Clause 11.4 [Failure to Remedy Defects]; or
- (c) issue a Taking-Over Certificate.

In the event of sub-paragraph (c), the Contractor shall proceed in accordance with all other obligations under the Contract, and the Contract Price shall be reduced by such amount as shall be appropriate to cover the reduced value to the Employer as a result of this failure. Unless the relevant reduction for this failure is stated (or its method of calculation is defined) in the Contract, the Employer may require the reduction to be (i) agreed by both Parties (in full satisfaction of this failure only) and paid before this Taking-Over Certificate is issued, or (ii) determined and paid under Sub-Clause 2.5 [Employer's Claims] and Sub-Clause 3.5 [Determinations].

10 Employer's Taking Over

10.1
Taking Over of the
Works and Sections

Except as stated in Sub-Clause 9.4 [Failure to Pass Tests on Completion], the Works shall be taken over by the Employer when (i) the Works have been completed in accordance with the Contract, including the matters described in Sub-Clause 8.2 [Time for Completion] and except as allowed in sub-paragraph (a) below, and (ii) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.

The Contractor may apply by notice to the Employer for a Taking-Over Certificate not earlier than 14 days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.

The Employer shall, within 28 days after receiving the Contractor's application:

- (a) issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or
- (b) reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause.

If the Employer fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 28 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.

10.2
Taking Over of Parts of
the Works

Parts of the Works (other than Sections) shall not be taken over or used by the Employer, except as may be stated in the Contract or as may be agreed by both Parties.

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10.3 Interference with Tests on Completion

If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Employer is responsible, the Contractor shall carry out the Tests on Completion as soon as practicable.

If the Contractor suffers delay and/or incurs Cost as a result of this delay in carrying out the Tests on Completion, the Contractor shall give notice to the Employer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost plus reasonable profit, which shall be added to the Contract Price.

After receiving this notice, the Employer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

11 Defects Liability

11.1 Completion of Outstanding Work and Remedying Defects

In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable thereafter, the Contractor shall:

- (a) complete any work which is outstanding on the date stated in a Taking-Over Certificate, within such reasonable time as is instructed by the Employer, and
- (b) execute all work required to remedy defects or damage, as may be notified by the Employer on or before the expiry date of the Defects Notification Period for the Works or Section (as the case may be).

If a defect appears or damage occurs, the Employer shall notify the Contractor accordingly.

11.2 Cost of Remedying Defects

All work referred to in sub-paragraph (b) of Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:

- (a) the design of the Works,
- (b) Plant, Materials or workmanship not being in accordance with the Contract,
- (c) improper operation or maintenance which was attributable to matters for which the Contractor is responsible (under Sub-Clauses 5.5 to 5.7 or otherwise), or
- (d) failure by the Contractor to comply with any other obligation.

If and to the extent that such work is attributable to any other cause, the Employer shall give notice to the Contractor accordingly, and Sub-Clause 13.3 [Variation Procedure] shall apply.

11.3 Extension of Defects Notification Period

The Employer shall be entitled subject to Sub-Clause 2.5 [Employer's Claims] to an extension of the Defects Notification Period for the Works or a Section if and to the extent that the Works, Section or a major item of Plant (as the case may be, and after taking over) cannot be used for the purposes for which they are intended by reason of a defect or damage. However, a Defects Notification Period shall not be extended by more than two years.

If delivery and/or erection of Plant and/or Materials was suspended under Sub-Clause 8.8 [*Suspension of Work*] or Sub-Clause 16.1 [*Contractor's Entitlement to Suspend Work*], the Contractor's obligations under this Clause shall not apply to any defects or damage occurring more than two years after the Defects Notification Period for the Plant and/or Materials would otherwise have expired.

11.4

Failure to Remedy Defects

If the Contractor fails to remedy any defect or damage within a reasonable time, a date may be fixed by (or on behalf of) the Employer, on or by which the defect or damage is to be remedied. The Contractor shall be given reasonable notice of this date.

If the Contractor fails to remedy the defect or damage by this notified date and this remedial work was to be executed at the cost of the Contractor under Sub-Clause 11.2 [*Cost of Remedying Defects*], the Employer may (at his option):

- (a) carry out the work himself or by others, in a reasonable manner and at the Contractor's cost, but the Contractor shall have no responsibility for this work; and the Contractor shall subject to Sub-Clause 2.5 [*Employer's Claims*] pay to the Employer the costs reasonably incurred by the Employer in remedying the defect or damage;
- (b) agree or determine a reasonable reduction in the Contract Price in accordance with Sub-Clause 3.5 [*Determinations*]; or
- (c) if the defect or damage deprives the Employer of substantially the whole benefit of the Works or any major part of the Works, terminate the Contract as a whole, or in respect of such major part which cannot be put to the intended use. Without prejudice to any other rights, under the Contract or otherwise, the Employer shall then be entitled to recover all sums paid for the Works or for such part (as the case may be), plus financing costs and the cost of dismantling the same, clearing the Site and returning Plant and Materials to the Contractor.

11.5

Removal of Defective Work

If the defect or damage cannot be remedied expeditiously on the Site and the Employer gives consent, the Contractor may remove from the Site for the purposes of repair such items of Plant as are defective or damaged. This consent may require the Contractor to increase the amount of the Performance Security by the full replacement cost of these items, or to provide other appropriate security.

11.6

Further Tests

If the work of remedying of any defect or damage may affect the performance of the Works, the Employer may require the repetition of any of the tests described in the Contract, including Tests on Completion and/or Tests after Completion. The requirement shall be made by notice within 28 days after the defect or damage is remedied.

These tests shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable, under Sub-Clause 11.2 [*Cost of Remedying Defects*], for the cost of the remedial work.

11.7

Right of Access

Until the Performance Certificate has been issued, the Contractor shall have the right of access to all parts of the Works and to records of the operation and performance of the Works, except as may be inconsistent with the Employer's reasonable security restrictions.

11.8

Contractor to Search

The Contractor shall, if required by the Employer, search for the cause of any defect, under the direction of the Employer. Unless the defect is to be remedied at the cost

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of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Cost of the search plus reasonable profit shall be agreed or determined in accordance with Sub-Clause 3.5 [Determinations] and shall be added to the Contract Price.

11.9

Performance Certificate

Performance of the Contractor's obligations shall not be considered to have been completed until the Employer has issued the Performance Certificate to the Contractor, stating the date on which the Contractor completed his obligations under the Contract.

The Employer shall issue the Performance Certificate within 28 days after the latest of the expiry dates of the Defects Notification Periods, or as soon thereafter as the Contractor has supplied all the Contractor's Documents and completed and tested all the Works, including remedying any defects. If the Employer fails to issue the Performance Certificate accordingly:

- (a) the Performance Certificate shall be deemed to have been issued on the date 28 days after the date on which it should have been issued, as required by this Sub-Clause, and
- (b) Sub-Clause 11.11 [Clearance of Site] and sub-paragraph (a) of Sub-Clause 14.14 [Cessation of Employer's Liability] shall be inapplicable.

Only the Performance Certificate shall be deemed to constitute acceptance of the Works.

11.10

Unfulfilled Obligations

After the Performance Certificate has been issued, each Party shall remain liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.

11.11

Clearance of Site

Upon receiving the Performance Certificate, the Contractor shall remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site.

If all these items have not been removed within 28 days after the Employer Issues the Performance Certificate, the Employer may sell or otherwise dispose of any remaining items. The Employer shall be entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site.

Any balance of the moneys from the sale shall be paid to the Contractor. If these moneys are less than the Employer's costs, the Contractor shall pay the outstanding balance to the Employer.

12 Tests after Completion

12.1

Procedure for Tests after Completion

If Tests after Completion are specified in the Contract, this Clause shall apply. Unless otherwise stated in the Particular Conditions:

- (a) the Employer shall provide all electricity, fuel and materials, and make the Employer's Personnel and Plant available;
- (b) the Contractor shall provide any other plant, equipment and suitably qualified

- and experienced staff, as are necessary to carry out the Tests after Completion efficiently; and
- (c) the Contractor shall carry out the Tests after Completion in the presence of such Employer's and/or Contractor's Personnel as either Party may reasonably request.

The Tests after Completion shall be carried out as soon as is reasonably practicable after the Works or Section have been taken over by the Employer. The Employer shall give to the Contractor 21 days' notice of the date after which the Tests after Completion will be carried out. Unless otherwise agreed, these Tests shall be carried out within 14 days after this date, on the day or days determined by the Employer.

The results of the Tests after Completion shall be compiled and evaluated by the Contractor, who shall prepare a detailed report. Appropriate account shall be taken of the effect of the Employer's prior use of the Works.

**12.2
Delayed Tests**

If the Contractor incurs Cost as a result of any unreasonable delay by the Employer to the Tests after Completion, the Contractor shall (i) give notice to the Employer and (ii) be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to payment of any such Cost plus reasonable profit, which shall be added to the Contract Price.

After receiving this notice, the Employer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine this Cost and profit.

If, for reasons not attributable to the Contractor, a Test after Completion on the Works or any Section cannot be completed during the Defects Notification Period (or any other period agreed upon by both Parties), then the Works or Section shall be deemed to have passed this Test after Completion.

**12.3
Retesting**

If the Works, or a Section, fail to pass the Tests after Completion:

- (a) sub-paragraph (b) of Sub-Clause 11.1 [*Completion of Outstanding Work and Remedying of Defects*] shall apply, and
- (b) either Party may then require the failed Tests, and the Tests after Completion on any related work, to be repeated under the same terms and conditions.

If and to the extent that this failure and retesting are attributable to any of the matters listed in sub-paragraphs (a) to (d) of Sub-Clause 11.2 [*Cost of Remedying Defects*] and cause the Employer to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [*Employer's Claims*] pay these costs to the Employer.

**12.4
Failure to Pass Tests after Completion**

If the following conditions apply, namely:

- (a) the Works, or a Section, fail to pass any or all of the Tests after Completion,
- (b) the relevant sum payable as non-performance damages for this failure is stated (or its method of calculation is defined) in the Contract, and
- (c) the Contractor pays this relevant sum to the Employer during the Defects Notification Period,

then the Works or Section shall be deemed to have passed these Tests after Completion.

If the Works, or a Section, fail to pass a Test after Completion and the Contractor proposes to make adjustments or modifications to the Works or such Section, the Contractor may be instructed by (or on behalf of) the Employer that right of access to

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the Works or Section cannot be given until a time that is convenient to the Employer. The Contractor shall then remain liable to carry out the adjustments or modifications and to satisfy this Test, within a reasonable period of receiving notice by (or on behalf of) the Employer of the time that is convenient to the Employer. However, if the Contractor does not receive this notice during the relevant Defects Notification Period, the Contractor shall be relieved of this obligation and the Works or Section (as the case may be) shall be deemed to have passed this Test after Completion.

If the Contractor incurs additional Cost as a result of any unreasonable delay by the Employer in permitting access to the Works or Plant by the Contractor, either to investigate the causes of a failure to pass a Test after Completion or to carry out any adjustments or modifications, the Contractor shall (i) give notice to the Employer and (ii) be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to payment of any such Cost plus reasonable profit, which shall be added to the Contract Price.

After receiving this notice, the Employer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this Cost and profit.

13 Variations and Adjustments

13.1 Right to Vary

Variations may be initiated by the Employer at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal. A Variation shall not comprise the omission of any work which is to be carried out by others.

The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Employer stating (with supporting particulars) that (i) the Contractor cannot readily obtain the Goods required for the Variation, (ii) it will reduce the safety or suitability of the Works, or (iii) it will have an adverse impact on the achievement of the Performance Guarantees. Upon receiving this notice, the Employer shall cancel, confirm or vary the instruction.

13.2 Value Engineering

The Contractor may, at any time, submit to the Employer a written proposal which (in the Contractor's opinion) will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Employer of executing, maintaining or operating the Works, (iii) improve the efficiency or value to the Employer of the completed Works, or (iv) otherwise be of benefit to the Employer.

The proposal shall be prepared at the cost of the Contractor and shall include the items listed in Sub-Clause 13.3 [Variation Procedure].

13.3 Variation Procedure

If the Employer requests a proposal, prior to instructing a Variation, the Contractor shall respond in writing as soon as practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:

- (a) a description of the proposed design and/or work to be performed and a programme for its execution,
- (b) the Contractor's proposal for any necessary modifications to the programme according to Sub-Clause 8.3 [Programme] and to the Time for Completion, and
- (c) the Contractor's proposal for adjustment to the Contract Price.

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The Employer shall, as soon as practicable after receiving such proposal (under Sub-Clause 13.2 [Value Engineering] or otherwise), respond with approval, disapproval or comments. The Contractor shall not delay any work whilst awaiting a response.

Each instruction to execute a Variation, with any requirements for the recording of Costs, shall be issued by the Employer to the Contractor, who shall acknowledge receipt.

Upon instructing or approving a Variation, the Employer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine adjustments to the Contract Price and the Schedule of Payments. These adjustments shall include reasonable profit, and shall take account of the Contractor's submissions under Sub-Clause 13.2 [Value Engineering] if applicable.

13.4

Payment in Applicable Currencies

If the Contract provides for payment of the Contract Price in more than one currency, then whenever an adjustment is agreed, approved or determined as stated above, the amount payable in each of the applicable currencies shall be specified. For this purpose, reference shall be made to the actual or expected currency proportions of the Cost of the varied work, and to the proportions of various currencies specified for payment of the Contract Price.

13.5

Provisional Sums

Each Provisional Sum shall only be used, in whole or in part, in accordance with the Employer's instructions, and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the Employer shall have instructed. For each Provisional Sum, the Employer may instruct:

- (a) work to be executed (including Plant, Materials or services to be supplied) by the Contractor and valued under Sub-Clause 13.3 [Variation Procedure]; and/or
- (b) Plant, Materials or services to be purchased by the Contractor, for which there shall be added to the Contract Price less the original Provisional Sums:
 - (i) the actual amounts paid (or due to be paid) by the Contractor, and
 - (ii) a sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate (if any) stated in the Contract.

The Contractor shall, when required by the Employer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

13.6

Daywork

For work of a minor or incidental nature, the Employer may instruct that a Variation shall be executed on a daywork basis. The work shall then be valued in accordance with the daywork schedule included in the Contract, and the following procedure shall apply. If a daywork schedule is not included in the Contract, this Sub-Clause shall not apply.

Before ordering Goods for the work, the Contractor shall submit quotations to the Employer. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Goods.

Except for any items for which the daywork schedule specifies that payment is not due, the Contractor shall deliver each day to the Employer accurate statements in

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duplicate which shall include the following details of the resources used in executing the previous day's work:

- (a) the names, occupations and time of Contractor's Personnel,
- (b) the identification, type and time of Contractor's Equipment and Temporary Works, and
- (c) the quantities and types of Plant and Materials used.

One copy of each statement will, if correct, or when agreed, be signed by the Employer and returned to the Contractor. The Contractor shall then submit priced statements of these resources to the Employer, prior to their inclusion in the next Statement under Sub-Clause 14.3 [Application for Interim Payments].

13.7

Adjustments for Changes in Legislation

The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of the Country (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.

If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Employer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost, which shall be added to the Contract Price.

After receiving this notice, the Employer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

13.8

Adjustments for Changes in Costs

If the Contract Price is to be adjusted for rises or falls in the cost of labour, Goods and other inputs to the Works, the adjustments shall be calculated in accordance with the provisions in the Particular Conditions.

14 Contract Price and Payment

14.1

The Contract Price

Unless otherwise stated in the Particular Conditions:

- (a) payment for the Works shall be made on the basis of the lump sum Contract Price, subject to adjustments in accordance with the Contract; and
- (b) the Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs, except as stated in Sub-Clause 13.7 [Adjustments for Changes in Legislation].

14.2

Advanced Payment

The Employer shall make an advance payment, as an interest-free loan for mobilization and design, when the Contractor submits a guarantee in accordance with this Sub-Clause including the details stated in the Particular Conditions. If the Particular Conditions does not state:

- (a) the amount of the advance payment, then this Sub-Clause shall not apply;
- (b) the number and timing of instalments, then there shall be only one;
- (c) the applicable currencies and proportions, then they shall be those in which the Contract Price is payable; and/or
- (d) the amortisation rate for repayments, then it shall be calculated by dividing the total amount of the advance payment by the Contract Price stated in the Contract Agreement less Provisional Sums.

The Employer shall pay the first instalment after receiving (i) a Statement (under Sub-Clause 14.3 [*Application for Interim Payments*]), (ii) the Performance Security in accordance with Sub-Clause 4.2 [*Performance Security*], and (iii) a guarantee in amounts and currencies equal to the advance payment. This guarantee shall be issued by an entity and from within a country (or other jurisdiction) approved by the Employer, and shall be in the form annexed to the Particular Conditions or in another form approved by the Employer. Unless and until the Employer receives this guarantee, this Sub-Clause shall not apply.

The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been repaid, but its amount may be progressively reduced by the amount repaid by the Contractor. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the guarantee until the advance payment has been repaid.

The advance payment shall be repaid through proportional deductions in interim payments. Deductions shall be made at the amortization rate stated in the Particular Conditions (or, if not so stated, as stated in sub-paragraph (d) above), which shall be applied to the amount otherwise due (excluding the advance payment and deductions and repayments of retention), until such time as the advance payment has been repaid.

If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under Clause 15 [*Termination by Employer*], Clause 16 [*Suspension and Termination by Contractor*] or Clause 19 [*Force Majeure*] (as the case may be), the whole of the balance then outstanding shall immediately become due and payable by the Contractor to the Employer.

14.3

Application for Interim Payments

The Contractor shall submit a Statement in six copies to the Employer after the end of the period of payment stated in the Contract (if not stated, after the end of each month), in a form approved by the Employer, showing in detail the amounts to which the Contractor considers himself to be entitled, together with supporting documents which shall include the relevant report on progress in accordance with Sub-Clause 4.21 [*Progress Reports*].

The Statement shall include the following items, as applicable, which shall be expressed in the various currencies in which the Contract Price is payable, in the sequence listed:

- (a) the estimated contract value of the Works executed and the Contractor's Documents produced up to the end of the month (including Variations but excluding items described in sub-paragraphs (b) to (f) below);
- (b) any amounts to be added and deducted for changes in legislation and changes in cost, in accordance with Sub-Clause 13.7 [*Adjustments for Changes in Legislation*] and Sub-Clause 13.8 [*Adjustments for Changes in Cost*];
- (c) any amount to be deducted for retention, calculated by applying the percentage of retention stated in the Particular Conditions to the total of the

- (d) above amounts, until the amount so retained by the Employer reaches the limit of Retention Money (if any) stated in the Particular Conditions;
- (e) any amounts to be added and deducted for the advance payment and repayments in accordance with Sub-Clause 14.2 [Advance Payment];
- (f) any other additions or deductions which may have become due under the Contract or otherwise, including those under Clause 20 [Claims, Disputes and Arbitration]; and
- (g) the deduction of amounts included in previous Statements.

14.4

Schedule of Payments

If the Contract includes a Schedule of Payments specifying the instalments in which the Contract Price will be paid, then unless otherwise stated in this Schedule:

- (a) the instalments quoted in the Schedule of Payments shall be the estimated contract values for the purposes of sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payments], subject to Sub-Clause 14.5 [Plant and Materials intended for the Works]; and
- (b) if these instalments are not defined by reference to the actual progress achieved in executing the Works, and if actual progress is found to be less than that on which the Schedule of Payments was based, then the Employer may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine revised instalments, which shall take account of the extent to which progress is less than that on which the instalments were previously based.

If the Contract does not include a Schedule of Payments, the Contractor shall submit non-binding estimates of the payments which he expects to become due during each quarterly period. The first estimate shall be submitted within 42 days after the Commencement Date. Revised estimates shall be submitted at quarterly intervals, until the Taking-Over Certificate has been issued for the Works.

14.5

Plant and Materials intended for the Works

If the Contractor is entitled, under the Contract, to an interim payment for Plant and Materials which are not yet on the Site, the Contractor shall nevertheless not be entitled to such payment unless:

- (a) the relevant Plant and Materials are in the Country and have been marked as the Employer's property in accordance with the Employer's instructions; or
- (b) the Contractor has delivered, to the Employer, evidence of insurance and a bank guarantee in a form and issued by an entity approved by the Employer in amounts and currencies equal to such payment. This guarantee may be in a similar form to the form referred to in Sub-Clause 14.2 [Advance Payment] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration.

14.6

Interim Payments

No amount will be paid until the Employer has received and approved the Performance Security. Thereafter, the Employer shall within 28 days after receiving a Statement and supporting documents, give to the Contractor notice of any items in the Statement with which the Employer disagrees, with supporting particulars. Payments due shall not be withheld, except that:

- (a) if any thing supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or
- (b) if the Contractor was or is failing to perform any work or obligation in accordance with the Contract, and had been so notified by the Employer, the

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value of this work or obligation may be withheld until the work or obligation has been performed.

The Employer may, by any payment, make any correction or modification that should properly be made to any amount previously considered due. Payment shall not be deemed to indicate the Employer's acceptance, approval, consent or satisfaction.

14.7

Timing of Payments

Except as otherwise stated in Sub-Clause 2.5 [*Employer's Claims*], the Employer shall pay to the Contractor:

- (a) the first instalment of the advance payment within 42 days after the date on which the Contract came into full force and effect or within 21 days after the Employer receives the documents in accordance with Sub-Clause 4.2 [*Performance Security*] and Sub-Clause 14.2 [*Advance Payment*], whichever is later;
- (b) the amount which is due in respect of each Statement, other than the Final Statement, within 56 days after receiving the Statement and supporting documents; and
- (c) the final amount due, within 42 days after receiving the Final Statement and written discharge in accordance with Sub-Clause 14.11 [*Application for Final Payment*] and Sub-Clause 14.12 [*Discharge*].

Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, in the payment country (for this currency) specified in the Contract.

14.8

Delayed Payment

If the Contractor does not receive payment in accordance with Sub-Clause 14.7 [*Timing of Payments*], the Contractor shall be entitled to receive financing charges compounded monthly on the amount unpaid during the period of delay.

Unless otherwise stated in the Particular Conditions, these financing charges shall be calculated at the annual rate of three percentage points above the discount rate of the central bank in the country of the currency of payment, and shall be paid in such currency.

The Contractor shall be entitled to this payment without formal notice, and without prejudice to any other right or remedy.

14.9

Payment of Retention Money

When the Taking-Over Certificate has been issued for the Works, and the Works have passed all specified tests (including the Tests after Completion, if any), the first half of the Retention Money shall be paid to the Contractor. If a Taking-Over Certificate is issued for a Section, the relevant percentage of the first half of the Retention Money shall be paid when the Section passes all tests.

Promptly after the latest of the expiry dates of the Defects Notification Periods, the outstanding balance of the Retention Money shall be paid to the Contractor. If a Taking-Over Certificate was issued for a Section, the relevant percentage of the second half of the Retention Money shall be paid promptly after the expiry date of the Defects Notification Period for the Section.

However, if any work remains to be executed under Clause 11 [*Defects Liability*] or Clause 12 [*Tests after Completion*], the Employer shall be entitled to withhold the estimated cost of this work until it has been executed.

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The relevant percentage for each Section shall be the percentage value of the Section as stated in the Contract. If the percentage value of a Section is not stated in the Contract, no percentage of either half of the Retention Money shall be released under this Sub-Clause in respect of such Section.

14.10
Statement at Completion

Within 84 days after receiving the Taking-Over Certificate for the Works, the Contractor shall submit to the Employer six copies of a Statement at completion with supporting documents, in accordance with Sub-Clause 14.3 [Application for Interim Payments], showing:

- (a) the value of all work done in accordance with the Contract up to the date stated in the Taking-Over Certificate for the Works,
- (b) any further sums which the Contractor considers to be due, and
- (c) an estimate of any other amounts which the Contractor considers will become due to him under the Contract. Estimated amounts shall be shown separately in this Statement at completion.

The Employer shall then give notice to the Contractor in accordance with Sub-Clause 14.6 [Interim Payments] and make payment in accordance with Sub-Clause 14.7 [Timing of Payments].

14.11
Application for Final Payment

Within 56 days after receiving the Performance Certificate, the Contractor shall submit, to the Employer, six copies of a draft final statement with supporting documents showing in detail in a form approved by the Employer:

- (a) the value of all work done in accordance with the Contract, and
- (b) any further sums which the Contractor considers to be due to him under the Contract or otherwise.

If the Employer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Employer may reasonably require and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Employer the final statement as agreed. This agreed statement is referred to in these Conditions as the "Final Statement".

However if, following discussions between the Parties and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Employer shall pay the agreed parts of the draft final statement in accordance with Sub-Clause 14.6 [Interim Payments] and Sub-Clause 14.7 [Timing of Payments]. Thereafter, if the dispute is finally resolved under Sub-Clause 20.4 [Obtaining Dispute Adjudication Board's Decision] or Sub-Clause 20.5 [Amicable Settlement], the Contractor shall then prepare and submit to the Employer a Final Statement.

14.12
Discharge

When submitting the Final Statement, the Contractor shall submit a written discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to the Contractor under or in connection with the Contract. This discharge may state that it becomes effective when the Contractor has received the Performance Security and the out-standing balance of this total, in which event the discharge shall be effective on such date.

14.13
Final Payment

In accordance with sub-paragraph (c) of Sub-Clause 14.7 [Timing of Payments], the Employer shall pay to the Contractor the amount which is finally due, less all amounts

previously paid by the Employer and any deductions in accordance with Sub-Clause 2.5 [Employer's Claims].

14.14

Cessation of Employer's Liability

The Employer shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expressly for it:

- (a) in the Final Statement and also
- (b) (except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at completion described in Sub-Clause 14.10 [Statement at Completion].

However, this Sub-Clause shall not limit the Employer's liability under his indemnification obligations, or the Employer's liability in any case of fraud, deliberate default or reckless misconduct by the Employer.

14.15

Currencies of Payment

The Contract Price shall be paid in the currency or currencies named in the Contract Agreement. Unless otherwise stated in the Particular Conditions, if more than one currency is so named, payments shall be made as follows:

- (a) if the Contract Price was expressed in Local Currency only:
 - (i) the proportions or amounts of the Local and Foreign Currencies, and the fixed rates of exchange to be used for calculating the payments, shall be as stated in the Contract Agreement, except as otherwise agreed by both Parties;
 - (ii) payments and deductions under Sub-Clause 13.5 [Provisional Sums] and Sub-Clause 13.7 [Adjustments for Changes in Legislation] shall be made in the applicable currencies and proportions; and
 - (iii) other payments and deductions under sub-paragraphs (a) to (d) of Sub-Clause 14.3 [Application for Interim Payments] shall be made in the currencies and proportions specified in sub-paragraph (a)(i) above;
- (b) payment of the damages specified in the Particular Conditions shall be made in the currencies and proportions specified in the Particular Conditions;
- (c) other payments to the Employer by the Contractor shall be made in the currency in which the sum was expended by the Employer, or in such currency as may be agreed by both Parties;
- (d) if any amount payable by the Contractor to the Employer in a particular currency exceeds the sum payable by the Employer to the Contractor in that currency, the Employer may recover the balance of this amount from the sums otherwise payable to the Contractor in other currencies; and
- (e) if no rates of exchange are stated in the Contract, they shall be those prevailing on the Base Date and determined by the central bank of the Country.

15 Termination by Employer

15.1

Notice to Correct

If the Contractor fails to carry out any obligation under the Contract, the Employer may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.

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15.2

Termination by Employer

The Employer shall be entitled to terminate the Contract if the Contractor:

- (a) fails to comply with Sub-Clause 4.2 [*Performance Security*] or with a notice under Sub-Clause 15.1 [*Notice to Correct*].
- (b) abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract,
- (c) without reasonable excuse fails to proceed with the Works in accordance with Clause 8 [*Commencement, Delays and Suspension*],
- (d) subcontracts the whole of the Works or assigns the Contract without the required agreement,
- (e) becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events, or
- (f) gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an inducement or reward:
 - (i) for doing or forbearing to do any action in relation to the Contract, or
 - (ii) for showing or forbearing to show favour or disfavour to any person in relation to the Contract,

or if any of the Contractor's Personnel, agents or Subcontractors gives or offers to give (directly or indirectly) to any person any such inducement or reward as is described in this sub-paragraph (f). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination.

In any of these events or circumstances, the Employer may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor from the Site. However, in the case of sub-paragraph (e) or (f), the Employer may by notice terminate the Contract immediately.

The Employer's election to terminate the Contract shall not prejudice any other rights of the Employer, under the Contract or otherwise.

The Contractor shall then leave the Site and deliver any required Goods, all Contractor's Documents, and other design documents made by or for him, to the Employer. However, the Contractor shall use his best efforts to comply immediately with any reasonable instructions included in the notice (i) for the assignment of any sub-contract, and (ii) for the protection of life or property or for the safety of the Works.

After termination, the Employer may complete the Works and/or arrange for any other entities to do so. The Employer and these entities may then use any Goods, Contractor's Documents and other design documents made by or on behalf of the Contractor.

The Employer shall then give notice that the Contractor's Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Employer, these items may be sold by the Employer in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

15.3

Valuation at Date of Termination

As soon as practicable after a notice of termination under Sub-Clause 15.2 [*Termination by Employer*] has taken effect, the Employer shall proceed in accordance with Sub-Clause 3.5 [*Determinations*] to agree or determine the value of the Works.

Goods and Contractor's Documents, and any other sums due to the Contractor for work executed in accordance with the Contract.

15.4

Payment after Termination

After a notice of termination under Sub-Clause 15.2 [*Termination by Employer*] has taken effect, the Employer may:

- (a) proceed in accordance with Sub-Clause 2.5 [*Employer's Claims*],
- (b) with-hold further payments to the Contractor until the costs of design, execution, completion and remedying of any defects, damages for delay in completion (if any), and all other costs incurred by the Employer, have been established, and/or
- (c) recover from the Contractor any losses and damages incurred by the Employer and any extra costs of completing the Works, after allowing for any sum due to the Contractor under Sub-Clause 15.3 [*Valuation at Date of Termination*]. After recovering any such losses, damages and extra costs, the Employer shall pay any balance to the Contractor.

15.5

Employer's Entitlement to Termination

The Employer shall be entitled to terminate the Contract, at any time for the Employer's convenience, by giving notice of such termination to the Contractor. The termination shall take effect 28 days after the later of the dates on which the Contractor receives this notice or the Employer returns the Performance Security. The Employer shall not terminate the Contract under this Sub-Clause in order to execute the Works himself or to arrange for the Works to be executed by another contractor.

After this termination, the Contractor shall proceed in accordance with Sub-Clause 16.3 [*Cessation of Work and Removal of Contractor's Equipment*] and shall be paid in accordance with Sub-Clause 19.6 [*Optional Termination, Payment and Release*].

16 Suspension and Termination by Contractor

16.1

Contractor's Entitlement to Suspend Work

If the Employer fails to comply with Sub-Clause 2.4 [*Employer's Financial Arrangements*] or Sub-Clause 14.7 [Timing of Payments], the Contractor may, after giving not less than 21 days' notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the reasonable evidence or payment, as the case may be and as described in the notice.

The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [*Delayed Payment*] and to termination under Sub-Clause 16.2 [*Termination by Contractor*].

If the Contractor subsequently receives such evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.

If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Employer and shall be entitled subject to Sub-Clause 20.1 [*Contractor's Claims*] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [*Extension of Time for Completion*], and

- (b) payment of any such Cost plus reasonable profit, which shall be added to the Contract Price.

After receiving this notice, the Employer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

16.2

Termination by Contractor

The Contractor shall be entitled to terminate the Contract if:

- (a) the Contractor does not receive the reasonable evidence within 42 days after giving notice under Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work] in respect of a failure to comply with Sub-Clause 2.4 [Employer's Financial Arrangements],
- (b) the Contractor does not receive the amount due within 42 days after the expiry of the time stated in Sub-Clause 14.7 [Timing of Payments] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [Employer's Claims]),
- (c) the Employer substantially fails to perform his obligations under the Contract,
- (d) the Employer fails to comply with Sub-Clause 1.7 [Assignment],
- (e) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [Prolonged Suspension], or
- (f) the Employer becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events.

In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Employer, terminate the Contract. However, in the case of subparagraph (e) or (f), the Contractor may by notice terminate the Contract immediately.

The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.

16.3

Cessation of Work and Removal of Contractor's Equipment

After a notice of termination under Sub-Clause 15.5 [Employer's Entitlement to Termination], Sub-Clause 16.2 [Termination by Contractor] or Sub-Clause 19.6 [Optional Termination, Payment and Release] has taken effect, the Contractor shall promptly:

- (a) cease all further work, except for such work as may have been instructed by the Employer for the protection of life or property or for the safety of the Works,
- (b) hand over Contractor's Documents, Plant, Materials and other work, for which the Contractor has received payment, and
- (c) remove all other Goods from the Site, except as necessary for safety, and leave the Site.

16.4

Payment on Termination

After a notice of termination under Sub-Clause 16.2 [Termination by Contractor] has taken effect, the Employer shall promptly:

- (a) return the Performance Security to the Contractor,
- (b) pay the Contractor in accordance with Sub-Clause 19.6 [Optional Termination, Payment and Release], and
- (c) pay to the Contractor the amount of any loss of profit or other loss or damage sustained by the Contractor as a result of this termination.

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17 Risk and Responsibility

17.1 Indemnities

The Contractor shall indemnify and hold harmless the Employer, the Employer's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:

- (a) bodily injury, sickness, disease or death, of any person whatsoever arising out of or in the course of or by reason of the design, execution and completion of the Works and the remedying of any defects, unless attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents, and
- (b) damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss:
 - (i) arises out of or in the course of or by reason of the design, execution and completion of the Works and the remedying of any defects, and
 - (ii) is not attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, their respective agents, or anyone directly or indirectly employed by any of them.

The Employer shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death, which is attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents, and (2) the matters for which liability may be excluded from insurance cover, as described in sub-paragraphs (d)(i), (ii) and (iii) of Sub-Clause 18.3 [*Insurance Against Injury to Persons and Damage to Property*].

17.2 Contractor's Care of the Works

The Contractor shall take full responsibility for the care of the Works and Goods from the Commencement Date until the Taking-Over Certificate is issued (or is deemed to be issued under Sub-Clause 10.1 [*Taking Over of the Works and Sections*]) for the Works, when responsibility for the care of the Works shall pass to the Employer. If a Taking-Over Certificate is issued (or is so deemed to be issued) for any Section of the Works, responsibility for the care of the Section shall then pass to the Employer.

After responsibility has accordingly passed to the Employer, the Contractor shall take responsibility for the care of any work which is outstanding on the date stated in a Taking-Over Certificate, until this outstanding work has been completed.

If any loss or damage happens to the Works, Goods or Contractor's Documents during the period when the Contractor is responsible for their care, from any cause not listed in Sub-Clause 17.3 [*Employer's Risks*], the Contractor shall rectify the loss or damage at the Contractor's risk and cost, so that the Works, Goods and Contractor's Documents conform with the Contract.

The Contractor shall be liable for any loss or damage caused by any actions performed by the Contractor after a Taking-Over Certificate has been issued. The Contractor shall also be liable for any loss or damage which occurs after a Taking-Over Certificate has been issued and which arose from a previous event for which the Contractor was liable.

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**17.3
Employer's Risks**

The risks referred to in Sub-Clause 17.4 below are:

- (a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
- (b) rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war, within the Country,
- (c) riot, commotion or disorder within the Country by persons other than the Contractor's Personnel and other employees of the Contractor and Subcontractors,
- (d) munitions of war, explosive materials, ionising radiation or contamination by radio-activity, within the Country, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity, and
- (e) pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds.

**17.4
Consequences of
Employer's Risks**

If and to the extent that any of the risks listed in Sub-Clause 17.3 above results in loss or damage to the Works, Goods or Contractor's Documents, the Contractor shall promptly give notice to the Employer and shall rectify this loss or damage to the extent required by the Employer.

If the Contractor suffers delay and/or incurs Cost from rectifying this loss or damage, the Contractor shall give a further notice to the Employer and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) payment of any such Cost, which shall be added to the Contract Price.

After receiving this further notice, the Employer shall proceed in accordance with Sub Clause 3.5 [Determinations] to agree or determine these matters.

**17.5
Intellectual and
Industrial Property
Rights**

In this Sub-Clause, "infringement" means an infringement (or alleged infringement) of any patent, registered design, copyright, trade mark, trade name, trade secret or other intellectual or industrial property right relating to the Works; and "claim" means a claim (or proceedings pursuing a claim) alleging an infringement.

Whenever a Party does not give notice to the other Party of any claim within 28 days of receiving the claim, the first Party shall be deemed to have waived any right to indemnity under this Sub-Clause.

The Employer shall indemnify and hold the Contractor harmless against and from any claim alleging an infringement which is or was:

- (a) an unavoidable result of the Contractor's compliance with the Employer's Requirements, or
- (b) a result of any Works being used by the Employer:
 - (i) for a purpose other than that indicated by, or reasonably to be inferred from, the Contract, or
 - (ii) in conjunction with any thing not supplied by the Contractor, unless such use was disclosed to the Contractor prior to the Base Date or is stated in the Contract.

The Contractor shall indemnify and hold the Employer harmless against and from any other claim which arises out of or in relation to (i) the Contractor's design,

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manufacture, construction or execution of the Works, (ii) the use of Contractor's Equipment, or (iii) the proper use of the Works.

If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in contesting the claim. This other Party (and its Personnel) shall not make any admission which might be prejudicial to the indemnifying Party, unless the indemnifying Party failed to take over the conduct of any negotiations, litigation or arbitration upon being requested to do so by such other Party.

17.6

Limitation of Liability

Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than under Sub-Clause 16.4 [Payment on Termination] and Sub-Clause 17.1 [Indemnities].

The total liability of the Contractor to the Employer, under or in connection with the Contract other than under Sub-Clause 4.19 [Electricity, Water and Gas], Sub-Clause 4.20 [Employer's Equipment and Free-Issue Material], Sub-Clause 17.1 [Indemnities] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights], shall not exceed the sum stated in the Particular Conditions or (if a sum is not so stated) the Contract Price stated in the Contract Agreement.

This Sub-Clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

18 Insurance

18.1

General Requirements for Insurances

In this Clause, "Insuring Party" means, for each type of insurance, the Party responsible for effecting and maintaining the insurance specified in the relevant Sub-Clause.

Wherever the Contractor is the insuring Party, each insurance shall be effected with insurers and in terms approved by the Employer. These terms shall be consistent with any terms agreed by both Parties before they signed the Contract Agreement. This agreement of terms shall take precedence over the provisions of this Clause.

Wherever the Employer is the insuring Party, each insurance shall be effected with insurers and in terms consistent with the details annexed to the Particular Conditions.

If a policy is required to indemnify joint insured, the cover shall apply separately to each insured as though a separate policy had been issued for each of the joint insured. If a policy indemnifies additional joint insured, namely in addition to the insured specified in this Clause, (i) the Contractor shall act under the policy on behalf of these additional joint insured except that the Employer shall act for Employer's Personnel, (ii) additional joint insured shall not be entitled to receive payments directly from the insurer or to have any other direct dealings with the insurer, and (iii) the insuring Party shall require all additional joint insured to comply with the conditions stipulated in the policy.

Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the loss or damage. Payments received from insurers shall be used for the rectification of the loss or damage.

The relevant insuring Party shall, within the respective periods stated in the Particular Conditions (calculated from the Commencement Date), submit to the other Party:

- (a) evidence that the insurances described in this Clause have been effected, and
- (b) copies of the policies for the insurances described in Sub-Clause 18.2 [*Insurance of Works and Contractor's Equipment*] and Sub-Clause 18.3 [*Insurance against Injury to Persons and Damage to Property*].

When each premium is paid, the insuring Party shall submit evidence of payment to the other Party.

Each Party shall comply with the conditions stipulated in each of the insurance policies. The insuring Party shall keep the insurers informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Clause.

Neither Party shall make any material alteration to the terms of any insurance without the prior approval of the other Party. If an insurer makes (or attempts to make) any alteration, the Party first notified by the insurer shall promptly give notice to the other Party.

If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contract, or fails to provide satisfactory evidence and copies of policies in accordance with this Sub-Clause, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.

Nothing in this Clause limits the obligations, liabilities or responsibilities of the Contractor or the Employer, under the other terms of the Contract or otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/or the Employer in accordance with these obligations, liabilities or responsibilities. However, if the insuring Party fails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the Contract, and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by the insuring Party.

Payments by one Party to the other Party shall be subject to Sub-Clause 2.5 [*Employer's Claims*] or Sub-Clause 20.1 [*Contractor's Claims*], as applicable.

18.2

Insurance for Works and Contractor's Equipment

The insuring Party shall insure the Works, Plant, Materials and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the date by which the evidence is to be submitted under sub-paragraph (a) of Sub-Clause 18.1 [*General Requirements for Insurances*], until the date of issue of the Taking-Over Certificate for the Works.

The insuring Party shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor or Subcontractors in the course of any other operations (including those under Clause 11 [*Defects Liability*] and Clause 12 [*Tests after Completion*]).

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The insuring Party shall insure the Contractor's Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.

Unless otherwise stated in the Particular Conditions, insurances under this Sub-Clause:

- (a) shall be effected and maintained by the Contractor as Insuring Party,
- (b) shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated between the Parties for the sole purpose of rectifying the loss or damage,
- (c) shall cover all loss and damage from any cause not listed in Sub-Clause 17.3 [Employer's Risks],
- (d) shall also cover loss or damage from the risks listed in sub-paragraph (c) of Sub-Clause 17.3 [Employer's Risks], with deductibles per occurrence of not more than the amount stated in the Particular Conditions (if an amount is not so stated, this sub-paragraph (d) shall not apply), and
- (e) may however exclude loss of, damage to, and reinstatement of:
 - (i) a part of the Works which is in a defective condition due to a defect in its design, materials or workmanship (but cover shall include any other parts which are lost or damaged as a direct result of this defective condition and not as described in sub-paragraph (ii) below),
 - (ii) a part of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, materials or workmanship,
 - (iii) a part of the Works which has been taken over by the Employer, except to the extent that the Contractor is liable for the loss or damage, and
 - (iv) Goods while they are not in the Country, subject to Sub-Clause 14.5 [Plant and Materials Intended for the Works].

If, more than one year after the Base Date, the cover described in sub-paragraph (d) above ceases to be available at commercially reasonable terms, the Contractor shall (as insuring Party) give notice to the Employer, with supporting particulars. The Employer shall then (i) be entitled subject to Sub-Clause 2.5 [Employer's Claims] to payment of an amount equivalent to such commercially reasonable terms as the Contractor should have expected to have paid for such cover, and (ii) be deemed, unless he obtains the cover at commercially reasonable terms, to have approved the omission under Sub-Clause 18.1 [General Requirements for Insurances].

18.3

Insurance against Injury to Persons and Damage to Property

The insuring Party shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment]) or to any person (except persons insured under Sub-Clause 18.4 [Insurance for Contractor's Personnel]), which may arise out of the Contractor's performance of the Contract and occurring before the issue of the Performance Certificate.

This insurance shall be for a limit per occurrence of not less than the amount stated in the Particular Conditions, with no limit on the number of occurrences. If an amount is not stated in the Contract, this Sub-Clause shall not apply.

Unless otherwise stated in the Particular Conditions, the insurances specified in this Sub-Clause:

- (a) shall be effected and maintained by the Contractor as insuring Party,
- (b) shall be in the joint names of the Parties,
- (c) shall be extended to cover liability for all loss and damage to the Employer's property (except things insured under Sub-Clause 18.2) arising out of the Contractor's performance of the Contract; and
- (d) may however exclude liability to the extent that it arises from:
 - (i) the Employer's right to have the Permanent Works executed on, over, under, in or through any land, and to occupy this land for the Permanent Works,
 - (ii) damage which is an unavoidable result of the Contractor's obligations to execute the Works and remedy any defects, and
 - (iii) a cause listed in Sub-Clause 17.3 [Employer's Risks], except to the extent that cover is available at commercially reasonable terms.

18.4

Insurance for Contractor's Personnel

The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.

The Employer shall also be indemnified under the policy of insurance, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Employer or of the Employer's Personnel.

The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Clause.

19 Force Majeure

19.1
Definition of Force Majeure

In this Clause, "Force Majeure" means an exceptional event or circumstance:

- (a) which is beyond a Party's control,
- (b) which such Party could not reasonably have provided against before entering into the Contract,
- (c) which, having arisen, such Party could not reasonably have avoided or overcome, and
- (d) which is not substantially attributable to the other Party.

Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

- (i) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
- (ii) rebellion, terrorism, revolution, insurrection, military or usurped power, or civil war,
- (iii) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel and other employees of the Contractor and Sub-contractors,
- (iv) munitions of war, explosive materials, ionising radiation or contamination

- (v) by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity, and natural catastrophes such as earthquakes, hurricane, typhoon or volcanic activity.

19.2

Notice of Force Majeure

If a Party is or will be prevented from performing any of its obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.

The Party shall, having given notice, be excused performance of such obligations for so long as such Force Majeure prevents it from performing them.

Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.

19.3

Duty to Minimise Delay

Each Party shall at all times use all reasonable endeavours to minimise any delay in the performance of the Contract as a result of Force Majeure.

A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.

19.4

Consequences of Force Majeure

If the Contractor is prevented from performing any of his obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], and suffers delay and/or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) if the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of Sub-Clause 19.1 [Definition of Force Majeure] and, in the case of sub-paragraphs (ii) to (iv), occurs in the Country, payment of any such Cost.

After receiving this notice, the Employer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

19.5

Force Majeure Affecting Subcontractor

If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's non-performance or entitle him to relief under this Clause.

19.6

Optional Termination, Payment and Release

If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], or for multiple periods which total more than 140 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment].

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Upon such termination, the Employer shall pay to the Contractor:

- (a) the amounts payable for any work carried out for which a price is stated in the Contract;
- (b) the Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Contractor shall place the same at the Employer's disposal;
- (c) any other Cost or liability which in the circumstances was reasonably incurred by the Contractor in the expectation of completing the Works;
- (d) the Cost of removal of Temporary Works and Contractor's Equipment from the Site and the return of these items to the Contractor's works in his country (or to any other destination at no greater cost); and
- (e) the Cost of repatriation of the Contractor's staff and labour employed wholly in connection with the Works at the date of termination.

19.7

Release from Performance under the Law

Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both Parties to fulfil its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance:

- (a) the Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract, and
- (b) the sum payable by the Employer to the Contractor shall be the same as would have been payable under Sub-Clause 19.6 [*Optional Termination, Payment and Release*] if the Contract had been terminated under Sub-Clause 19.6.

20. Disputes and Arbitration

20.1

Contractor's Claims

If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Employer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance.

If the Contractor fails to give notice of a claim within such period of 28 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.

The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.

The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Employer. Without admitting liability, the Employer may, after receiving any notice under this Sub-Clause, monitor the record-keeping and/or instruct the Contractor to

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keep further contemporary records. The Contractor shall permit the Employer to inspect all these records, and shall (if instructed) submit copies to the Employer.

Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Employer, the Contractor shall send to the Employer a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:

- (a) this fully detailed claim shall be considered as interim;
- (b) the Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the Employer may reasonably require; and
- (c) the Contractor shall send a final claim within 28 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Employer.

Within 42 days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Employer and approved by the Contractor, the Employer shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars, but shall nevertheless give his response on the principles of the claim within such time.

Each interim payment shall include such amounts for any claim as have been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.

The Employer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [Extension of Time for Completion], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.

The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of this Sub-Clause.

20.2

Appointment of the Dispute Adjudication Board

Disputes shall be adjudicated by a DAB in accordance with Sub-Clause 20.4 [Obtaining Dispute Adjudication Board's Decision]. The Parties shall jointly appoint a DAB by the date 28 days after a Party gives notice to the other Party of its intention to refer a dispute to a DAB in accordance with Sub-Clause 20.4.

The DAB shall comprise, as stated in the Particular Conditions, either one or three suitably qualified persons ("the members"). If the number is not so stated and the Parties do not agree otherwise, the DAB shall comprise three persons.

If the DAB is to comprise three persons, each Party shall nominate one member for the approval of the other Party. The Parties shall consult both these members and shall agree upon the third member, who shall be appointed to act as chairman.

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However, if a list of potential members is included in the Contract, the members shall be selected from those on the list, other than anyone who is unable or unwilling to accept appointment to the DAB.

The agreement between the Parties and either the sole member ("adjudicator") or each of the three members shall incorporate by reference the General Conditions of Dispute Adjudication Agreement contained in the Appendix to these General Conditions, with such amendments as are agreed between them.

The terms of the remuneration of either the sole member or each of the three members, shall be mutually agreed upon by the Parties when agreeing the terms of appointment. Each Party shall be responsible for paying one-half of this remuneration.

If at any time the Parties so agree, they may appoint a suitably qualified person or persons to replace any one or more members of the DAB. Unless the Parties agree otherwise, the appointment will come into effect if a member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment. The replacement shall be appointed in the same manner as the replaced person was required to have been nominated or agreed upon, as described in this Sub-Clause.

The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Employer or the Contractor acting alone. Unless otherwise agreed by both Parties, the appointment of the DAB (including each member) shall expire when the DAB has given its decision on the dispute referred to it under Sub-Clause 20.4, in which event the relevant date shall be when the DAB has also given decisions on those disputes.

20.3

Failure to Agree Dispute Adjudication Board

If any of the following conditions apply, namely:

- (a) the Parties fail to agree upon the appointment of the sole member of the DAB by the date stated in the first paragraph of Sub-Clause 20.2 [Appointment of the Dispute Adjudication Board],
- (b) either Party fails to nominate a member (for approval by the other Party) of a DAB of three persons by such date,
- (c) the Parties fail to agree upon the appointment of the third member (to act as chairman) of the DAB by such date, or
- (d) the Parties fail to agree upon the appointment of a replacement person within 42 days after the date on which the sole member or one of the three members declines to act or is unable to act as a result of death, disability, resignation or termination of appointment,

then the appointing entity or official named in the Particular Conditions shall, upon the request of either or both of the Parties and after due consultation with both Parties, appoint this member of the DAB. This appointment shall be final and conclusive. Each Party shall be responsible for paying one-half of the remuneration of the appointing entity or official.

20.4

Obtaining Dispute Adjudication Board's Decision

If a dispute (of any kind whatsoever) arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works, including any dispute as to any certificate, determination, instruction, opinion or valuation of the Employer, then after a DAB has been appointed pursuant to Sub-Clauses 20.2 [Appointment of the DAB] and 20.3 [Failure to Agree DAB], either Party may refer the dispute in writing to the DAB for its decision, with a copy to the other Party. Such reference shall state that it is given under this Sub-Clause.

For a DAB of three persons, the DAB shall be deemed to have received such reference on the date when it is received by the chairman of the DAB.

Both Parties shall promptly make available to the DAB all information, access to the Site, and appropriate facilities, as the DAB may require for the purposes of making a decision on such dispute. The DAB shall be deemed to be not acting as arbitrator(s).

Within 84 days after receiving such reference, or the advance payment referred to in Clause 6 of the Appendix - General Conditions of the Dispute Adjudication Agreement, whichever date is later, or within such other period as may be proposed by the DAB and approved by both Parties, the DAB shall give its decision, which shall be reasoned and shall state that it is given under this Sub-Clause. However, if neither of the Parties has paid in full the invoices submitted by each Member pursuant to Clause 6 of the Appendix, the DAB shall not be obliged to give its decision until such invoices have been paid in full. The decision shall be binding on both Parties, who shall promptly give effect to it unless and until it shall be revised in an amicable settlement or an arbitral award as described below. Unless the Contract has already been abandoned, repudiated or terminated, the Contractor shall continue to proceed with the Works in accordance with the Contract.

If either Party is dissatisfied with the DAB's decision, then either Party may, within 28 days after receiving the decision, give notice to the other Party of its dissatisfaction. If the DAB fails to give its decision within the period of 84 days (or as otherwise approved) after receiving such reference or such payment, then either Party may, within 28 days after this period has expired, give notice to the other Party of its dissatisfaction.

In either event, this notice of dissatisfaction shall state that it is given under this Sub-Clause, and shall set out the matter in dispute and the reason(s) for dissatisfaction. Except as stated in Sub-Clause 20.7 [*Failure to Comply with Dispute Adjudication Board's Decision*] and Sub-Clause 20.8 [*Expiry of Dispute Adjudication Board's Appointment*], neither Party shall be entitled to commence arbitration of a dispute unless a notice of dissatisfaction has been given in accordance with this Sub-Clause.

If the DAB has given its decision as to a matter in dispute to both Parties, and no notice of dissatisfaction has been given by either Party within 28 days after it received the DAB's decision, then the decision shall become final and binding upon both Parties.

20.5

Amicable Settlement

Where notice of dissatisfaction has been given under Sub-Clause 20.4 above, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, arbitration may be commenced on or after the fifty-sixth day after the day on which notice of dissatisfaction was given, even if no attempt at amicable settlement has been made.

20.6

Arbitration

Unless settled amicably, any dispute in respect of which the DAB's decision (if any) has not become final and binding shall be finally settled by international arbitration. Unless otherwise agreed by both Parties:

- (a) the dispute shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce,
- (b) the dispute shall be settled by three arbitrators appointed in accordance with these Rules, and
- (c) the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.4 (*Law and Language*).

Handwritten initials and signature



The arbitrator(s) shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of (or on behalf of) the Employer, and any decision of the DAB, relevant to the dispute.

Neither Party shall be limited in the proceedings before the arbitrator(s) to the evidence or arguments previously put before the DAB to obtain its decision, or to the reasons for dissatisfaction given in its notice of dissatisfaction. Any decision of the DAB shall be admissible in evidence in the arbitration.

Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties and the DAB shall not be altered by reason of any arbitration being conducted during the progress of the Works.

20.7

Failure to Comply with Dispute Adjudication Board's Decision

In the event that:

- (a) neither Party has given notice of dissatisfaction within the period stated in Sub-Clause 20.4 [Obtaining Dispute Adjudication Board's Decision],
- (b) the DAB's related decision (if any) has become final and binding, and
- (c) a Party fails to comply with this decision,

then the other Party may, without prejudice to any other rights it may have, refer the failure itself to arbitration under Sub-Clause 20.6 [Arbitration]. Sub-Clause 20.4 [Obtaining Dispute Adjudication Board's Decision] and Sub-Clause 20.5 [Amicable Settlement] shall not apply to this reference.

20.8

Expiry of Dispute Adjudication Board's Appointment

If a dispute arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works and there is no DAB in place, whether by reason of the expiry of the DAB's appointment or otherwise:

- (a) Sub-Clause 20.4 [Obtaining Dispute Adjudication Board's Decision] and Sub-Clause 20.5 [Amicable Settlement] shall not apply, and
- (b) the dispute may be referred directly to arbitration under Sub-Clause 20.6 [Arbitration].

APPENDIX

General Conditions of Dispute Adjudication Agreement

1 Definitions

Each "Dispute Adjudication Agreement" is a tripartite agreement by and between:

- (a) the "Employer";
- (a) the "Contractor"; and
- (a) the "Member" who is defined in the Dispute Adjudication Agreement as being:
 - (i) the sole member of the "DAB" (or "adjudicator") and, where this is the case, all references to the "Other Members" do not apply,
 - or
 - (ii) one of the three persons who are jointly called the "DAB" (or "dispute adjudication board") and, where this is the case, the other two persons are called the "Other Members".

The Employer and the Contractor have entered (or intend to enter) into a contract, which is called the "Contract" and is defined in the Dispute Adjudication Agreement, which incorporates this Appendix. In the Dispute Adjudication Agreement, words and expressions which are not otherwise defined shall have the meanings assigned to them in the Contract.

2 General Provisions

The Dispute Adjudication Agreement shall take effect when the Employer, the Contractor and each of the Members (or Member) have respectively each signed a dispute adjudication agreement.

When the Dispute Adjudication Agreement has taken effect, the Employer and the Contractor shall each give notice to the Member accordingly. If the Member does not receive either notice within six months after entering into the Dispute Adjudication Agreement, it shall be void and ineffective.

This employment of the Member is a personal appointment. No assignment or subcontracting of the Dispute Adjudication Agreement is permitted without the prior written agreement of all the parties to it and of the Other Members (if any).

3 Warranties

The Member warrants and agrees that he/she is and shall be impartial and independent of the Employer, the Contractor and the Employer's Representative. The Member shall promptly disclose, to each of them and to the Other Members (if any), any fact or circumstance which might appear inconsistent with his/her warranty and agreement of impartiality and independence.

When appointing the Member, the Employer and the Contractor relied upon the Member's representations that he/she is:

- (a) experienced in the work which the Contractor is to carry out under the Contract,
- (b) experienced in the interpretation of contract documentation, and
- (c) fluent in the the language for communications defined in the Contract.

4 General Obligations of the Member

The Member shall:

- (a) have no interest financial or otherwise in the Employer or the Contractor, nor any financial interest in the Contract except for payment under the Dispute Adjudication Agreement;

- (b) not previously have been employed as a consultant or otherwise by the Employer or the Contractor, except in such circumstances as were disclosed in writing to the Employer and the Contractor before they signed the Dispute Adjudication Agreement;
- (c) have disclosed in writing to the Employer, the Contractor and the Other Members (if any), before entering into the Dispute Adjudication Agreement and to his/her best knowledge and recollection, any professional or personal relationships with any director, officer or employee of the Employer or the Contractor, and any previous involvement in the overall project of which the Contract forms part;
- (d) not, for the duration of the Dispute Adjudication Agreement, be employed as a consultant or otherwise by the Employer or the Contractor, except as may be agreed in writing by the Employer, the Contractor and the Other Members (if any);
- (e) comply with the annexed procedural rules and with Sub-Clause 20.4 of the Conditions of Contract;
- (f) not give advice to the Employer, the Contractor, the Employer's Personnel or the Contractor's Personnel concerning the conduct of the Contract, other than in accordance with the annexed procedural rules;
- (g) not while a Member enter into discussions or make any agreement with the Employer or the Contractor regarding employment by any of them, whether as a consultant or otherwise, after ceasing to act under the Dispute Adjudication Agreement;
- (h) ensure his/her availability for any site visit and hearings as are necessary; and
- (i) treat the details of the Contract and all the DAB's activities and hearings as private and confidential, and not publish or disclose them without the prior written consent of the Employer, the Contractor and the Other Members (if any).

5

General Obligations of the Employer and the Contractor

The Employer, the Contractor, the Employer's Personnel and the Contractor's Personnel shall not request advice from or consultation with the Member regarding the Contract, otherwise than in the normal course of the DAB's activities under the Contract and the Dispute Adjudication Agreement, and except to the extent that prior agreement is given by the Employer, the Contractor and the Other Members (if any). The Employer and the Contractor shall be responsible for compliance with this provision, by the Employer's Personnel and the Contractor's Personnel respectively.

The Employer and the Contractor undertake to each other and to the Member that the Member shall not, except as otherwise agreed in writing by the Employer, the Contractor, the Member and the Other Members (if any):

- (a) be appointed as an arbitrator in any arbitration under the Contract;
- (b) be called as a witness to give evidence concerning any dispute before arbitrator(s) appointed for any arbitration under the Contract; or
- (c) be liable for any claims for anything done or omitted in the discharge or purported discharge of the Member's functions, unless the act or omission is shown to have been in bad faith.

The Employer and the Contractor hereby jointly and severally indemnify and hold the Member harmless against and from claims from which he/she is relieved from liability under the preceding paragraph.

6

Payment

The Member shall be paid as follows, in the currency named in the Dispute Adjudication Agreement:

- (a) a daily fee which shall be considered as payment in full for:

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- (i) each working day spent reading submissions, attending hearings (if any), preparing decisions, or making site visits (if any); and
- (ii) each day or part of a day up to maximum of two day's travel time in each direction for the journey (if any) between the Member's home and site or an other location of a meeting with Other Members (if any) and/or the Employer and the Contractor;
- (b) all reasonable expenses incurred in connection with the Member's duties, including the cost of secretarial services, telephone calls, courier charges, faxes and telexes, travel expenses, hotel and subsistence costs; a receipt shall be required for each item in excess of five percent of the daily fee referred to in sub-paragraph (a) of this Clause; and
- (c) any taxes properly levied in the Country on payments made to the Member (unless a national or permanent resident of the Country) under this Clause 6.

The daily fee shall be as specified in the Dispute Adjudication Agreement.

Immediately after the Dispute Adjudication Agreement takes effect, the Member shall, before engaging in any activities under the Dispute Adjudication Agreement, submit to the Contractor, with a copy to the Employer, an invoice for (a) an advance of twenty-five (25) percent of the estimated total amount of daily fees to which he/she will be entitled and (b) an advance equal to the estimated total expenses that he/she shall incur in connection with his/her duties. Payment of such invoice shall be made by the Contractor upon his receipt of the invoice. The Member shall not be obliged to engage in activities under the Dispute Adjudication Agreement until each member has been paid in full for invoices submitted under this paragraph.

Thereafter the Member shall submit to the Contractor, with a copy to the Employer, invoices for the balance of his/her daily fees and expenses, less the amounts advanced. The DAB shall not be obliged to render its decision until invoices for all daily fees and expenses of each Member for making a decision shall have paid in full.

Unless paid earlier in accordance with the above, the Contractor shall pay each of the Member's invoices in full within 28 calendar days after receiving each invoice and shall apply to the Employer (in the Statements under the Contract) for reimbursement of one-half of the amounts of these invoices. The Employer shall then pay the Contractor in accordance with the Contract.

If the Contractor fails to pay to the Member the amount to which he/she is entitled under the Dispute Adjudication Agreement, the Employer shall pay the amount due to the Member and any other amount which may be required to maintain the operation of the DAB; and without prejudice to the Employer's rights or remedies. In addition to all other rights arising from this default, the Employer shall be entitled to reimbursement of all sums paid in excess of one-half of these payments, plus all costs of recovering these sums and financing charges calculated at the rate specified in Sub-Clause 14.8 of the Conditions of Contract.

If the Member does not receive payment of the amount due within 28 days after submitting a valid invoice, the Member may (i) suspend his/her services (without notice) until the payment is received, and/or (ii) resign his/her appointment by giving notice to the Employer and the Contractor. The notice shall take effect when received by them both. Any such notice, shall be final and binding on the Employer, the Contractor and the Member.

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Default of the Member

If the Member fails to comply with any obligation under Clause 4, he/she shall not be entitled to any fees or expenses hereunder and shall, without prejudice to their other

rights, reimburse each of the Employer and the Contractor for any fees and expenses received by the Member and the Other Members (if any), for proceedings or decisions (if any) of the DAB which are rendered void or ineffective.

8

Disputes of the Member

Any dispute or claim arising out of or in connection with this Dispute Adjudication Agreement, or the breach, termination or invalidity thereof, shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce by one arbitrator appointed in accordance with these Rules of Arbitration.

Annex PROCEDURAL RULES

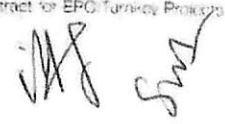
- 1 The Employer and the Contractor shall furnish to the DAB one copy of all documents which the DAB may request, including Contract documents, progress reports, variation instructions, certificates and other documents pertinent to the matter in dispute. All communications between the DAB and the Employer or the Contractor shall be copied to the other Party. If the DAB comprises three persons, the Employer and the Contractor shall send copies of these requested documents and these communications to each of these persons.
- 2 The DAB shall proceed in accordance with Sub-Clause 20.4 and these Rules. Subject to the time allowed to give notice of a decision and other relevant factors, the DAB shall:
 - (a) act fairly and impartially as between the Employer and the Contractor, giving each of them a reasonable opportunity of putting his case and responding to the other's case, and
 - (b) adopt procedures suitable to the dispute, avoiding unnecessary delay or expense.
- 3 The DAB may conduct a hearing on the dispute, in which event it will decide on the date and place for the hearing and may request that written documentation and arguments from the Employer and the Contractor be presented to it prior to or at the hearing.
- 4 Except as otherwise agreed in writing by the Employer and the Contractor, the DAB shall have power to adopt an inquisitorial procedure, to refuse admission to hearings or audience at hearings to any persons other than representatives of the Employer and the Contractor, and to proceed in the absence of any party who the DAB is satisfied received notice of the hearing; but shall have discretion to decide whether and to what extent this power may be exercised.
- 5 The Employer and the Contractor empower the DAB, among other things, to:
 - (a) establish the procedure to be applied in deciding a dispute,
 - (b) decide upon the DAB's own jurisdiction, and as to the scope of any dispute referred to it,
 - (c) conduct any hearing as it thinks fit, not being bound by any rules or procedures other than those contained in the Contract and these Rules,
 - (d) take the initiative in ascertaining the facts and matters required for a decision,
 - (e) make use of its own specialist knowledge, if any,
 - (f) decide upon the payment of financing charges in accordance with the Contract,
 - (g) decide upon any provisional relief such as interim or conservatory measures, and
 - (h) open up, review and revise any certificate, decision, determination, instruction, opinion or valuation of the Employer, relevant to the dispute.
- 6 The DAB shall not express any opinions during any hearing concerning the merits of any arguments advanced by the Parties. Thereafter, the DAB shall make and give notice to its decision in accordance with Sub-Clause 20.4, or as otherwise agreed by the Employer and the Contractor in writing. If the DAB comprises three persons:

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- (a) it shall convene in private after a hearing, if any, in order to have discussions and prepare its decision;
- (b) it shall endeavour to reach a unanimous decision: If this proves impossible, the applicable decision shall be made by a majority of the Members, who may require the minority Member to prepare a written report for submission to the Employer and the Contractor; and
- (c) if a Member fails to attend a meeting or hearing, or to fulfil any required function, the other two Members may nevertheless proceed to make a decision, unless:
 - (i) either the Employer or Contractor does not agree that they do so, or
 - (ii) the absent Member is the chairman, and he/she instructs the other Members to not make a decision.



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GENERAL CONDITIONS

GUIDANCE FOR THE
PREPARATION OF
PARTICULAR CONDITIONS

FIDIC® Conditions of Contract
for **EPC/Turnkey Projects**

FORMS OF LETTER OF
TENDER, CONTRACT
AGREEMENT AND
DISPUTE ADJUDICATION
AGREEMENT

Guidance for the Preparation of
Particular Conditions

FEDERATION INTERNATIONALE DES INGENIEURS-CONSEILS
INTERNATIONAL FEDERATION OF CONSULTING ENGINEERS
INTERNATIONALE VEREINIGUNG BERATENDER INGENIEURE
FEDERACION INTERNACIONAL DE INGENIEROS CONSULTORES



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Guidance for the Preparation of Particular Conditions

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Guidance for the Preparation of Particular Conditions

INTRODUCTION

The terms of the Conditions of Contract for EPC/Turnkey Projects have been prepared by the Fédération Internationale des Ingénieurs-Conseils (FIDIC) and are recommended where one entity takes total responsibility for an engineering project, including design, manufacture, delivery and installation of plant, and the design and execution of building or engineering works, tenders having been invited on an international basis. Modifications to the Conditions may be required in some legal jurisdictions, particularly if they are to be used on domestic contracts.

Major turnkey projects may require some negotiation between the parties. Having studied the variety of options offered by tenderers, the Employer may consider it essential to meet and discuss with them the technical options which the Employer considers preferable. Under the usual arrangements for this type of contract, the Contractor carries out the Engineering, Procurement and Construction, and provides a fully-equipped facility, ready for operation (at the "turn of the key").

The guidance hereafter is intended to assist writers of the Particular Conditions by giving options for various sub-clauses where appropriate. As far as possible, example wording is included, between lines. In some cases, however, only an aide-memoire is given.

Before incorporating any example wording, it must be checked to ensure that it is wholly suitable for the particular circumstances. Unless it is considered suitable, example wording should be amended before use.

Where example wording is amended, and in all cases where other amendments or additions are made, care must be taken to ensure that no ambiguity is created, either with the General Conditions or between the clauses in the Particular Conditions.

In the preparation of the Conditions of Contract to be included in the tender documents for a contract, the following text can be used:

The Conditions of Contract comprise the "General Conditions", which form part of the "Conditions of Contract for EPC/Turnkey Projects" First Edition 1999 published by the Fédération Internationale des Ingénieurs-Conseils (FIDIC), and the following "Particular Conditions", which include amendments and additions to such General Conditions.

The following Sub-Clauses of the General Conditions require data to be included in the Particular Conditions:

1.1.3.3 & 8.2	Time for Completion
1.1.3.7 & 11.1	Defects Notification Period
1.1.5.6	Definition of each Section, if any
1.3	Electronic systems for communications
1.4	Laws and languages
2.1	Time for possession of the Site
4.2	Performance Security

4.4	Notice of Subcontractors
8.7/12.4 & 14.15(d)	Delay/performance damages
13.8	Adjustments for changes in Cost
14.2	Advance payment(s)
14.3(c)	Retention
17.6	Limitation of liability
18.1	Employer's Insurance (if any). Evidence of insurances
18.2(d)	Insurance of Employer's risks
18.3	Insurance against injury to persons and damage to property
20.2	Number of members of the dispute adjudication board
20.3	Appointing entity for the dispute adjudication board

Notes on the Preparation of Tender Documents

The tender documents should be prepared by suitably-qualified engineers who are familiar with the technical aspects of the required works, and a review by suitably-qualified lawyers may be advisable. The tender documents issued to tenderers will consist of the Conditions of Contract and the Employer's Requirements, and (possibly) the preferred form for the Letter of Tender. In addition, each of the Tenderers should receive the data referred to in Sub-Clause 4.10, and the Instructions to Tenderers to advise them of any matters which the Employer wishes them to include in their Tender but which do not form part of the Employer's Requirements for the Works.

When the Contract Agreement is signed by the Employer and the Contractor, the Contract (which then comes into full force and effect) includes the Tender and any memoranda annexed to the Contract Agreement.

The Employer's Requirements should specify the particular requirements for the completed Works on a functional basis, including detailed requirements on quality and scope, and may require the Contractor to supply items such as consumables. The matters referred to in some or all of the following Sub-Clauses might be included:

- 1.8 Number of copies of Contractor's Documents
- 1.13 Permissions obtained by the Employer
- 2.1 Phased possession of foundations, structures, plant or means of access
- 4.1 Intended purposes for which the Works are required
- 4.6 Other contractors (and others) on the Site
- 4.7 Setting-out points, lines and levels of reference
- 4.18 Environmental constraints
- 4.19 Electricity, water, gas and other services available on the Site
- 4.20 Employer's Equipment and free-issue material
- 5.1 Requirements, data and information for which the Employer is responsible
- 5.2 Contractor's Documents required for review
- 5.4 Technical standards and building regulations
- 5.5 Operational training for the Employer's Personnel
- 5.6 As-built drawings and other records of the Works
- 5.7 Operation and maintenance manuals
- 6.6 Facilities for Personnel
- 7.2 Samples
- 7.3 Off-Site inspection requirements
- 7.4 Testing during manufacture and/or construction
- 9.1 Tests on Completion
- 9.4 Damages for failure to pass Tests on Completion
- 12.1 Tests after Completion
- 12.4 Damages for failure to pass Tests after Completion

Many Sub-Clauses in the General Conditions make reference to the Particular Conditions for such data as would typically be specified by the Employer, or to the Tender for such data as would typically be specified by the tenderer.

The Instructions to Tenderers may need to specify any constraints on the data proposed in the Tender, and/or specify the extent of other information which each Tenderer is to include with his Tender. If each Tenderer is to produce a parent company guarantee and/or a tender security, these requirements (which apply prior to the Contract becoming effective) should be included in the Instructions to Tenderers: example forms are annexed to this document as Annexes A and B. The Instructions may include matters referred to in some or all of the following Sub-Clauses:

- 4.3 Contractor's Representative (name and curriculum vitae)
- 4.9 Quality Assurance system
- 9.1 Tests on Completion
- 12.1 Tests after Completion
- 18 Insurances
- 20 Resolution of disputes

Turnkey contracts typically include design, construction, fixtures, fittings and equipment (f.f.e.), the scope of which should be defined in the Employer's Requirements. Full consideration should be given to detailed requirements, such as the extent to which the Works are to be fully equipped, ready for operation, with spare parts and consumables provided for operation for a specified period. In addition, the Contractor may be required to operate the Works, either for a few months' trial operation period under Sub-Clause 9.1(c), or for some years' operation.

Understandably, tenderers are often reluctant, in the face of intense competition, to incur great expense in the preparation of tender designs. When preparing the Instructions to Tenderers, thought should be given as to the extent of detail which tenderers can realistically be expected to prepare and include in their Tenders. The extent of detail required should be described in the Instructions to Tenderers. Note that there can be no description in the documents which will constitute the Contract, which only comes into full force and effect when the Agreement is signed.

Consideration may be given to offering some remuneration to tenderers if, in order to provide a responsive Tender, they have to undertake studies or carry out design work of a conceptual nature.

Clause 1

General Provisions

Sub-Clause 1.1 Definitions

The Particular Conditions should specify the Time for Completion for the Works, and the Defects Notification Period.

If the Works are to be taken-over in stages, which is unusual under a turnkey contract, the Particular Conditions should specify each stage as a Section, and should define its scope, geographical extent and Time for Completion.

It may be necessary to amend some of the definitions. For example:

- 1.1.3.1 the Base Date could be defined as a particular calendar date
- 1.1.4.4 one particular Foreign Currency may be required by the financing institution
- 1.1.4.5 a different currency may be required to be the contract Local Currency
- 1.1.6.2 the references to "Country" may be inappropriate for a cross-border Site

Sub-Clause 1.2 Interpretation

If the references to "profit" are to be more precisely specified, this Sub-Clause may be varied:

EXAMPLE At the end of Sub-Clause 1.2, insert:
In these Conditions, provisions including the expression "Cost plus reasonable profit" require this profit to be one-twentieth (5%) of this Cost.

Sub-Clause 1.3 Communications

The Particular Conditions should specify the systems of electronic communications (if any), and may also specify the address for the Contractor's notices to the Employer.

Sub-Clause 1.4 Laws and Language

The Particular Conditions should specify:

- (a) the law which will govern the Contract,
- (b) (if any part of the Contract has been written in one language and then translated) the ruling language, and
- (c) (if communications are not to be written in the same language as that in which the Contract is written) the language for communications.

Sub-Clause 1.5 Priority of Documents

An order of precedence is usually necessary, in case a conflict is subsequently found among the contract documents. If no order of precedence is to be prescribed, this Sub-Clause may be varied:

EXAMPLE Delete Sub-Clause 1.5 and substitute:
The documents forming the Contract are to be taken as mutually explanatory of one another. If an ambiguity or discrepancy is found, the priority shall be such as may be accorded by the governing law.

MS *5*

Sub-Clause 1.6 Contract Agreement

The Contract Agreement is the document which brings the Contract into effect, and is usually preceded by negotiation. The Contract Agreement should therefore be drawn up with care. The form of Agreement should be included in the tender documents as an annex to the Particular Conditions: an example form is included at the end of this publication.

The Contract Agreement must state the name of each Party, the Contract Price, the currencies of payment, the amount due in each currency, and any pre-conditions which are to be satisfied before the Contract comes into full force and effect: all as agreed by the Parties. If lengthy tender negotiations were necessary, it may be considered advisable for the Contract Agreement to record the Base Date and/or Commencement Date also.

If the Employer wished to anticipate the possibility of issuing a letter of acceptance, the Sub-Clause may be amended by deleting the first sentence, which states that the Contract comes into full force and effect when the Parties sign the Contract Agreement. The Letter of Tender should then include the following paragraph:

"Unless and until a formal Agreement is prepared and executed this Letter of Tender, together with your written acceptance thereof, shall constitute a binding contract between us."

Sub-Clause 1.10 Employer's Use of Contractor's Document

Additional provisions may be required, if all rights to particular items of computer software (for example) are to be assigned to the Employer. The provisions should take account of the applicable Laws.

Sub-Clause 1.13 Compliance with Laws

If the Employer is to arrange import permits and the like, alternative provisions may be appropriate:

EXAMPLE SUB-CLAUSE FOR A PLANT CONTRACT

Insert at the end of Sub-Clause 1.13:

However, the Contractor shall submit, in good time, the details of Goods to the Employer, who shall then promptly obtain all import permits or licences required for these Goods

The Employer shall also obtain or grant all consents including permits-to-work, wayleaves and approvals required for the Works.

Sub-Clause 1.14 Joint and Several Liability

For a major contract, detailed requirements for the joint venture may need to be specified. For example, it may be desirable for each member to produce a parent company guarantee: an example form is annexed to this document as Annex A.

These requirements, which apply prior to the Contract becoming effective, should be included in the Instructions to Tenderers. The Employer will wish the leader of the joint venture to be appointed at an early stage, providing a single point of contact thereafter, and will not wish to be involved in a dispute between the members of a joint venture. The Employer should scrutinise the joint venture agreement carefully, and it may have to be approved by the project's financing institutions.

Clause 2 The Employer

Sub-Clause 2.1 Right of Access to the Site

The Particular Conditions should specify the time(s) by which the Employer will give the Contractor right of access to the Site, if after the Commencement Date. It may be essential for the Contractor to have early access to the Site for the purposes of survey and sub-surface investigations. If the Employer is arranging for work to be carried out on the Site before right of access is granted, details should be given in the Employer's Requirements.

Sub-Clause 2.3 Employer's Personnel

These provisions should be reflected in the Employer's contracts with any other contractors on the Site.

Clause 3 The Employer's Administration

Sub-Clause 3.1 The Employer's Representative

Although the Employer is not required to appoint a representative, such an appointment may assist the Employer's administration. If the Employer wishes to appoint an independent consulting engineer as the Employer's Representative, he may be named in the Particular Conditions.

Clause 4 The Contractor

Sub-Clause 4.2 Performance Security

The Particular Conditions should specify the amount and currencies of the Performance Security, unless it is not required.

EXAMPLE

The amount of the Performance Security shall be ten percent (10%) of the Contract Price stated in the Contract Agreement, and shall be expressed in the currencies and proportions in which the Contract Price is payable.

The acceptable form(s) of Performance Security should be included in the tender documents, annexed to the Particular Conditions. Example forms are annexed to this document as Annex C and Annex D. They incorporate two sets of Uniform Rules published by the International Chamber of Commerce (the "ICC", which is based at 38 Cours Albert 1er, 75008 Paris, France), which also publishes guides to these Uniform Rules. These example forms and the wording of the Sub-Clause may have to be amended to comply with applicable law.

EXAMPLE

At the end of the second paragraph of Sub-Clause 4.2, insert:

If the Performance Security is in the form of a bank guarantee, it shall be issued either (a) by a bank located in the Country, or (b) directly by a foreign bank acceptable to the Employer. If the Performance Security is not in the form of a bank guarantee, it shall be furnished by a financial entity registered, or licensed to do business, in the Country.

Sub-Clause 4.3 Contractor's Representative

If the Representative is known at the time of submission of the Tender, the Tenderer may propose

MS
*MS*⁷

the Representative. The Tenderer may wish to propose alternatives, especially if the contract award seems likely to be delayed. If the ruling language is not the same as the language for day to day communications (under Sub-Clause 1.4), or if for any other reason it is necessary to stipulate that the Contractor's Representative shall be fluent in a particular language, one of the following sentences may be added.

EXAMPLE At the end of Sub-Clause 4.3, add:
The Contractor's Representative and all these persons shall also be fluent in _____ (*insert name of language*)

EXAMPLE At the end of Sub-Clause 4.3, add:
If the Contractor's Representative, or these persons, is not fluent in _____ (*insert name of language*), the Contractor shall make a competent interpreter available during all working hours.

Sub-Clause 4.4 Subcontractor

If the Employer wishes to receive the notices under this Sub-Clause, his requirements should be specified in the Particular Conditions:

EXAMPLE The Contractor shall give the notices described in sub-paragraphs (a), (b) and (c) of Sub-Clauses 4.4 in respect of the following Subcontractors:

(list the relevant activities and/or parts of the Works)

Sub-Clause 4.12 Unforeseeable Difficulties

If the Works include tunnelling or other substantial sub-surface construction, it is usually preferable for the risk of unforeseen ground conditions to be allocated to the Employer. Responsible contractors will be reluctant to take the risks of unknown ground conditions which are difficult or impossible to estimate in advance. The Conditions of Contract for Plant and Design-Build should be used in these circumstances for works designed by (or on behalf of) the Contract.

Sub-Clause 4.19 Electricity, Water and Gas

If services are to be available for the Contractor to use, the Employer's Requirements should give details, including locations and prices.

Sub-Clause 4.20 Employer's Equipment and Free-Issue Material

For this Sub-Clause to apply, the Employer's Requirements should describe each item which the Employer will provide and/or operate and should specify all necessary details. With some types of facilities, further provisions may be necessary, in order to clarify aspects such as liability and insurance.

Sub-Clause 4.22 Security of the Site

If the Contractor is sharing occupation of the Site with others, Sub-Clauses 4.8 and/or 4.22 may require amendment, and the Employer's obligations should be specified.

Clause 5 Design

Sub-Clause 5.1 General Design Obligations

If the Employer's Requirements include an outline design, in order (for example) to establish the feasibility of the project, tenderers should be advised of the extent to which the outline design is a suggestion or a requirement. If this Sub-Clause is considered inappropriate, the provisions in FIDIC's Conditions of Contract for Plant and Design-Build may be preferred.

Sub-Clause 5.2 Contractor's Documents

The "Contractor's Documents" are defined as the documents which the Contractor must submit to the Employer, as specified elsewhere in the Contract, which typically may not include all the technical documents which the Contractor's Personnel will need in order to execute the Works. For example, it may be appropriate for the Employer's Requirements for a plant contract to specify that the Contractor's Documents shall include drawings showing how the Plant is to be affixed and any other information required for:

- (a) preparing suitable foundations or other means of support,
- (b) providing suitable access on the Site, for the Plant and any necessary equipment, to the place where the Plant is to be erected, and/or
- (c) making necessary connections to the Plant.

Different "review periods" may be specified, taking account of the time necessary to review the different types of drawing, and/or of the possibility of substantial submissions at particular stages of the design process.

Clause 6 Staff and Labour

Sub-Clause 6.6 Facilities for Staff and Labour

If the Employer will make some accommodation available, his obligations to do so should be specified.

Sub-Clause 6.8 Contractor's Superintendence

If the ruling language is not the same as the language for day to day communications (under Sub-Clause 1.4), or if for any other reason it is necessary to stipulate that the Contractor's superintending staff shall be fluent in a particular language, the following sentence may be added.

EXAMPLE

Insert at the end of Sub-Clause 6.8:

A reasonable proportion of the Contractor's superintending staff shall have a working knowledge of

(insert name of language)

or the Contractor shall have a sufficient number of competent interpreters available on Site during all working hours.

Additional Sub-Clauses

It may be necessary to add a few sub-clauses to take account of the circumstances and locality of the Site:

EXAMPLE SUB-CLAUSE

Foreign Staff and Labour

The Contractor may import any personnel who are necessary for the execution of the Works. The Contractor must ensure that these personnel are provided with the required residence visas and work permits. The Contractor shall be responsible for the return to the place where they were recruited or to their domicile of imported Contractor's Personnel. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.

EXAMPLE SUB-CLAUSE

Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Laws of the Country, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal by Contractor's Personnel.

EXAMPLE SUB-CLAUSE

Arms and Ammunition

The Contractor shall not give, barter or otherwise dispose of to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.

EXAMPLE SUB-CLAUSE

Festivals and Religious Customs

The Contractor shall respect the Country's recognised festivals, days of rest and religious or other customs.

Clause 7**Plant, Materials and Workmanship**

Additional Sub-Clause

If the Contract is being financed by an institution whose rules or policies require a restriction on the use of its funds, a further sub-clause may be added:

EXAMPLE SUB-CLAUSE

All Goods shall have their origin in eligible source countries as defined in

(insert name of published guidelines for procurement).

Goods shall be transported by carriers from these eligible source countries, unless exempted by the Employer in writing on the basis of potential excessive costs or delays. Surety, insurance and banking services shall be provided by insurers and bankers from the eligible source countries.

Clause 8

Commencement, Delays and Suspension

Sub-Clause 8.7

Delay Damages

Under many legal systems, the amount of these pre-defined damages must represent a reasonable pre-estimate of the Employer's probable loss in the event of delay. The Particular Conditions should specify the daily sum, for the Works and for each Section, expressed either as an amount or as a percentage: see also Sub-Clause 14.15(b).

EXAMPLE

In Sub-Clause 8.7, the sum referred to in the second sentence shall be 0.02% of the Contract Price as delay damages in respect of the Works, payable (per day) in the proportions of currencies in which the Contract Price is payable. For each Section, such daily sum shall be 0.02% of the final contract value of such Section, payable (per day) in such currencies. The maximum amount of delay damages shall be ten percent (10%) of the Contract Price stated in the Contract Agreement.

Additional Sub-Clause

Incentives for early completion may be included in the tender documents (although Sub-Clause 13.2 refers to accelerated completion):

EXAMPLE SUB-CLAUSE

Sections are required to be completed by the dates given in the Employer's Requirements in order that these Sections may be occupied and used by the Employer in advance of the completion of the whole of the Works. Details of the work required to be executed to entitle the Contractor to bonus payments and the amount of the bonuses are stated in the Employer's Requirements.

For the purposes of calculating bonus payments, these dates for completion of Sections are fixed. No adjustments of the dates by reason of granting an extension of the Time for Completion will be allowed.

Clause 9

Tests on Completion

Sub-Clause 9.1

Contractor's Obligations

The Employer's Requirements should describe the tests which the Contractor is to carry out before being entitled to a Taking-Over Certificate. It may also be appropriate for the Tender to include detailed arrangements, instrumentation, etc. If the Works are to be tested and taken-over in stages, the tests requirements may have to take account of the effect of some parts of the Works being incomplete.

The wording in the sub-paragraphs includes the conditions which are typically applicable for a plant contract, but otherwise may require amendment. In particular, sub-paragraph (c) refers to trial operation, during which any product produced by the Works becomes the property of the Employer. He thus becomes responsible for disposing of it, and entitled to retain the proceeds from selling it. If the product is to be retained by the Contractor, the Sub-Clause should be amended accordingly.

Sub-Clause 9.4

Failure to Pass Tests on Completion

If the reduction referred to in the final paragraph, based on the extent of the failure, is to be defined in the Particular Conditions or in the Employer's Requirements, minimum acceptable performance criteria should also be specified.

Clause 10 Employer's Taking Over

Sub-Clause 10.1 Taking-Over Certificate

If the Works are to be taken-over in stages, which is unusual under a turnkey contract, these stages should be defined as Sections, in Clause 1 of the Particular Conditions. Precise geographical definitions are advisable.

Clause 11 Defects Liability

Sub-Clause 11.10 Unfulfilled Obligations

It may be necessary to review this Sub-Clause in relation to the period of liability under the applicable law.

Clause 12 Tests after Completion

Sub-Clause 12.1 Procedure for Tests after Completion

In an EPC turnkey project, the Contractor is typically required to prove the reliability and performance of the Plant during the Tests on Completion, and the Works are only taken over after successful completion of these tests. Exceptionally, it may be considered necessary for Tests after Completion to be carried out, after the Employer has taken over and operated the Works, so that the guaranteed performance can be demonstrated under normal operating conditions: for example, after operational fouling of the plant.

The Employer's Requirements should describe the tests he requires, after taking-over, to verify that the Works fulfil the Performance Guarantees promised in the Tender. For some types of Works, these Tests may be the most difficult to specify well, although they are critical to a successful outcome. It may be appropriate for the Tender to include detailed arrangements, and/or to define any instrumentation required, in addition to that included in the Plant.

The provisions in the General Conditions are based upon the Tests after Completion being carried out by the Contractor, with the assistance of the Employer as regards personnel, consumables, etc. These details may need to be specified in the Employer's Requirements. If other arrangements are envisaged, they should be specified in the Employer's Requirements, and the Sub-Clause should be amended accordingly. For example, the provisions in FIDIC's Conditions of Contract for Plant and Design-Build are based upon these Tests being carried out by the Employer and his operating personnel, with guidance from the Contractor's staff.

Sub-Clause 12.4 Failure to Pass Tests after Completion

If the first part of this Sub-Clause is to apply, the method of calculating the non-performance damages (based on the extent of the failure) should be defined in the Particular Conditions or in the Employer's Requirements, and the minimum acceptable performance criteria should also be specified.

Clause 13 Variations and Adjustments

Variations can be initiated by any of three ways:

- (a) the Employer may instruct the variation under Sub-Clause 13.1, without prior agreement as to feasibility or price;

- (b) the Contractor may initiate his own proposals under Sub-Clause 13.2, which are intended to benefit both Parties; or
- (c) the Employer may request a proposal under Sub-Clause 13.3, seeking prior agreement so as to minimise dispute.

Sub-Clause 13.5 Provisional Sums

Although generally inappropriate for this type of contract, a Provisional Sum may be required for parts of the Works which are not required to be priced at the risk of the Contractor. For example, a Provisional Sum may be necessary to cover goods which the Employer wants to select. It is essential to define the scope of each Provisional Sum, since the defined scope will then be excluded from the other elements of the Contract Price. If a Provisional Sum is to be valued under Sub-Clause 13.5(b), the percentage should be quoted in the Tender.

Sub-Clause 13.8 Adjustments for Changes in Cost

Provisions for adjustments may be required if it would be unreasonable for the Contractor to bear the risk of escalating costs due to inflation. Wording for provisions based on cost indices have been published in FIDIC's Conditions of Contract for Plant and Design-Build, which may be considered appropriate. Particular care should be taken in the calculation of weightings/coefficients ("a", "b", "c", ..., the total of which must not exceed unity) and in the selection and verification of cost indices. Expert advice may be appropriate.

Clause 14 Contract Price and Payment

Sub-Clause 14.1 The Contract Price

When writing the Particular Conditions, consideration should be given to the amount and timing of payment(s) to the Contractor. A positive cash flow is clearly of benefit to the Contractor, and tenderers will take account of the interim payment procedures when preparing their tenders.

Normally, this type of contract is based on a lump sum price. The Contractor thus takes the risk of changes in cost arising from his design. The lump sum price may consist of two or more amounts, quoted in the currencies of payment (which may, but need not, include the Local Currency).

In order to value Variations, Tenders may be required to be accompanied by detailed price breakdowns, including quantities, unit rates and other pricing information. This information can also be useful for the assessment of interim payments. However, the information may not have been priced competitively. When the tender documents are being prepared, the Employer must therefore decide whether he will accept being bound by the tenderer's breakdowns. If not, he should have ensured that his representative has the necessary expertise to value any Variations which may be required.

Additional Sub-Clauses may be required to cover any exceptions to the options set out in Sub-Clause 14.1, and any other matters relating to payment.

If Sub-Clause 14.1(b) is not to apply, additional Sub-Clause(s) should be added.

EXAMPLE SUB-CLAUSE ON EXEMPTION FROM DUTIES

All Goods imported by the Contractor into the Country shall be exempt from customs and other import duties, if the Employer's prior written approval is obtained for import. The Employer shall endorse the necessary exemption documents prepared by the Contractor for presentation in order to clear the Goods through Customs, and shall also provide the following exemption documents:

Handwritten signature
13

GENEVA
CONDITIONS
GUIDANCE
FORMS

(describe the necessary documents, which the Contractor will be unable to prepare)

If exemption is not then granted, the customs duties payable and paid shall be reimbursed by the Employer.

All imported Goods, which are not incorporated in or expended in connection with the Works, shall be exported on completion of the Contract. If not exported, the Goods will be assessed for duties as applicable to the Goods involved in accordance with the Laws of the Country.

However, exemption may not available for:

- (a) Goods which are similar to those locally produced, unless they are not available in sufficient quantities or are of a different standard to that which is necessary for the Works; and
- (b) any element of duty or tax inherent in the price of goods or services procured in the Country, which shall be deemed to be included in the Contract Price.

Port dues, quay dues and, except as set out above, any element of tax or duty inherent in the price of goods or services shall be deemed to be included in the Contract Price.

EXAMPLE SUB-CLAUSE ON EXEMPTION FROM TAXES

Expatriate (foreign) personnel shall not be liable for income tax levied in the Country on earnings paid in any foreign currency, or for income tax levied on subsistence, rentals and similar services directly furnished by the Contractor to Contractor's Personnel, or for allowances in lieu. If any Contractor's Personnel have part of their earnings paid in the Country in a foreign currency, they may export (after the conclusion of their term of service on the Works) any balance remaining of their earnings paid in foreign currencies.

The Employer shall seek exemption for the purposes of this Sub-Clause. If it is not granted, the relevant taxes paid shall be reimbursed by the Employer.

Sub-Clause 14.2 Advance Payment

When writing the Particular Conditions, consideration should be given to the benefits of advance payment(s). Unless this Sub-Clause is not to apply, the matters described in sub-paragraphs (a) to (d) of this Sub-Clause should be specified in the Particular Conditions, and the acceptable form(s) of guarantee should be included in the tender documents, annexed to the Particular Conditions: an example form is annexed to this document, as Annex E.

If the Contractor is to provide major Items of Plant, consideration should be given to the benefits of stage payments during manufacture. The Employer may consider it advisable to have some form of security, since these payments would not relate to anything in his possession. If the Contractor is to be entitled to stage payments prior to shipment, the tender documents may include:

- (a) provisions in the Particular Conditions linking the timing of advance payment instalments (under this Sub-Clause) to the stages of manufacture; or

- (b) in the Schedule of Payments or other document to be used to determine the contract value under Sub-Clause 14.3(a), a price for each of these stages (the Schedule should refer to the Contractor providing the security specified in Sub-Clause 14.5).

Sub-Clause 14.3 Application for Interim Payments

The Particular Conditions should specify the percentage of retention for sub-paragraph (c), and may also specify a limit of Retention Money.

Sub-Clause 14.4 Schedule of Payments

The General Conditions contains provisions for interim payments to the Contractor, which may be based on a Schedule of Payments. If another basis is to be used for determining interim valuations, details should be added in the Particular Conditions. If payments are to be specified in a Schedule of Payments, it could be in one of the following forms:

- (a) an amount (or percentage of the estimated final Contract Price) could be entered for each three-month (or other) period during the Time for Completion, which can prove unreasonable if the Contractor's progress differs significantly from the expectation on which the Schedule was based; or
- (b) the Schedule could be based on actual progress achieved in executing the Works, which necessitates careful definition of the payment milestones. Disagreements may arise when the work required for a payment milestone is nearly achieved but the balance cannot be completed until some months later.

Sub-Clause 14.7 Timing of Payments

If a different period for payment is to apply, the Sub-Clause may be amended:

EXAMPLE In sub-paragraph (b) of Sub-Clause 14.7, delete "56" and substitute "42".

If the country/countries of payment need to be specified, details may be included in the Tender.

Sub-Clause 14.8 Delayed Payment

If the discount rate of the central bank in the country of the currency of payment is not a reasonable basis for assessing the Contractor's financing costs, a new rate may have to be defined. Alternatively, the actual financing Costs could be paid, taking account of local financing arrangements.

Sub-Clause 14.9 Payment of Retention Money

If part of the Retention Money is to be released and substituted by an appropriate guarantee, an additional Sub-Clause may be added. The acceptable form(s) of guarantee should be included in the tender documents, annexed to the Particular Conditions: an example form is annexed to this document, as Annex F.

EXAMPLE SUB-CLAUSE FOR RELEASE OF RETENTION

When the Retention Money has reached _____, the Employer shall make payment of _____ % of the Retention Money to the Contractor if he obtains a guarantee, in a form and provided by an entity approved by the Employer, in amounts and currencies equal to the payment.

Handwritten signatures and initials

The Contractor shall ensure that the guarantee is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects, as specified for the Performance Security in Sub-Clause 4.2, and shall be returned to the Contractor accordingly. This release of retention shall be in lieu of the release of the second half of the Retention Money under the second paragraph of Sub-Clause 14.9.

Sub-Clause 14.15 Currencies of Payment

If all payments are to be made in Local Currency, it must be named in the Contract Agreement, and only the first sentence of this Sub-Clause will apply. Alternatively, the Sub-Clause may then be replaced:

EXAMPLE SUB-CLAUSE FOR A SINGLE-CURRENCY CONTRACT

The currency of account shall be the Local Currency and all payments made in accordance with the Contract shall be in Local Currency. The Local Currency payments shall be fully convertible, except those for local costs. The percentage attributed to local costs shall be as stated in the Tender.

Financing Arrangements

For major contracts in some markets, there may be a need to secure finance from entities such as aid agencies, development banks, export credit agencies, or other international financing institutions. If financing is to be procured from any of these sources, the Particular Conditions may need to incorporate its special requirements. The exact wording will depend on the relevant institution, so reference will need to be made to them to ascertain their requirements, and to seek approval of the draft tender documents.

These requirements may include tendering procedures which need to be adopted in order to render the eventual contract eligible for financing, and/or special Sub-Clauses which may need to be incorporated into the Particular Conditions. The following examples indicate some of the topics which the institution's requirements may cover:

- (a) prohibition from discrimination against the shipping companies of any one country;
- (b) ensuring that the Contract is subject to a widely-accepted neutral law;
- (c) provision for arbitration under recognised international rules and at a neutral location;
- (d) giving the Contractor the right to suspend/terminate in the event of default under the financing arrangements;
- (e) restricting the right to reject Plant;
- (f) specifying the payments due in the event of termination;
- (g) specifying that the Contract does not become effective until certain conditions precedent have been satisfied, including pre-disbursement conditions for the financing arrangements; and
- (h) obliging the Employer to make payments from his own resources if, for any reason, the funds under the financing arrangements are insufficient to meet the payments due to the Contractor, whether due to a default under the financing arrangements or otherwise.

In addition, the financing institution or bank may wish the Contract to include references to the financing arrangements, especially if funding from more than one source is to be arranged to finance different elements of supply. It is not unusual for the Particular Conditions to include special provisions identifying different categories of Plant and specifying the documents to be presented to the relevant financing institution to obtain payment. If the financing institution's requirements are not met, it may be difficult (or even impossible) to secure suitable financing for the project, and/or the institution may decline to provide finance for part or all of the Contract.

However, where the financing is not tied to the export of goods and services from any particular country but is simply provided by commercial banks lending to the Employer, those banks may be concerned to ensure that the Contractor's rights are very restricted. These banks may wish the Contract to exclude any reference to the financing arrangements, and/or to restrict the Contractor's rights under Clause 16.

FORM OF SUB-CLAUSE WHICH A FINANCING INSTITUTION MAY REQUIRE

The Contract Price is made up as follows:

(breakdown into items and/or into supply/delivery/etc)

and shall be payable by the Employer to the Contractor as set out below.

(a) % of the Contract Price shall be payable by a direct payment from the Employer to the Contractor within 28 days of receipt by the Employer of the following documents:

- (i) commercial invoice addressed to the Employer specifying the amount of the payment now due,
- (ii) advance payment security guarantee issued by Bank in the form annexed,
- (iii) performance security guarantee issued by Bank in the form annexed, and
- (iv) an interim payment certificate confirming the payment due and specifying the amount.

(b) % of the contract price for the supply of Plant shall be payable as follows:

- (i) % of the estimated contract value of the Plant supplied, by direct payment from the Employer to the Contractor on shipment of each item, against the following documents:
 - (original) commercial invoice,
 - (original) shipping documents,
 - (original) certificate of origin,
 - (original) insurance certificate, and
 - (original) interim payment certificate confirming the payment due and specifying the amount.

- (ii) % of the estimated contract value of the Plant supplied, by disbursement from the Loan Agreement to the Contractor on shipment of each item, on presentation of a Qualifying Certificate in the form annexed and copies of the documents listed in sub-paragraph (b)(i) above.

(c) the balance of the Contract Price shall be payable as follows:

Handwritten signatures and initials

GENERAL CONDITIONS
GUIDANCE
FORMS

- GENERAL CONDITIONS
- FINANCE
- FOR USE
- (i) ____% of the estimated contract value of the services rendered, by direct payment from the Employer to the Contractor on execution of the relevant service, against the following documents:

(original) commercial invoice, and
(original) interim payment certificate confirming the payment due and specifying the amount.

- (ii) ____% of the estimated contract value of the services rendered, by disbursement from the Loan Agreement to the Contractor, on presentation of a Qualifying Certificate in the form annexed and copies of the documents listed in sub-paragraph (c)(i) above.

- (d) The direct payments by the Employer specified in sub-paragraph (b) shall be made by an irrevocable letter of credit established by the Employer in favour of the Contractor and confirmed by a bank acceptable to the Contractor.

The above arrangements (involving financing institution(s), Employer and Contractor) may be initiated by the Employer; or by the Contractor, before submitting the Tender. Alternatively, the Contractor may be prepared to initiate financing arrangements and retain responsibility for them, although he would probably be unable or unwilling to provide finance from his own resources. His financing bank's requirements would then affect his attitude in contract negotiations. They might well require the Employer to make interim payments, although a large proportion of the Contract Price might be withheld until the Works are complete.

This payment arrangement can be achieved either by a high Percentage of Retention; or by a suitably completed Schedule of Payments, with the Instructions to Tenderers specifying the criteria with which the Tenderer should comply. Since the Contractor would then have to arrange his own financing to cover the shortfall between the payments and his outgoings, he (and his financing bank) would probably require some form of security, guaranteeing payment when due.

It may be appropriate for the Employer, when preparing the tender documents, to anticipate the latter requirement by undertaking to provide a guarantee for the element of payment which the Contractor is to receive when the Works are complete. The acceptable form(s) of guarantee should be included in the tender documents, annexed to the Particular Conditions; an example form is annexed to this document, as Annex G. The following Sub-Clause may be added.

EXAMPLE PROVISIONS FOR CONTRACTOR FINANCE

The Employer shall obtain (at his cost) a payment guarantee in the amount and currencies, and provided by an entity, as stated in _____. The Employer shall deliver the guarantee to the Contractor within 28 days after both Parties have signed the Contract Agreement. The guarantee shall be in the form annexed to these Particular Conditions, or in another form acceptable to the Contractor. Unless and until the Contractor receives the guarantee, the Employer shall not give the notice under Sub-Clause 8.1.

The guarantee shall be returned to the Employer at the earliest of the following dates:

- a) when the Contractor has been paid the Contract Price stated in the Contract Agreement;

- (b) when obligations under the guarantee expire or have been discharged; or
- (c) when the Employer has performed all obligations under the Contract.

Clause 15 Termination by Employer

Sub-Clause 15.2 Termination by Employer

Before inviting tenders, the Employer should verify that the wording of this Sub-Clause, and each anticipated ground for termination, is consistent with the law governing the Contract.

Sub-Clause 15.5 Employer's Entitlement to Termination

Unless inconsistent with the requirements of the Employer and/or financing institutions, a further sentence may be added.

EXAMPLE

Insert at the end of Sub-Clause 15.5:

The Employer shall also pay to the Contractor the amount of any other loss or damage resulting from this termination.

Clause 16 Suspension and Termination by Contractor

Sub-Clause 16.2 Termination by Contractor

Before inviting tenders, the Employer should verify that the wording of this Sub-Clause is consistent with the law governing the Contract. The Contractor should verify that each anticipated ground for termination is consistent with such law.

Clause 17 Risk and Responsibility

Sub-Clause 17.6 Limitation of Liability

EXAMPLE

In Sub-Clause 17.6, the sum referred to in the penultimate sentence shall be

Additional Sub-Clause Use of Employer's Accommodation/Facilities

If the Contractor is to occupy the Employer's facilities temporarily, an additional sub-clause may be added:

EXAMPLE SUB-CLAUSE

The Contractor shall take full responsibility for the care of the items detailed below, from the respective dates of use or occupation by the Contractor, up to the respective dates of hand-over or cessation of occupation (where hand-over or cessation of occupation may take place after the date stated in the Taking-Over Certificate for the Works):

(insert details)

If any loss or damage happens to any of the above items while the Contractor is responsible for their care, arising from any cause whatsoever other than those for which the Employer is liable, the Contractor shall, at his own cost, rectify the loss or damage to the satisfaction of the Employer.

Clause 18 Insurance

The wording in the General Conditions describes the insurances which are to be arranged by the "Insuring Party", who is to be the Contractor unless otherwise stated in the Particular Conditions. Insurances so provided by the Contractor are to be consistent with the general terms agreed with the Employer. The Instructions to Tenderers may therefore require tenderers to provide details of the proposed terms. The Particular Conditions should specify the minimum amount of deductibles for sub-paragraph (d) of Sub-Clause 18.2 and the minimum amount of third party insurance for Sub-Clause 18.3.

If the Employer is to arrange any of the insurances under this Clause, the tender documents should include details as an annex to the Particular Conditions (so that tenderers can estimate what other insurances they wish to have for their own protection), including the conditions, limits, exceptions and deductibles; preferably in the form of a copy of each policy. The Employer may find it difficult to effect the insurances described in the third paragraph of Sub-Clause 18.2 (for Contractor's Equipment, which includes Sub-contractor's equipment), because the Employer may not know the amount or value of these items of equipment. The following sentence may be included in the Particular Conditions:

EXAMPLE

Delete the final paragraph of Sub-Clause 18.2 and substitute:

However, the insurances described in the first two paragraphs of Sub-Clause 18.2 shall be effected and maintained by the Employer as insuring Party, and not by the Contractor.

Clause 19 Force Majeure

Before inviting tenders, the Employer should verify that the wording of this Clause is compatible with the law governing the Contract.

Clause 20 Claims, Disputes and Arbitration

Sub-Clause 20.2 Appointment of the Dispute Adjudication Board

The Contract should include provisions which, whilst not discouraging the Parties from reaching agreement on disputes as the works proceed, allow them to refer contentious matters to an impartial dispute adjudication board ("DAB").

The adjudication procedure depends for its success on, amongst other things, the Parties' confidence in the agreed individual(s) who will serve on the DAB. Therefore, it is essential that candidates for this position are not imposed by either Party on the other Party; and that, if the individual is selected under Sub-Clause 20.3, the selection is made by a wholly impartial entity. FIDIC is prepared to perform this role, if this authority has been delegated in accordance with the example wording suggested below, for Sub-Clause 20.3.

Sub-Clause 20.2 envisages appointment of the DAB after a Party gives notice of its intention to

refer a dispute to a DAB. However, for certain types of project, particularly those involving extensive work on Site, where it would be appropriate for the DAB to visit the Site on a regular basis, it may be decided to retain the services of a permanent DAB. In this case, Sub-Clause 20.2 and 20.4 together with the Appendix and Annex to the General Conditions, and the Dispute Adjudication Agreement, should be amended to comply with the corresponding wording contained in FIDIC's Conditions of Contract for Construction.

Sub-Clause 20.2 provides for two alternative arrangements for the DAB:

- (a) one person, who acts as the sole member of the DAB, having entered into a tripartite agreement with both Parties; or
- (b) a DAB of three persons, each of whom has entered into a tripartite agreement with both Parties.

The form of this tripartite agreement could be one of the two alternatives shown at the end of this publication, as appropriate to the arrangement adopted. Both of these forms incorporate (by reference) the General Conditions of Dispute Adjudication Agreement, which are included as the Appendix to the General Conditions because they are also referred to in Sub-Clause 20.2. Under either of these alternative forms of Dispute Adjudication Agreement, each individual person is referred to as a Member.

Before the Contract is entered into, consideration should be given as to whether a one-person or three-person DAB is preferable for a particular project, taking account of its size, duration and the fields of expertise which will be involved.

The appointment of the DAB may be facilitated by including an agreed list of potential members in the Contract.

Sub-Clause 20.3 Failure to Agree Dispute Adjudication Board

EXAMPLE

The appointing entity or official shall be the President of FIDIC or a person appointed by its President.

Sub-Clause 20.5 Amicable Settlement

The provisions of this Sub-Clause are intended to encourage the parties to settle a dispute amicably, without the need for arbitration: for example, by direct negotiation, conciliation, mediation or other forms of alternative dispute resolution. Amicable settlement procedures often depend, for their success, on confidentiality and on both Parties' acceptance of the procedure. Therefore, neither Party should seek to impose the procedure on the other Party.

Sub-Clause 20.6 Arbitration

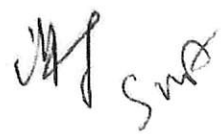
The Contract should include provisions for the resolution by international arbitration of any disputes which are not resolved amicably. In international construction contracts, international commercial arbitration has numerous advantages over litigation in national courts, and may be more acceptable to the Parties.

Careful consideration should be given to ensuring that the international arbitration rules chosen are compatible with the provisions of Clause 20 and with the other elements to be specified in the Contract. The Rules of Arbitration of the International Chamber of Commerce (the "ICC", which is based at 38 Cours Albert 1er, 75008 Paris, France) are frequently included in international contracts. In the absence of specific stipulations as to the number of arbitrators and the place of arbitration, the International Court of Arbitration of the ICC will decide on the number of arbitrators (typically three in any substantial construction dispute) and on the place of arbitration.

If the UNCITRAL (or other non-ICC) arbitration rules are preferred, it may be necessary to designate, in the Particular Conditions, an institution to appoint the arbitrators or to administer the arbitration, unless the institution is named (and their role specified) in the arbitration rules. It may also be necessary to ensure, before so designating an Institution, that it is prepared to appoint or administer.

For major projects tendered internationally, it is desirable that the place of arbitration be situated in a country other than that of the Employer or Contractor. This country should have a modern and liberal arbitration law and should have ratified a bilateral or multilateral convention (such as the 1958 New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards), or both, that would facilitate the enforcement of an arbitral award in the states of the Parties.

It may be considered desirable in some cases for other Parties to be joined into any arbitration between the Parties, thereby creating a multi-party arbitration. While this may be feasible, multi-party arbitration clauses require skilful drafting, and usually need to be prepared on a case-by-case basis. No satisfactory standard form of multi-party arbitration clause for international use has yet been developed.

Handwritten signature and initials, possibly 'MS' and 'SMA', in the bottom right corner.

Annexes FORMS OF SECURITIES

Acceptable form(s) of security should be included in the tender documents: for Annex A and/or B, in the Instructions to Tenderers; and for Annexes C to G, annexed to the Particular Conditions. The following example forms, which (except for Annex A) incorporate Uniform Rules published by the International Chamber of Commerce (the "ICC", which is based at 38 Cours Albert 1er, 75008 Paris, France), may have to be amended to comply with the applicable law. Although the ICC publishes guides to these Uniform Rules, legal advice should be taken before the securities are written. Note that the guaranteed amounts should be quoted in all the currencies, as specified in the Contract, in which the guarantor pays the beneficiary.

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MS
SMA

Annex A EXAMPLE FORM OF PARENT COMPANY GUARANTEE

[See page 4, and the comments on Sub-Clause 1.14]

Brief description of Contract _____

Name and address of Employer _____

(together with successors and assigns).

We have been informed that _____ (hereinafter called the "Contractor") is submitting an offer for such Contract in response to your invitation, and that the conditions of your invitation require his offer to be supported by a parent company guarantee.

In consideration of you, the Employer, awarding the Contract to the Contractor, we (*name of parent company*) _____ irrevocably and unconditionally guarantee to you, as a primary obligation, the due performance of all the Contractor's obligations and liabilities under the Contract, including the Contractor's compliance with all its terms and conditions according to their true intent and meaning.

If the Contractor fails to so perform his obligations and liabilities and comply with the Contract, we will indemnify the Employer against and from all damages, losses and expenses (including legal fees and expenses) which arise from any such failure for which the Contractor is liable to the Employer under the Contract.

This guarantee shall come into full force and effect when the Contract comes into full force and effect. If the Contract does not come into full force and effect within a year of the date of this guarantee, or if you demonstrate that you do not intend to enter into the Contract with the Contractor, this guarantee shall be void and ineffective. This guarantee shall continue in full force and effect until all the Contractor's obligations and liabilities under the Contract have been discharged, when this guarantee shall expire and shall be returned to us, and our liability hereunder shall be discharged absolutely.

This guarantee shall apply and be supplemental to the Contract as amended or varied by the Employer and the Contractor from time to time. We hereby authorise them to agree any such amendment or variation, the due performance of which and compliance with which by the Contractor are likewise guaranteed hereunder. Our obligations and liabilities under this guarantee shall not be discharged by any allowance of time or other indulgence whatsoever by the Employer to the Contractor, or by any variation or suspension of the works to be executed under the Contract, or by any amendments to the Contract or to the constitution of the Contractor or the Employer, or by any other matters, whether with or without our knowledge or consent.

This guarantee shall be governed by the law of the same country (or other jurisdiction) as that which governs the Contract and any dispute under this guarantee shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce by one or more arbitrators appointed in accordance with such Rules. We confirm that the benefit of this guarantee may be assigned subject only to the provisions for assignment of the Contract.

Date _____ Signature(s) _____



Annex B EXAMPLE FORM OF TENDER SECURITY

[See page 4]

Brief description of Contract

Name and address of Beneficiary

(whom the tender documents define as the Employer)

We have been informed that (hereinafter called the "Principal") is submitting an offer for such Contract in response to your invitation, and that the conditions of your invitation (the "conditions of invitation", which are set out in a document entitled Instructions to Tenderers) require his offer to be supported by a tender security.

At the request of the Principal, we (name of bank) hereby irrevocably undertake to pay you, the Beneficiary/Employer, any sum or sums not exceeding in total the amount of (say:) upon receipt by us of your demand in writing and your written statement (in the demand) stating that:

- (a) the Principal has, without your agreement, withdrawn his offer after the latest time specified for its submission and before the expiry of its period of validity, or
(b) the Principal has refused to accept the correction of errors in his offer in accordance with such conditions of invitation, or
(c) you entered into the Contract with the Principal and he has failed to deliver a performance security complying with sub-clause 4.2 of the conditions of the Contract.

Any demand for payment must contain your signature(s) which must be authenticated by your bankers or by a notary public. The authenticated demand and statement must be received by us at this office on or before (the date 35 days after the expiry of the validity of the Letter of Tender), when this guarantee shall expire and shall be returned to us.

This guarantee is subject to the Uniform Rules for Demand Guarantees, published as number 458 by the International Chamber of Commerce, except as stated above.

Date Signature(s)

Handwritten signature

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Annex C EXAMPLE FORM OF PERFORMANCE SECURITY - DEMAND GUARANTEE

[See comments on Sub-Clause 4.2]

Brief description of Contract _____

Name and address of Beneficiary _____

(whom the Contract defines as the Employer)

We have been informed that _____ (hereinafter called the "Principal") is your contractor under such Contract, which requires him to obtain a performance security.

At the request of the Principal, we (name of bank) _____ hereby irrevocably undertake to pay you, the Beneficiary/Employer, any sum or sums not exceeding in total the amount of _____ (the "guaranteed amount", say: _____) upon receipt by us of your demand in writing and your written statement stating:

- (a) that the Principal is in breach of his obligation(s) under the Contract, and
- (b) the respect in which the Principal is in breach.

[Following the receipt by us of an authenticated copy of the taking-over certificate for the whole of the works under clause 10 of the conditions of the Contract, such guaranteed amount shall be reduced by _____ % and we shall promptly notify you that we have received such certificate and have reduced the guaranteed amount accordingly.] ⁽¹⁾

Any demand for payment must contain your [minister's/directors'] ⁽¹⁾ signature(s) which must be authenticated by your bankers or by a notary public. The authenticated demand and statement must be received by us at this office on or before (the date 70 days after the expected expiry of the Defects Notification Period for the Works) _____ (the "expiry date"), when this guarantee shall expire and shall be returned to us.

We have been informed that the Beneficiary may require the Principal to extend this guarantee if the performance certificate under the Contract has not been issued by the date 28 days prior to such expiry date. We undertake to pay you such guaranteed amount upon receipt by us, within such period of 28 days, of your demand in writing and your written statement that the performance certificate has not been issued, for reasons attributable to the Principal, and that this guarantee has not been extended.

This guarantee shall be governed by the laws of _____ and shall be subject to the Uniform Rules for Demand Guarantees, published as number 458 by the International Chamber of Commerce, except as stated above.

Date _____ Signature(s) _____

⁽¹⁾ When writing the tender documents, the writer should ascertain whether to include the optional text, shown in parentheses []

Annex D EXAMPLE FORM OF PERFORMANCE SECURITY - SURETY BOND

[See comments on Sub-Clause 4.2]

Brief description of Contract

Name and address of Beneficiary

(together with successors and assigns, all as defined in the Contract as the Employer)

By this Bond, *(name and address of contractor)* (who is the contractor under such Contract) as Principal and *(name and address of guarantor)* as Guarantor are irrevocably held and firmly bound to the Beneficiary in the total amount of _____ (the "Bond Amount", say: _____) for the due performance of all such Principal's obligations and liabilities under the Contract. [Such Bond Amount shall be reduced by _____ % upon the issue of the taking-over certificate for the whole of the works under clause 10 of the conditions of the Contract.]⁽¹⁾

This Bond shall become effective on the Commencement Date defined in the Contract.

Upon Default by the Principal to perform any Contractual Obligation, or upon the occurrence of any of the events and circumstances listed in sub-clause 15.2 of the conditions of the Contract, the Guarantor shall satisfy and discharge the damages sustained by the Beneficiary due to such Default, event or circumstances,⁽²⁾ However, the total liability of the Guarantor shall not exceed the Bond Amount.

The obligations and liabilities of the Guarantor shall not be discharged by any allowance of time or other indulgence whatsoever by the Beneficiary to the Principal, or by any variation or suspension of the works to be executed under the Contract, or by any amendments to the Contract or to the constitution of the Principal or the Beneficiary, or by any other matters, whether with or without the knowledge or consent of the Guarantor.

Any claim under this Bond must be received by the Guarantor on or before *(the date six months after the expected expiry of the Defects Notification Period for the Works)* _____ (the "Expiry Date"), when this Bond shall expire and shall be returned to the Guarantor.

The benefit of this Bond may be assigned subject to the provisions for assignment of the Contract, and subject to the receipt by the Guarantor of evidence of full compliance with such provisions.

This Bond shall be governed by the law of the same country (or other jurisdiction) as that which governs the Contract. This Bond incorporates and shall be subject to the Uniform Rules for Contract Bonds, published as number 524 by the International Chamber of Commerce, and words used in this Bond shall bear the meanings set out in such Rules.

Wherefore this Bond has been issued by the Principal and the Guarantor on *(date)*



Signature(s) for and on behalf of the Principal

Signature(s) for and on behalf of the Guarantor

⁽¹⁾ When writing the tender documents, the writer should ascertain whether to include the optional text, shown in parentheses []

⁽²⁾ Insert: [and shall not be entitled to perform the Principal's obligations under the Contract.]

Or: [or at the option of the Guarantor (to be exercised in writing within 42 days of receiving the claim specifying such Default) perform the Principal's obligations under the Contract.]

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Annex E EXAMPLE FORM OF ADVANCE PAYMENT GUARANTEE

[See comments on Sub-Clause 14.2]

Brief description of Contract

Name and address of Beneficiary

(whom the Contract defines as the Employer).

We have been informed that _____ (hereinafter called the "Principal") is your contractor under such Contract and wishes to receive an advance payment, for which the Contract requires him to obtain a guarantee.

At the request of the Principal, we (*name of bank*) _____ hereby irrevocably undertake to pay you, the Beneficiary/Employer, any sum or sums not exceeding in total the amount of _____ (the "guaranteed amount", say: _____) upon receipt by us of your demand in writing and your written statement stating:

- (a) that the Principal has failed to repay the advance payment in accordance with the conditions of the Contract, and
- (b) the amount which the Principal has failed to repay.

This guarantee shall become effective upon receipt [of the first instalment] of the advance payment by the Principal. Such guaranteed amount shall be reduced by the amounts of the advance payment repaid to you, as evidenced by your notices issued under sub-clause 14.6 of the conditions of the Contract. Following receipt (from the Principal) of a copy of each purported notice, we shall promptly notify you of the revised guaranteed amount accordingly.

Any demand for payment must contain your signature(s) which must be authenticated by your bankers or by a notary public. The authenticated demand and statement must be received by us at this office on or before (*the date 70 days after the expected expiry of the Time for Completion*) _____ (the "expiry date"), when this guarantee shall expire and shall be returned to us.

We have been informed that the Beneficiary may require the Principal to extend this guarantee if the advance payment has not been repaid by the date 28 days prior to such expiry date. We undertake to pay you such guaranteed amount upon receipt by us, within such period of 28 days, of your demand in writing and your written statement that the advance payment has not been repaid and that this guarantee has not been extended.

This guarantee shall be governed by the laws of _____ and shall be subject to the Uniform Rules for Demand Guarantees, published as number 458 by the International Chamber of Commerce, except as stated above.

Date

Signature(s)



Handwritten signature

Annex F EXAMPLE FORM OF RETENTION MONEY GUARANTEE

[See comments on Sub-Clause 14.9]

Brief description of Contract

Name and address of Beneficiary

(whom the Contract defines as the Employer)..

We have been informed that (hereinafter called the "Principal") is your contractor under such Contract and wishes to receive early payment of [part of] the retention money, for which the Contract requires him to obtain a guarantee.

At the request of the Principal, we (name of bank) hereby irrevocably undertake to pay you, the Beneficiary/Employer, any sum or sums not exceeding in total the amount of (the "guaranteed amount", say:) upon receipt by us of your demand in writing and your written statement stating:

- (a) that the Principal has failed to carry out his obligation(s) to rectify certain defect(s) for which he is responsible under the Contract, and
(b) the nature of such defect(s).

At any time, our liability under this guarantee shall not exceed the total amount of retention money released to the Principal by you, as evidenced by your notices issued under sub-clause 14.6 of the conditions of the Contract with a copy being passed to us.

Any demand for payment must contain your signature(s) which must be authenticated by your bankers or by a notary public. The authenticated demand and statement must be received by us at this office on or before (the date 70 days after the expected expiry of the Defects Notification Period for the Works) (the "expiry date"), when this guarantee shall expire and shall be returned to us.

We have been informed that the Beneficiary may require the Principal to extend this guarantee if the performance certificate under the Contract has not been issued by the date 28 days prior to such expiry date. We undertake to pay you such guaranteed amount upon receipt by us, within such period of 28 days, of your demand in writing and your written statement that the performance certificate has not been issued, for reasons attributable to the Principal, and that this guarantee has not been extended.

This guarantee shall be governed by the laws of and shall be subject to the Uniform Rules for Demand Guarantees, published as number 458 by the International Chamber of Commerce, except as stated above.

Date Signature(s)

Handwritten signatures and initials at the bottom right of the page.

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Annex G EXAMPLE FORM OF PAYMENT GUARANTEE BY EMPLOYER

[See page 18: Contractor Finance]

Brief description of Contract

Name and address of Beneficiary

(whom the Contract defines as the Contractor).

We have been informed that _____ (whom the Contract defines as the Employer and who is hereinafter called the "Principal") is required to obtain a bank guarantee.

At the request of the Principal, we (*name of bank*) _____ hereby irrevocably undertake to pay you, the Beneficiary/Contractor, any sum or sums not exceeding in total the amount of _____ (say: _____) upon receipt by us of your demand in writing and your written statement stating:

- (a) that, in respect of a payment due under the Contract, the Principal has failed to make payment in full by the date fourteen days after the expiry of the period specified in the Contract as that within which such payment should have been made, and
- (b) the amount(s) which the Principal has failed to pay.

Any demand for payment must be accompanied by a copy of [*list of documents evidencing entitlement to payment*] _____, in respect of which the Principal has failed to make payment in full.

Any demand for payment must contain your signature(s) which must be authenticated by your bankers or by a notary public. The authenticated demand and statement must be received by us at this office on or before (*the date six months after the expected expiry of the Defects Notification Period for the Works*) _____, when this guarantee shall expire and shall be returned to us.

This guarantee shall be governed by the laws of _____ and shall be subject to the Uniform Rules for Demand Guarantees, published as number 458 by the International Chamber of Commerce, except as stated above.

Date

Signature(s)

Handwritten signature and initials

GENERAL CONDITIONS

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PREPARATION OF
PARTICULAR CONDITIONS

Conditions of Contract
for EPC/Turnkey Projects

FORMS OF LETTER OF
TENDER, CONTRACT
AGREEMENT AND
DISPUTE ADJUDICATION
AGREEMENT

Forms of Letter of Tender, Contract Agreement
and Dispute Adjudication Agreement

FEDERATION INTERNATIONALE DES INGENIEURS-CONSEILS
INTERNATIONAL FEDERATION OF CONSULTING ENGINEERS
INTERNATIONALE VEREINIGUNG BERATENDER INGENIEURE
FEDERACION INTERNACIONAL DE INGENIEROS CONSULTORES



Handwritten signature or initials, possibly "VAF" and "SMA".

LETTER OF TENDER

NAME OF CONTRACT:

TO:

We have examined the Conditions of Contract, Employer's Requirements and Addenda Nos for the above-named Works. We have examined, understood and checked these documents and have ascertained that they contain no errors or other defects. We accordingly offer to design, execute and complete the Works and remedy any defects therein, in conformity with such documents and our enclosed Tender (including this letter) for the prices set out in our Tender.

We accept your suggestions for the appointment of the DAB, as set out in _____

*[We have included our suggestions for the other Member of the DAB in part _____ of our Tender, entitled List of Potential Members of the DAB]. **

We agree to abide by this Tender until _____ and it shall remain binding upon us and may be accepted at any time before that date.

If this offer is accepted, we will provide the specified Performance Security, commence the Works as soon as is reasonably practicable after the Commencement Date, and complete the Works in accordance with the above-named documents within the Time for Completion. We guarantee that the Works will then conform with the Performance Guarantees included in this Tender.

We understand that you are not bound to accept the lowest or any tender you may receive.

Signature _____ in the capacity of _____

duly authorised to sign tenders for and on behalf of _____

Address: _____

Date: _____

* If the Tenderer does not accept, this paragraph may be deleted and replaced by:

We do not accept your suggestions for the appointment of the DAB. We have included our suggestions in our Tender, in the list of potential members of the DAB. If these suggestions are not acceptable to you, we propose that the DAB be jointly appointed in accordance with Sub-Clause 20.2 of the Conditions of Contract, [after a Party gives notice of its intention to refer a dispute to the DAB]

[Handwritten signature]

GENERAL CONDITIONS

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CONTRACT AGREEMENT

This Agreement made the _____ day of _____ 20____

Between _____ of _____ (hereinafter called "the Employer") of the one part,
and _____ of _____ (hereinafter called "the Contractor") of the other
part

Whereas the Employer desires that the Works known as _____ should be executed by
the Contractor, and has accepted a Tender by the Contractor for the execution and completion of
these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement:
 - (a) The memoranda annexed hereto (which includes a breakdown of the Contract Price)
 - (b) The Addenda nos _____
 - (c) The Conditions of Contract
 - (d) The Employer's Requirements, and
 - (e) The Contractor's Tender.
3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to design, execute and complete the Works and remedy any defects therein in conformity with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor, in consideration of the design, execution and completion of the Works and the remedying of defects therein, the final Contract Price at the times and in the manner prescribed by the Contract.
- [5. The Contract shall come into full force and effect on the date when the following conditions are satisfied:
[List of pre-conditions]
The Employer shall promptly confirm to the Contractor the date on which all these conditions have been satisfied. If any of these conditions has not been satisfied within _____ days of the above-mentioned date on which this Agreement is made, this Agreement shall be void and ineffective and any securities issued in relation to the above Works shall be returned. *optional*
- [5. The Commencement Date shall be _____ *optional*

In Witness whereof the parties hereto have caused this Agreement to be executed the day and year first before written in accordance with their respective laws.

SIGNED by: _____ SIGNED by: _____

for and on behalf of the Employer in the presence of _____ for and on behalf of the Contractor in the presence of _____

Witness: _____	Witness: _____
Name: _____	Name: _____
Address: _____	Address: _____
Date: _____	Date: _____

DISPUTE ADJUDICATION AGREEMENT

[for a one-person DAB]

Name and details of Contract _____
Name and address of Employer _____
Name and address of Contractor _____
Name and address of Member _____

Whereas the Employer and the Contractor have entered into the Contract and desire jointly to appoint the Member to act as sole adjudicator who is also called the "DAB" to adjudicate a dispute which has arisen in relation to _____ *

The Employer, Contractor and Member jointly agree as follows:

1. The conditions of this Dispute Adjudication Agreement comprise the "General Conditions of Dispute Adjudication Agreement", which is appended to the General Conditions of the "Conditions of Contract for EPC/Turnkey Projects" First Edition 1999 published by the Fédération Internationale des Ingénieurs-Conseils (FIDIC), and the following provisions. In these provisions, which include amendments and additions to the General Conditions of Dispute Adjudication Agreement, words and expressions shall have the same meanings as are assigned to them in the General Conditions of Dispute Adjudication Agreement.
2. [*Details of amendments to the General Conditions of Dispute Adjudication Agreement, if any.*]
3. In accordance with Clause 6 of the General Conditions of Dispute Adjudication Agreement, the Member shall be paid a daily fee of _____ per day.
4. In consideration of these fees and other payments to be made by the Employer and the Contractor in accordance with Clause 6 of the General Conditions of Dispute Adjudication Agreement, the Member undertakes to act as the DAB (as adjudicator) in accordance with this Dispute Adjudication Agreement.
5. The Employer and the Contractor jointly and severally undertake to pay the Member, in consideration of the carrying out of these services, in accordance with Clause 6 of the General Conditions of Dispute Adjudication Agreement.
6. This Dispute Adjudication Agreement shall be governed by the law of _____

SIGNED by: _____ SIGNED by: _____ SIGNED by: _____

for and on behalf of the Employer in the presence of for and on behalf of the Contractor in the presence of the Member in the presence of:

Witness: _____ Name: _____ Address: _____ Date: _____
Witness: _____ Name: _____ Address: _____ Date: _____
Witness: _____ Name: _____ Address: _____ Date: _____

[* A brief description or name of dispute to be added]

CAF
S. Smith
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GENERAL
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DISPUTE ADJUDICATION AGREEMENT

[for each member of a three-person DAB]

Name and details of Contract _____
Name and address of Employer _____
Name and address of Contractor _____
Name and address of Member _____

Whereas the Employer and the Contractor have entered into the Contract and desire jointly to appoint the Member to act as one of the three persons who are jointly called the "DAB" [and desire the Member to act as chairman of the DAB] to adjudicate a dispute which has arisen in relation to _____

The Employer, Contractor and Member jointly agree as follows:

1. The conditions of this Dispute Adjudication Agreement comprise the "General Conditions of Dispute Adjudication Agreement", which is appended to the General Conditions of the "Conditions of Contract for EPC/Turnkey Projects" First Edition 1999 published by the Fédération Internationale des Ingénieurs-Conseils (FIDIC), and the following provisions. In these provisions, which include amendments and additions to the General Conditions of Dispute Adjudication Agreement, words and expressions shall have the same meanings as are assigned to them in the General Conditions of Dispute Adjudication Agreement.
2. [Details of amendments to the General Conditions of Dispute Adjudication Agreement, if any.]
3. In accordance with Clause 6 of the General Conditions of Dispute Adjudication Agreement, the Member shall be paid a daily fee of _____ per day.
4. In consideration of these fees and other payments to be made by the Employer and the Contractor in accordance with Clause 6 of the General Conditions of Dispute Adjudication Agreement, the Member undertakes to serve, as described in this Dispute Adjudication Agreement, as one of the three persons who are jointly to act as the DAB.
5. The Employer and the Contractor jointly and severally undertake to pay the Member, in consideration of the carrying out of these services, in accordance with Clause 6 of the General Conditions of Dispute Adjudication Agreement.
6. This Dispute Adjudication Agreement shall be governed by the law of _____

SIGNED by: _____ SIGNED by: _____ SIGNED by: _____

for and on behalf of the Employer for and on behalf of the Contractor the Member in the presence of
In the presence of in the presence of

Witness: _____ Witness: _____ Witness: _____
Name: _____ Name: _____ Name: _____
Address: _____ Address: _____ Address: _____
Date: _____ Date: _____ Date: _____

[A brief description or name of dispute to be added.]

Handwritten signatures and initials:
JAS
Sms

ERRATA to the First Edition, 1999

The following significant errata are corrected in this reprinting of the First Edition of the EPC/Turnkey Contract. Several minor typographical errors and layout irregularities have also been corrected.

GENERAL CONDITIONS

- Page 36 In the title of Sub-Clause 14.2, delete "Advanced" and substitute "Advance".
Page 54 In the fifth line of the fifth paragraph, after "Clause 20.4", insert the italicised title "[Obtaining Dispute Adjudication Board's Decision]".
Sub-Clause 20.4: in the fifth line, delete each of the italicised acronyms "DAB" and substitute the italicised "Dispute Adjudication Board".
- Page 55 In the third paragraph: in the second line, delete the word "the" from the phrase "General Conditions of the Dispute Adjudication Agreement"; and in the sixth line, delete "Member" and substitute "member".
- Page 59 In sub-paragraph (i): delete "day's" and substitute "days"; and in the third line, delete "an other" and substitute "another".
In the middle of the page, delete "Agreement until each member has been paid" and substitute "Agreement until each of the Members has been paid".
At the end of the next paragraph, after "a decision shall have", insert "been".
In the last sentence of Clause 6, delete the comma after the phrase "Any such notice".
- Page 61 In the third line of Clause 6, delete the first two words "notice to".

GUIDANCE FOR THE PREPARATION OF PARTICULAR CONDITIONS

Annexes Delete "© FIDIC".

ERRATA SHEET

The following typographical error has been discovered in the First Edition of the EPC/Turnkey Contract (the 1999 Silver Book)

GENERAL CONDITIONS

- Page 52 In the ultimate paragraph of "Clause 20.2", please insert the missing text after the reference to Sub-Clause 20.4 as follows:
[Obtaining Dispute Adjudication Board Decision], unless other disputes have been referred to the DAB by that time under Sub-Clause 20.4.
The paragraph should read as follows:
The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Employer or the Contractor acting alone. Unless otherwise agreed by both Parties, the appointment of the DAB (including each member) shall expire when the DAB has given its decision on the dispute referred to it under Sub-Clause 20.4, [Obtaining Dispute Adjudication Board Decision], unless other disputes have been referred to the DAB by that time under Sub-Clause 20.4, in which event the relevant date shall be when the DAB has also given decisions on those disputes.
The word "appointed" is mis-spelt "apponted" in the fourth line of Sub-Clause 20.4 of the original print run of the Silver Book.

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**SCOPE OF WORKS & EMPLOYER'S REQUIREMENT FOR THE
SELF HELP ELECTRIFICATION PROGRAMME IN FIVE REGIONS-PHASE II**

NAME OF THE EMPLOYER: MINISTRY OF ENERGY

DATE :

1. Form of contract

The form of contract is "International Federation of Consulting Engineers (FIDIC) Conditions of Contract for EPC /Turnkey Contracts, First Edition, 1999".

2. Scope of Works

The scope of works involves the extension of electricity supply to 582 selected communities in the Five Regions of Ghana. The breakdown is as summarized below:

Item No.	Description	Unit	Quantity
1	Beneficiary Communities	No.	582
2	Beneficiary Households	No.	43451
3	33 kV Transmission Lines	km	1218
4	11 kV Transmission Lines	km	238
5	Low Voltage Transmission Lines	km	1152
6	Single-phase Service Connections	No.	42420
7	Three-phase Service Connections	No.	1031
8	33kV Transformers	No.	504
9	11kV Transformers	No.	150

List of Beneficiary Communities is attached as Appendix A.

3. Intended Purpose of the Works

The Intended purpose of the work is to extend electricity supply to 582 beneficiary communities in 38 Districts of the Five Regions.

4. Technical Standards and Construction Regulations

The Technical Standards and Construction Regulations shall be those of the Ghana Electricity Company for distribution networks construction in the Southern Sector of Ghana. These Standards have been attached as Annex, which also contains the Testing Requirements.

5. Insurance

The amount of Insurance against third party liability taken out by the Contractor and sub-contractors shall not be less than USD \$3,000,000. The Contractor shall also take out fire

Employer's Requirement The Self-Help Electrification Programme in Five Regions-PHSE II

insurance covering fire damage to poles up to the point of an interim provisional Taking-Over Certificate being issued for each Section.

6. Location of Sites

The various project sites are as per the districts indicated in the table below.

No.	District	No. of Communities
ASHANTI REGION		
1	Ashanti Akim North	33
2	Bekwai	9
3	Adansi North	5
4	Ejura-Sekyedumase	16
5	Atwima Mponua	39
6	Offinso South	15
7	Amansie West	35
8	New Edubiase	54
9	Atiwma Kwanwoma	6
10	Ahafo Ano North	22
11	Atwima Nwabiagya North	10
12	Atwima Nwabiagya South	8
13	Ahafo Ano South West	43
14	Ahafo Ano South East	19
15	Offinso North	13
16	Sekyere Central	16
Sub Total		343
EASTERN		
1	Akuapim South	7
2	Denkyem bour	18
3	Birim North	7
4	Kwaebirem	2
5	Lower West Akim	20
Sub Total		54

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Employer's Requirement The Self-Help Electrification Programme in Five Regions-PHSE II

BRONG AHAFO		
1	Wenchi	14
2	Jaman North	6
3	Tano South	8
4	Berkum East	10
5	Techiman North	17
6	Nkoranza North	17
7	Dormaa Central	10
Sub Total		82
WESTERN		
1	Mpohor Wassa East	15
2	Amenfi East	8
3	Jomoro	6
4	Prestea	9
Sub Total		38
VOLTA		
1	Krachi East	24
2	Krachi West	10
3	Nkwanta South	10
4	Hohoe	9
5	Jasikan	6
6	Krachi-Nchumuru	6
Sub Total		65
TOTAL COMMUNITIES		582
TOTAL DISTRICT		38

7. Time for completion

The Time for Completion is 1,460 days from the Commencement Date.

8. Permissions Obtained by the Employer

For permissions in respect of 'Rights of Way and Facilities', the Employer shall ensure that the Contractor has full access to the site and rights of way to enable the Contractor undertake the installation works. The Contractor will not be liable for any costs to insure

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Employer's Requirement The Self-Help Electrification Programme in Five Regions-PHSE II

rights of way and access for installation and any delays in installation as a result of denied access or rights of way to the Contractor. Any compensation required by the local inhabitants in order to facilitate rights of way shall be the responsibility of the Employer.

9. Environmental Constraints

No environmental constraints have been envisaged under this project. The Employer shall however ensure any challenge that may be encountered by way of environmental constraint shall be addressed to allow for the smooth implementation of the project.

10. Defects Notification Period

The Defects Notification Period shall be 12 months from the issuing of the "Taking-Over Certificate".

11. Law and Language

(a) The Contract Agreement shall be governed by and construed in accordance with the Laws of Ghana.

(b) English shall prevail as the preferred language in all documentation and communication.

12. Performance Security

The Performance Security shall be 10% of the Contract Price and the Contractor shall deliver it within 28 days after all Conditions Precedent have been met.

13. Retention Percentage

The Retention Percentage shall be 5% of the total Contract Price.

14. Delay Damages

Delay damages shall be 0.1% of the Contract Price of the Section delayed per day of delay and the maximum amount of Delay Damages shall be 10% of the Contract Price.

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**Priced Bill of Quantities for the Self-Help
Electrification Programme in Five Regions-Phase II**

TOTAL AMOUNT OF SELF-HELP ELECTRIFICATION PROGRAMME IN FIVE REGIONS-PHASE 2

Name of Region 5 REGIONS (PHASE 2)
Name of District Total(Sub-total+3.5% of Contingency+2.5% Implementation)

Summary

<u>33kV, 3-Phase Network</u>	<u>US\$ 36,090,564</u>
<u>11kV, 3-Phase Network</u>	<u>US\$ 7,260,585</u>
<u>Pole Mounted Transformer Substations</u>	<u>US\$ 6,865,096</u>
<u>Low Voltage (LV) Networks</u>	<u>US\$ 24,305,693</u>
<u>Service Connections</u>	<u>US\$ 23,001,072</u>
<u>Sub-total</u>	<u>US\$ 97,523,010</u>
<u>Contingency (3.5%) =</u>	<u>US\$ 3,038,915</u>
<u>Implementation Unit (2.5%) =</u>	<u>US\$ 2,438,075</u>
<u>Total Amount</u>	<u>US\$ 103,000,000</u>

11/17/2017

Price Schedules (Bill of Quantities)

Name of Region

5 REGIONS (PHASE 2)

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	9,387	250	2,346,750	60	563,220	2,909,970
2 0 - 20 degree Intermediate	no.	1,532	250	383,000	60	91,920	474,920
3 20 - 60 degree angle H Pole (MV)	no.	1,274	830	1,057,420	192	244,608	1,302,028
4 60 - 90 degree angle H Pole (HV)	no.	318	620	197,160	180	57,240	254,400
5 Section Pole with Drop-Out Fuses		59	1,350	79,650	337	19,883	99,533
6 Section Pole for Mounting Load Isolator	no.	65	790	51,350	247	16,055	67,405
7 Fused Tee off	no.	284	1,629	462,636	398	113,032	575,668
8 H-Pole for Transformer (Terminal & Intermediate)	no.	491	1,506	739,446	354	173,814	913,260
9 Section Pole		773	760	587,480	195	150,735	738,215
10 33kV, single stay equipment	no.	10,608					
normal ground	no.	5,219	125	652,375	45	234,855	887,230
laterite ground	no.	2,498	125	312,250	65	162,370	474,620
rock ground	no.	2,889	125	361,125	85	245,565	606,690
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	no.	3,886	2,350	9,131,188	583	2,265,312	11,396,500
13 3-Phase, 33kV Load Isolator	no.	65	3,980	258,700	950	61,750	320,450
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	KVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)	no.	5,600					
normal ground	no.	2,712	378	1,025,136	90	244,080	1,269,216
laterite ground	no.	1,269	378	479,682	96	121,824	601,506
rock ground	no.	1,619	378	611,982	109	176,471	788,453
17 HV Wooden Poles for 33kV Lines (11m)	no.	4,965					
normal ground	no.	2,408	439	1,057,112	90	216,720	1,273,832
laterite ground	no.	1,104	439	484,656	96	105,984	590,640
rock ground	no.	1,475	439	647,525	109	160,775	808,300
18 HV Steel Poles for 33kV Lines (10m)	no.						
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		

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Price Schedules (Bill of Quantities)

Name of Region

5 REGIONS (PHASE 2)

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost		Transportation Installation & Commissioning (US\$)	Total Cost		Total Cost of Mat. & Install (US\$)
			Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)		Local Transportation Installation & Commissioning (US\$)	Total Cost Local Transportation Installation & Commissioning (US\$)	
19 HV Steel Poles for 33kV Lines (11m)	no.	6,110						
normal ground	no.	2,968	1,250	3,710,000	90	267,120	3,977,120	
laterite ground	no.	1,381	1,250	1,726,250	96	132,576	1,858,826	
rock ground	no.	1,761	1,250	2,201,250	109	191,949	2,393,199	
20 Line route survey	km	1,218			672	818,214	818,214	
21 Bush Clearing	km	1,218			567	690,368	690,368	
						Sub - Total		36,090,564
11kV/11.5kV 3-Phase Network								
22 Intermediate Pole	no.	1,768	145	256,360	38	67,184	323,544	
23 0 - 20 degree Intermediate	no.	239	210	50,190	38	9,082	59,272	
24 20 - 60 degree angle H Pole (MV)		295	620	182,900	158	46,610	229,510	
25 60 - 90 degree angle H Pole (HV)	no.	93	590	54,870	153	14,229	69,099	
26 Section Pole with Drop-Out Fuses	no.	5	980	4,900	248	1,240	6,140	
27 Section Pole for Mounting Load Isolator	no.	13	720	9,360	198	2,574	11,934	
28 Fused Tee off	no.	81	1,169	94,689	279	22,599	117,288	
29 H-Pole for Transformer (Terminal & Intermediate)	no.	154	1,350	207,900	350	53,900	261,800	
30 Section Pole	no.	114	580	66,120	155	17,670	83,790	
31 11kV, single stay equipment	no.	2,471						
normal ground	no.	1,200	115	138,000	45	54,000	192,000	
laterite ground	no.	571	115	65,665	65	37,115	102,780	
rock ground	no.	674	115	77,510	85	57,290	134,800	
32 11kV, flying stay equipment	no.							
33 120sqmm Al Conductor	km	759	2,350	1,784,181	583	442,629	2,226,810	
34 3-Phase, 11kV Load Isolator	no.	13	3,100	40,300	650	8,450	48,750	
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980			
36 11kV Shunt Capacitor	KVAR		6		3			
37 HV Wooden Poles for 11kV Lines (10m)	no.	971						
normal ground	no.	462	378	174,636	90	41,580	216,216	
laterite ground	no.	201	378	75,978	96	19,296	95,274	
rock ground	no.	307	378	116,046	109	33,463	149,509	
38 HV Wooden Poles for 11kV Lines (11m)	no.	1,031						

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Price Schedules (Bill of Quantities)

Name of Region

5 REGIONS (PHASE 2)

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.	462	439	202,818	90	41,580	244,398
laterite ground	no.	204	439	89,556	96	19,584	109,140
rock ground	no.	311	439	136,529	109	33,899	170,428
39 HV Steel Poles for 11kV Lines (10m)	no.						
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)	no.	1,647					
normal ground	no.	761	1,250	951,250	90	68,490	1,019,740
laterite ground	no.	354	1,250	442,500	96	33,984	476,484
rock ground	no.	454	1,250	567,500	109	49,486	616,986
41 Line route survey	km	238			672	159,942	159,942
42 Bush Clearing	km	238			567	134,951	134,951
					Sub - Total		7,260,585
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	272	8,220	2,235,840	1,719	467,568	2,703,408
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	192	9,870	1,895,040	2,145	411,840	2,306,880
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	40	11,230	449,200	2,789	111,560	560,760
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	92	6,459	594,228	1,568	144,256	738,484
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	40	7,500	300,000	1,656	66,240	366,240
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	18	8,386	150,948	2,132	38,376	189,324
					Sub - Total		6,865,096

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Price Schedules (Bill of Quantities)

Name of Region

5 REGIONS (PHASE 2)

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	12,057	90	1,085,130	18	217,026	1,302,156
50 4-Wire, 0 - 20 degree angle	no.	1,286	96	123,456	18	23,148	146,604
51 4-Wire, 20 - 60 degree angle	no.	416	175	72,800	40	16,640	89,440
52 4-Wire, 60 - 90 heavy angle	no.	2,155	223	480,565	40	86,200	566,765
53 4-Wire, Terminal Pole	no.	7,671	86	659,708	25	191,775	851,481
54 4-Wire, Tee-Off	no.	3,800	125	475,000	35	133,000	608,000
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	42,420	21	890,820	15	636,300	1,527,120
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	1,031	45	46,395	21	21,651	68,046
57 LV Stay arrangement		14,504					
normal ground	no.	7,100	110	781,000	41	291,100	1,072,100
laterite ground	no.	3,406	110	374,660	65	221,390	596,050
rock ground	no.	3,967	110	436,370	78	309,426	745,796
58 50sqmm Al Conductor	km	4,597	951	4,371,896	450	2,068,720	6,440,616
59 8m LV poles		19,491					
normal ground	no.	9,547	228	2,157,622	76	725,572	2,883,194
laterite ground	no.	4,665	226	1,054,290	84	391,860	1,446,150
rock ground	no.	5,244	226	1,185,076	93	487,664	1,672,740
60 9m LV poles		6,240					
normal ground	no.	2,971	261	775,431	76	225,796	1,001,227
laterite ground	no.	1,359	261	354,699	84	114,156	468,855
rock ground	no.	1,887	261	492,585	93	175,519	668,104
61 LV Earthing, neutral conductor PME	no.	8,052	55	442,849	19	152,984	595,833
62 Survey & Preparation of Town Layout	km	1,152			500	576,080	576,080
63 Preparation of LV Designs	km	1,152			400	460,864	460,864
64 Preparation of As-Built Drawings	km	1,152			450	518,472	518,472
Sub - Total							24,305,693

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Price Schedules (Bill of Quantities)

Name of Region

5 REGIONS (PHASE 2)

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	42,420	204	8,653,680	66	2,799,720	11,453,400
66 3-Phase Electronic meter	no.	1,031	516	531,996	93	95,883	627,879
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	16,890	176	2,972,640	64	1,080,960	4,053,600
68 7m service pole	no.	16,890					
normal ground	no.	8,390	195	1,636,050	65	545,350	2,181,400
laterite ground	no.	4,171	195	813,345	86	358,706	1,172,051
rock ground	no.	4,329	195	844,155	95	411,255	1,255,410
69 fiber glass meter box for outside use and complete with fixings	no.	17,101	97	1,658,797	35	598,535	2,257,332
						Sub - Total	23,001,072

TOTAL

Summary

33kV, 3-Phase Network	36,090,564
11kV, 3-Phase Network	7,260,585
Pole Mounted Transformer Substations	6,865,096
Low Voltage (LV) Networks	24,305,693
Service Connections	23,001,072

Total 97,523,010

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TOTAL AMOUNT OF SELF-HELP ELECTRIFICATION PROGRAMME IN FIVE REGIONS-PHASE 2

Name of Region ASHANTI REGION
Name of District Total(Sub-total+3.5% of Contingency+2.5% Implementation)

Summary

<u>33kV, 3-Phase Network</u>	<u>US\$ 20,463,624</u>
<u>11kV, 3-Phase Network</u>	<u>US\$ 4,230,728</u>
<u>Pole Mounted Transformer Substations</u>	<u>US\$ 3,504,675</u>
<u>Low Voltage (LV) Networks</u>	<u>US\$ 11,419,354</u>
<u>Service Connections</u>	<u>US\$ 11,540,798</u>
<u>Sub-total</u>	<u>US\$ 51,159,179</u>
<u>Contingency (3.5%) =</u>	<u>US\$ 1,790,571</u>
<u>Implementation Unit (2.5%) =</u>	<u>US\$ 1,278,979</u>
<u>Total Amount</u>	<u>US\$ 54,228,729</u>

5/11/11
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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	5,252	250	1,313,000	60	315,120	1,628,120
2 0 - 20 degree Intermediate	no.	723	250	180,750	60	43,380	224,130
3 20 - 60 degree angle H Pole (MV)	no.	779	830	646,570	192	149,568	796,138
4 60 - 90 degree angle H Pole (HV)	no.	131	620	81,220	180	23,580	104,800
5 Section Pole with Drop-Out Fuses	no.	44	1,350	59,400	337	14,828	74,228
6 Section Pole for Mounting Load Isolator	no.	34	790	26,860	247	8,398	35,258
7 Fused Tee off	no.	137	1,629	223,173	398	54,526	277,699
8 H-Pole for Transformer (Terminal & Intermediate)	no.	249	1,506	374,994	354	88,146	463,140
9 Section Pole	no.	412	760	313,120	195	80,340	393,460
10 33kV, single stay equipment		5,560					
normal ground	no.	2,728	125	341,000	45	122,760	463,760
laterite ground	no.	1,301	125	162,625	65	84,565	247,190
rock ground	no.	1,531	125	191,375	85	130,135	321,510
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	2,260	2,350	5,311,107	583	1,317,606	6,628,713
13 3-Phase, 33kV Load Isolator	no.	34	3,980	135,320	950	32,300	167,620
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	KVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		2,933					
normal ground	no.	1,410	378	532,980	90	126,900	659,880
laterite ground	no.	652	378	246,456	96	62,592	309,048
rock ground	no.	871	378	329,238	109	94,939	424,177
17 HV Wooden Poles for 33kV Lines (11m)		2,527					
normal ground	no.	1,233	439	541,287	90	110,970	652,257
laterite ground	no.	556	439	244,084	96	53,376	297,460
rock ground	no.	760	439	333,640	109	82,840	416,480
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
19 HV Steel Poles for 33kV Lines (11m)		3,717						
normal ground	no.	1,804	1,250	2,255,000	90	162,360	2,417,360	
laterite ground	no.	839	1,250	1,048,750	96	80,544	1,129,294	
rock ground	no.	1,074	1,250	1,342,500	109	117,066	1,459,566	
20 Line route survey	km	704			672	473,131	473,131	
21 Bush Clearing	km	704			567	399,204	399,204	
Sub - Total							20,463,624	
11kV, 3-Phase Network								
22 Intermediate Pole	no.	997	145	144,565	38	37,886	182,451	
23 0 - 20 degree Intermediate	no.	121	210	25,410	38	4,598	30,008	
24 20 - 60 degree angle H Pole (MV)	no.	232	620	143,840	158	36,656	180,496	
25 60 - 90 degree angle H Pole (HV)	no.	26	590	15,340	153	3,978	19,318	
26 Section Pole with Drop-Out Fuses	no.		980		248			
27 Section Pole for Mounting Load Isolator	no.	8	720	5,760	198	1,584	7,344	
28 Fused Tee off	no.	39	1,169	45,591	279	10,881	56,472	
29 H-Pole for Transformer (Terminal & Intermediate)	no.	90	1,350	121,500	350	31,500	153,000	
30 Section Pole	no.	72	580	41,760	155	11,160	52,920	
31 11kV, single stay equipment		1,555						
normal ground	no.	763	115	87,745	45	34,335	122,080	
laterite ground	no.	360	115	41,400	65	23,400	64,800	
rock ground	no.	432	115	49,680	85	36,720	86,400	
32 11kV, flying stay equipment	no.							
33 120sqmm Al Conductor	km	466	2,350	1,094,471	583	271,522	1,365,993	
34 3-Phase, 11kV Load Isolator	no.	8	3,100	24,800	650	5,200	30,000	
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980			
36 11kV Shunt Capacitor	kVAR		6		3			
37 HV Wooden Poles for 11kV Lines (10m)		567						
normal ground	no.	267	378	100,926	90	24,030	124,956	
laterite ground	no.	116	378	43,848	96	11,136	54,984	
rock ground	no.	184	378	69,552	109	20,056	89,608	
38 HV Wooden Poles for 11kV Lines (11m)		676						

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Price Schedules (Bill of Quantities)

Name of Region		ASHANTI						
Name of District		Sub-Total						
Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
normal ground	no.	293	439	128,627	90	26,370	154,997	
laterite ground	no.	128	439	56,192	96	12,288	68,480	
rock ground	no.	201	439	88,239	109	21,909	110,148	
39 HV Steel Poles for 11kV Lines (10m)								
normal ground	no.		1,100		90			
laterite ground	no.		1,100		96			
rock ground	no.		1,100		109			
40 HV Steel Poles for 11kV Lines (11m)		892						
normal ground	no.	391	1,250	488,750	90	35,190	523,940	
laterite ground	no.	176	1,250	220,000	96	16,896	236,896	
rock ground	no.	247	1,250	308,750	109	26,923	335,673	
41 Line route survey	km	145			672	97,499	97,499	
42 Bush Clearing		145			567	82,265	82,265	
Sub - Total							4,230,728	
Pole Mounted Transformer Substations								
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	140	8,220	1,150,800	1,719	240,660	1,391,460	
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	98	9,870	967,260	2,145	210,210	1,177,470	
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	12	11,230	134,760	2,789	33,468	168,228	
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	63	6,459	406,917	1,568	98,784	505,701	
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	24	7,500	180,000	1,656	39,744	219,744	
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	4	8,386	33,544	2,132	8,528	42,072	
Sub - Total							3,504,675	

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$, CIF)	Total Cost Materials (US\$, CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	5,231	90	470,790	18	94,158	564,948
50 4-Wire, 0 - 20 degree angle	no.	625	96	60,000	18	11,250	71,250
51 4-Wire, 20 - 60 degree angle	no.	170	175	29,750	40	6,800	36,550
52 4-Wire, 60 - 90 heavy angle	no.	982	223	218,986	40	39,280	258,266
53 4-Wire, Terminal Pole	no.	3,682	86	316,652	25	92,050	408,702
54 4-Wire, Tee-Off	no.	1,809	125	226,125	35	63,315	289,440
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	21,450	21	450,450	15	321,750	772,200
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	502	45	22,590	21	10,542	33,132
57 LV Stay arrangement		6,776					
normal ground	no.	3,318	110	364,980	41	136,038	501,018
laterite ground	no.	1,579	110	173,690	65	102,635	276,325
rock ground	no.	1,879	110	206,690	78	146,562	353,252
58 50sqmm Al Conductor	km	2,192	951	2,084,510	450	986,361	3,070,872
59 8m LV poles		8,633					
normal ground	no.	4,236	226	957,336	76	321,936	1,279,272
laterite ground	no.	2,048	226	462,848	84	172,032	634,880
rock ground	no.	2,349	226	530,874	93	218,457	749,331
60 9m LV poles		3,310					
normal ground	no.	1,581	261	412,641	76	120,156	532,797
laterite ground	no.	724	261	188,964	84	60,816	249,780
rock ground	no.	1,005	261	262,305	93	93,465	355,770
61 LV Earthing, neutral conductor PME	no.	3,266	55	179,630	19	62,054	241,684
62 Survey & Preparation of Town Layout	km	548			500	274,032	274,032
63 Preparation of LV Designs	km	548			400	219,225	219,225
64 Preparation of As-Built Drawings	km	548			450	246,628	246,628
Sub - Total							11,419,354

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	21,450	204	4,375,800	66	1,415,700	5,791,500
66 3-Phase Electronic meter	no.	502	516	259,032	93	46,686	305,718
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	8,398	176	1,478,048	64	537,472	2,015,520
68 7m service pole normal ground	no.	4,170	195	813,150	65	271,050	1,084,200
laterite ground	no.	2,072	195	404,040	86	178,192	582,232
rock ground	no.	2,156	195	420,420	95	204,820	625,240
69 fiber glass meter box for outside use and complete with fixings	no.	8,609	97	835,073	35	301,315	1,136,388

Sub - Total 11,540,798

TOTAL

Summary

33kV, 3-Phase Network	20,463,624
11kV, 3-Phase Network	4,230,728
Pole Mounted Transformer Substations	3,504,675
Low Voltage (LV) Networks	11,419,354
Service Connections	11,540,798

Total 51,159,179

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ASHANTI AKIM NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	1,053	250	263,250	60	63,180	326,430
2 0 - 20 degree Intermediate	no.	117	250	29,250	60	7,020	36,270
3 20 - 60 degree angle H Pole (MV)	no.	151	830	125,330	192	28,992	154,322
4 60 - 90 degree angle H Pole (HV)	no.	30	620	18,600	180	5,400	24,000
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	11	790	8,690	247	2,717	11,407
7 Tee-Off Pole	no.	21	1,629	34,209	398	8,358	42,567
8 H-Pole for Transformer (Terminal & Intermediate)	no.	29	1,506	43,674	354	10,266	53,940
9 Section Pole	no.	46	760	34,960	195	8,970	43,930
10 33kV, single stay equipment		1,033					
normal ground	no.	512	125	64,000	45	23,040	87,040
laterite ground	no.	249	125	31,125	65	16,185	47,310
rock ground	no.	272	125	34,000	85	23,120	57,120
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	450	2,350	1,057,727	583	262,406	1,320,133
13 3-Phase, 33kV Load Isolator	no.	11	3,980	43,780	950	10,450	54,230
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	KVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		669					
normal ground	no.	328	378	123,984	90	29,520	153,504
laterite ground	no.	155	378	58,590	96	14,880	73,470
rock ground	no.	186	378	70,308	109	20,274	90,582
17 HV Wooden Poles for 33kV Lines (11m)		424					
normal ground	no.	219	439	96,141	90	19,710	115,851
laterite ground	no.	101	439	44,339	96	9,696	54,035
rock ground	no.	126	439	55,314	109	13,734	69,048
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		589					

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ASHANTI AKIM NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.	289	1,250	361,250	90	26,010	387,260
laterite ground	no.	138	1,250	172,500	96	13,248	185,748
rock ground	no.	162	1,250	202,500	109	17,658	220,158
20 Line route survey	km	140			672	94,226	94,226
21 Bush Clearing	km	140			567	79,503	79,503
						Sub - Total	3,782,084
11kV, 3-Phase Network							
22 Intermediate Pole	no.		145		38		
23 0 - 20 degree Intermediate	no.		210		38		
24 20 - 60 degree angle H Pole (MV)	no.		620		158		
25 60 - 90 degree angle H Pole (HV)	no.		590		153		
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.		720		198		
28 Tee-Off Pole	no.		1,169		279		
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350		
30 Section Pole	no.		580		155		
31 11kV, single stay equipment							
normal ground	no.		115		45		
laterite ground	no.		115		65		
rock ground	no.		115		85		
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km		2,350		583		
34 3-Phase, 11kV Load Isolator	no.		3,100		650		
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	kVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
38 HV Wooden Poles for 11kV Lines (11m)							
normal ground	no.		439		90		
laterite ground	no.		439		96		

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ASHANTI AKIM NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)							
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
41 Line route survey	km				672		
42 Bush Clearing	km				567		
					Sub - Total		
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	20	8,220	164,400	1,719	34,380	198,780
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	7	9,870	69,090	2,145	15,015	84,105
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	2	11,230	22,460	2,789	5,578	28,038
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568		
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656		
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		
					Sub - Total		310,923

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ASHANTI AKIM NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	324	90	29,160	18	5,832	34,992
50 4-Wire, 0 - 20 degree angle	no.	48	96	4,608	18	864	5,472
51 4-Wire, 20 - 60 degree angle	no.	16	175	2,800	40	640	3,440
52 4-Wire, 60 - 90 heavy angle	no.	102	223	22,746	40	4,080	26,826
53 4-Wire, Terminal Pole	no.	378	86	32,508	25	9,450	41,958
54 4-Wire, Tee-Off	no.	194	125	24,250	35	6,790	31,040
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,760	21	36,960	15	26,400	63,360
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	40	45	1,800	21	840	2,640
57 LV Stay arrangement		710					
normal ground	no.	349	110	38,390	41	14,309	52,699
laterite ground	no.	166	110	18,260	65	10,790	29,050
rock ground	no.	195	110	21,450	78	15,210	36,660
58 50sqmm Al Conductor	km	169	951	160,671	450	76,028	236,699
59 8m LV poles		672					
normal ground	no.	328	226	74,128	76	24,928	99,056
laterite ground	no.	156	226	35,256	84	13,104	48,360
rock ground	no.	188	226	42,488	93	17,484	59,972
60 9m LV poles		288					
normal ground	no.	136	261	35,496	76	10,336	45,832
laterite ground	no.	60	261	15,660	84	5,040	20,700
rock ground	no.	92	261	24,012	93	8,556	32,568
61 LV Earthing, neutral conductor PME	no.	296	55	16,280	19	5,624	21,904
62 Survey & Preparation of Town Layout	km	42			500	21,161	21,161
63 Preparation of LV Designs	km	42			400	16,929	16,929
64 Preparation of As-Built Drawings	km	42			450	19,045	19,045
Sub - Total							950,363

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ASHANTI AKIM NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	1,760	204	359,040	66	116,160	475,200
66 3-Phase Electronic meter	no.	40	516	20,640	93	3,720	24,360
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	528	176	92,928	64	33,792	126,720
68 7m service pole		528					
normal ground	no.	254	195	49,530	65	16,510	66,040
laterite ground	no.	116	195	22,620	86	9,976	32,596
rock ground	no.	158	195	30,810	95	15,010	45,820
69 fiber glass meter box for outside use and complete with fixings	no.	706	97	68,482	35	24,710	93,192
						Sub - Total	863,928

TOTAL

Summary

33kV, 3-Phase Network	3,782,084
11kV, 3-Phase Network	
Pole Mounted Transformer Substations	310,923
Low Voltage (LV) Networks	950,363
Service Connections	863,928
TOTAL	5,907,298

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

BEKWAI

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	211	.250	52,750	60	12,660	65,410
2 0 - 20 degree Intermediate	no.	46	250	11,500	60	2,760	14,260
3 20 - 60 degree angle H Pole (MV)	no.	39	830	32,370	192	7,488	39,858
4 60 - 90 degree angle H Pole (HV)	no.	19	620	11,780	180	3,420	15,200
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	1	790	790	247	247	1,037
7 Tee-Off Pole	no.	4	1,629	6,516	398	1,592	8,108
8 H-Pole for Transformer (Terminal & Intermediate)	no.	9	1,506	13,554	354	3,186	16,740
9 Section Pole	no.	8	760	6,080	195	1,560	7,640
10 33kV, single stay equipment		320					
normal ground	no.	158	125	19,750	45	7,110	26,860
laterite ground	no.	76	125	9,500	65	4,940	14,440
rock ground	no.	86	125	10,750	85	7,310	18,060
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	85	2,350	198,628	583	49,277	247,905
13 3-Phase, 33kV Load Isolator	no.	1	3,980	3,980	950	950	4,930
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	KVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		114					
normal ground	no.	55	378	20,790	90	4,950	25,740
laterite ground	no.	26	378	9,828	96	2,496	12,324
rock ground	no.	33	378	12,474	109	3,597	16,071
17 HV Wooden Poles for 33kV Lines (11m)		114					
normal ground	no.	56	439	24,584	90	5,040	29,624
laterite ground	no.	25	439	10,975	96	2,400	13,375
rock ground	no.	33	439	14,487	109	3,597	18,084
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		170					

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

BEKWAI

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
normal ground	no.	83	1,250	103,750	90	7,470	111,220	
laterite ground	no.	38	1,250	47,500	96	3,648	51,148	
rock ground	no.	49	1,250	61,250	109	5,341	66,591	
20 Line route survey	km	26			672	17,694	17,694	
21 Bush Clearing	km	26			567	14,930	14,930	
Sub - Total							857,249	
11kV, 3-Phase Network								
22 Intermediate Pole	no.		145		38			
23 0 - 20 degree Intermediate	no.		210		38			
24 20 - 60 degree angle H Pole (MV)	no.		620		158			
25 60 - 90 degree angle H Pole (HV)	no.		590		153			
26 Section Pole with Drop-Out Fuses	no.		980		248			
27 Section Pole for Mounting Load Isolator	no.		720		198			
28 Tee-Off Pole	no.		1,169		279			
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350			
30 Section Pole	no.		580		155			
31 11kV, single stay equipment								
normal ground	no.		115		45			
laterite ground	no.		115		65			
rock ground	no.		115		85			
32 11kV, flying stay equipment	no.							
33 120sqmm Al Conductor	km		2,350		583			
34 3-Phase, 11kV Load Isolator	no.		3,100		650			
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980			
36 11kV Shunt Capacitor	kVAR		6		3			
37 HV Wooden Poles for 11kV Lines (10m)								
normal ground	no.		378		90			
laterite ground	no.		378		96			
rock ground	no.		378		109			
38 HV Wooden Poles for 11kV Lines (11m)								
normal ground	no.		439		90			
laterite ground	no.		439		96			

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

BEKWAI

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)							
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
41 Line route survey	km				672		
42 Bush Clearing	km				567		

Sub - Total

Pole Mounted Transformer Substations

43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	8	8,220	65,760	1,719	13,752	79,512
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	1	9,870	9,870	2,145	2,145	12,015
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		11,230		2,789		
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568		
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656		
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		

Sub - Total

91,527

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

BEKWAI

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	60	90	5,400	18	1,080	6,480
50 4-Wire, 0 - 20 degree angle	no.	14	96	1,344	18	252	1,596
51 4-Wire, 20 - 60 degree angle	no.	2	175	350	40	80	430
52 4-Wire, 60 - 90 heavy angle	no.	21	223	4,683	40	840	5,523
53 4-Wire, Terminal Pole	no.	79	86	6,794	25	1,975	8,769
54 4-Wire, Tee-Off	no.	37	125	4,625	35	1,295	5,920
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	480	21	10,080	15	7,200	17,280
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	10	45	450	21	210	660
57 LV Stay arrangement		144					
normal ground	no.	71	110	7,810	41	2,911	10,721
laterite ground	no.	34	110	3,740	65	2,210	5,950
rock ground	no.	39	110	4,290	78	3,042	7,332
58 50sqmm Al Conductor	km	34	951	32,163	450	15,219	47,382
59 8m LV poles		104					
normal ground	no.	51	226	11,526	76	3,876	15,402
laterite ground	no.	23	226	5,198	84	1,932	7,130
rock ground	no.	30	226	6,780	93	2,790	9,570
60 9m LV poles		84					
normal ground	no.	41	261	10,701	76	3,116	13,817
laterite ground	no.	19	261	4,959	84	1,596	6,555
rock ground	no.	24	261	6,264	93	2,232	8,496
61 LV Earthing, neutral conductor PME	no.	57	55	3,135	19	1,083	4,218
62 Survey & Preparation of Town Layout	km	8			500	4,228	4,228
63 Preparation of LV Designs	km	8			400	3,382	3,382
64 Preparation of As-Built Drawings	km	8			450	3,805	3,805
Sub - Total							194,645

11/11
2019

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

BEKWAI

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	480	204	97,920	66	31,680	129,600
66 3-Phase Electronic meter	no.	10	516	5,160	93	930	6,090
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	192	176	33,792	64	12,288	46,080
68 7m service pole		192					
normal ground	no.	96	195	18,720	65	6,240	24,960
laterite ground	no.	48	195	9,360	86	4,128	13,488
rock ground	no.	48	195	9,360	95	4,560	13,920
69 fiber glass meter box for outside use and complete with fixings	no.	192	97	18,624	35	6,720	25,344
							259,482

TOTAL

Summary

33kV, 3-Phase Network	857,249
11kV, 3-Phase Network	91,527
Pole Mounted Transformer Substations	194,645
Low Voltage (LV) Networks	259,482
Service Connections	
TOTAL	1,402,903

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ADANSI NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	134	250	33,500	60	8,040	41,540
2 0 - 20 degree Intermediate	no.	31	250	7,750	60	1,860	9,610
3 20 - 60 degree angle H Pole (MV)	no.	31	830	25,730	192	5,952	31,682
4 60 - 90 degree angle H Pole (HV)	no.	11	620	6,820	180	1,980	8,800
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	1	790	790	247	247	1,037
7 Tee-Off Pole	no.	2	1,629	3,258	398	796	4,054
8 H-Pole for Transformer (Terminal & Intermediate)	no.	5	1,506	7,530	354	1,770	9,300
9 Section Pole	no.	5	760	3,800	195	975	4,775
10 33kV, single stay equipment		223					
normal ground	no.	111	125	13,875	45	4,995	18,870
laterite ground	no.	54	125	6,750	65	3,510	10,260
rock ground	no.	58	125	7,250	85	4,930	12,180
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	60	2,350	140,641	583	34,891	175,532
13 3-Phase, 33kV Load Isolator	no.	1	3,980	3,980	950	950	4,930
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	KVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		74					
normal ground	no.	36	378	13,608	90	3,240	16,848
laterite ground	no.	17	378	6,426	96	1,632	8,058
rock ground	no.	21	378	7,938	109	2,289	10,227
17 HV Wooden Poles for 33kV Lines (11m)		73					
normal ground	no.	36	439	15,804	90	3,240	19,044
laterite ground	no.	17	439	7,463	96	1,632	9,095
rock ground	no.	20	439	8,780	109	2,180	10,960
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		111					

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ADANSI NORTH

Description	Unit	Quantity	Unit Cost	Total Cost	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
			Materials (US\$,CIF)	Materials (US\$,CIF)	Local Local	Local Local	
normal ground	no.	53	1,250	66,250	90	4,770	71,020
laterite ground	no.	24	1,250	30,000	96	2,304	32,304
rock ground	no.	34	1,250	42,500	109	3,706	46,206
20 Line route survey	km	19			672	12,529	12,529
21 Bush Clearing	km	19			567	10,571	10,571
Sub - Total							579,432

11kV, 3-Phase Network

22 Intermediate Pole	no.		145		38		
23 0 - 20 degree Intermediate	no.		210		38		
24 20 - 60 degree angle H Pole (MV)	no.		620		158		
25 60 - 90 degree angle H Pole (HV)	no.		590		153		
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.		720		198		
28 Tee-Off Pole	no.		1,169		279		
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350		
30 Section Pole	no.		580		155		
31 11kV, single stay equipment							
normal ground	no.		115		45		
laterite ground	no.		115		65		
rock ground	no.		115		85		
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km		2,350		583		
34 3-Phase, 11kV Load Isolator	no.		3,100		650		
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	KVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
38 HV Wooden Poles for 11kV Lines (11m)							
normal ground	no.		439		90		
laterite ground	no.		439		96		

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ADANSI NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)							
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
41 Line route survey	km				672		
42 Bush Clearing	km				567		

Sub - Total

Pole Mounted Transformer Substations

43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	2	8,220	16,440	1,719	3,438	19,878
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	3	9,870	29,610	2,145	6,435	36,045
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		11,230		2,789		
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568		
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656		
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		

Sub - Total

55,923

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ADANSI NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	82	90	7,380	18	1,476	8,856
50 4-Wire, 0 - 20 degree angle	no.	7	96	672	18	126	798
51 4-Wire, 20 - 60 degree angle	no.		175		40		
52 4-Wire, 60 - 90 heavy angle	no.	28	223	6,244	40	1,120	7,364
53 4-Wire, Terminal Pole	no.	59	86	5,074	25	1,475	6,549
54 4-Wire, Tee-Off	no.	40	125	5,000	35	1,400	6,400
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	340	21	7,140	15	5,100	12,240
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	8	45	360	21	168	528
57 LV Stay arrangement		144					
normal ground	no.	70	110	7,700	41	2,870	10,570
laterite ground	no.	33	110	3,630	65	2,145	5,775
rock ground	no.	41	110	4,510	78	3,198	7,708
58 50sqmm Al Conductor	km	37	951	35,514	450	16,805	52,319
59 8m LV poles		159					
normal ground	no.	78	226	17,628	76	5,928	23,556
laterite ground	no.	38	226	8,588	84	3,192	11,780
rock ground	no.	43	226	9,718	93	3,999	13,717
60 9m LV poles		53					
normal ground	no.	25	261	6,525	76	1,900	8,425
laterite ground	no.	12	261	3,132	84	1,008	4,140
rock ground	no.	16	261	4,176	93	1,488	5,664
61 LV Earthing, neutral conductor PME	no.	69	55	3,795	19	1,311	5,106
62 Survey & Preparation of Town Layout	km	9			500	4,668	4,668
63 Preparation of LV Designs	km	9			400	3,734	3,734
64 Preparation of As-Built Drawings	km	9			450	4,201	4,201
						Sub - Total	204,099

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ADANSI NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	340	204	69,360	66	22,440	91,800
66 3-Phase Electronic meter	no.	8	516	4,128	93	744	4,872
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	136	176	23,936	64	8,704	32,640
68 7m service pole		136					
normal ground	no.	68	195	13,260	65	4,420	17,680
laterite ground	no.	34	195	6,630	86	2,924	9,554
rock ground	no.	34	195	6,630	95	3,230	9,860
69 fiber glass meter box for outside use and complete with fixings	no.	136	97	13,192	35	4,760	17,952
						Sub - Total	184,358

TOTAL

Summary

33kV, 3-Phase Network	579,432
11kV, 3-Phase Network	
Pole Mounted Transformer Substations	55,923
Low Voltage (LV) Networks	204,099
Service Connections	184,358
TOTAL	1,023,811

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

EJURA-SEKYEDUMASE

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	424	250	106,000	60	25,440	131,440
2 0 - 20 degree Intermediate	no.	78	250	19,500	60	4,680	24,180
3 20 - 60 degree angle H Pole (MV)	no.	9	830	7,470	192	1,728	9,198
4 60 - 90 degree angle H Pole (HV)	no.	4	620	2,480	180	720	3,200
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	4	790	3,160	247	988	4,148
7 Tee-Off Pole	no.	9	1,629	14,661	398	3,582	18,243
8 H-Pole for Transformer (Terminal & Intermediate)	no.	17	1,506	25,602	354	6,018	31,620
9 Section Pole	no.	83	760	63,080	195	16,185	79,265
10 33kV, single stay equipment		348					
normal ground	no.	171	125	21,375	45	7,695	29,070
laterite ground	no.	81	125	10,125	65	5,265	15,390
rock ground	no.	96	125	12,000	85	8,160	20,160
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	168	2,350	393,922	583	97,726	491,648
13 3-Phase, 33kV Load Isolator	no.	4	3,980	15,920	950	3,800	19,720
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		212					
normal ground	no.	103	378	38,934	90	9,270	48,204
laterite ground	no.	48	378	18,144	96	4,608	22,752
rock ground	no.	61	378	23,058	109	6,649	29,707
17 HV Wooden Poles for 33kV Lines (11m)		207					
normal ground	no.	100	439	43,900	90	9,000	52,900
laterite ground	no.	46	439	20,194	96	4,416	24,610
rock ground	no.	61	439	26,779	109	6,649	33,428
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		313					

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

EJURA-SEKYEDUMASE

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.	154	1,250	192,500	90	13,860	206,360
laterite ground	no.	72	1,250	90,000	96	6,912	96,912
rock ground	no.	87	1,250	108,750	109	9,483	118,233
20 Line route survey	km	52			672	35,092	35,092
21 Bush Clearing	km	52			567	29,609	29,609
						Sub - Total	1,575,088
11kV, 3-Phase Network							
22 Intermediate Pole	no.		145		38		
23 0 - 20 degree Intermediate	no.		210		38		
24 20 - 60 degree angle H Pole (MV)	no.		620		158		
25 60 - 90 degree angle H Pole (HV)	no.		590		153		
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.		720		198		
28 Tee-Off Pole	no.		1,169		279		
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350		
30 Section Pole	no.		580		155		
31 11kV, single stay equipment							
normal ground	no.		115		45		
laterite ground	no.		115		65		
rock ground	no.		115		85		
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km		2,350		583		
34 3-Phase, 11kV Load Isolator	no.		3,100		650		
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	KVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
38 HV Wooden Poles for 11kV Lines (11m)							
normal ground	no.		439		90		
laterite ground	no.		439		96		

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

EJURA-SEKYEDUMASE

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost Local Transportation Installation & Commissioning (US\$)	Total Cost Local Transportation Installation & Commissioning (US\$)	Total Cost of Mat. & Install (US\$)
rock ground	no.		439		109		
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)							
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
41 Line route survey	km				672		
42 Bush Clearing	km				567		
Sub - Total							
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	11	8,220	90,420	1,719	18,909	109,329
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	5	9,870	49,350	2,145	10,725	60,075
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	1	11,230	11,230	2,789	2,789	14,019
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568		
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656		
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		
Sub - Total							183,423

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

EJURA-SEKYEDUMASE

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	245	90	22,050	18	4,410	26,460
50 4-Wire, 0 - 20 degree angle	no.	23	96	2,208	18	414	2,622
51 4-Wire, 20 - 60 degree angle	no.	14	175	2,450	40	560	3,010
52 4-Wire, 60 - 90 heavy angle	no.	21	223	4,683	40	840	5,523
53 4-Wire, Terminal Pole	no.	157	86	13,502	25	3,925	17,427
54 4-Wire, Tee-Off	no.	70	125	8,750	35	2,450	11,200
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,050	21	22,050	15	15,750	37,800
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	24	45	1,080	21	504	1,584
57 LV Stay arrangement		261					
normal ground	no.	128	110	13,860	41	5,166	19,026
laterite ground	no.	58	110	6,380	65	3,770	10,150
rock ground	no.	77	110	8,470	78	6,006	14,476
58 50sqmm Al Conductor	km	86	951	82,166	450	38,880	121,046
59 8m LV poles		276					
normal ground	no.	136	226	30,736	76	10,336	41,072
laterite ground	no.	65	226	14,690	84	5,460	20,150
rock ground	no.	75	226	16,950	93	6,975	23,925
60 9m LV poles		142					
normal ground	no.	67	261	17,487	76	5,092	22,579
laterite ground	no.	30	261	7,830	84	2,520	10,350
rock ground	no.	45	261	11,745	93	4,185	15,930
61 LV Earthing, neutral conductor PME	no.	143	55	7,865	19	2,717	10,582
62 Survey & Preparation of Town Layout	km	22			500	10,800	10,800
63 Preparation of LV Designs	km	22			400	8,640	8,640
64 Preparation of As-Built Drawings	km	22			450	9,720	9,720

Sub - Total 444,072

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

EJURA-SEKYEDUMASE

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	1,050	204	214,200	66	69,300	283,500
66 3-Phase Electronic meter	no.	24	516	12,384	93	2,232	14,616
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	422	176	74,272	64	27,008	101,280
68 7m service pole normal ground	no.	422	210	40,950	65	13,650	54,600
laterite ground	no.	105	195	20,475	86	9,030	29,505
rock ground	no.	107	195	20,865	95	10,165	31,030
69 fiber glass meter box for outside use and complete with fixings	no.	422	97	40,934	35	14,770	55,704
Sub - Total							570,235

TOTAL

Summary

33kV, 3-Phase Network	1,575,088
11kV, 3-Phase Network	
Pole Mounted Transformer Substations	183,423
Low Voltage (LV) Networks	444,072
Service Connections	570,235
TOTAL	2,772,819

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATWIMA MPONUA

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	583	250	145,750	60	34,980	180,730
2 0 - 20 degree Intermediate	no.	54	250	13,500	60	3,240	16,740
3 20 - 60 degree angle H Pole (MV)	no.	96	830	79,680	192	18,432	98,112
4 60 - 90 degree angle H Pole (HV)	no.	9	620	5,580	180	1,620	7,200
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	2	790	1,580	247	494	2,074
7 Tee-Off Pole	no.	10	1,629	16,290	398	3,980	20,270
8 H-Pole for Transformer (Terminal & Intermediate)	no.	31	1,506	46,686	354	10,974	57,660
9 Section Pole	no.	76	760	57,760	195	14,820	72,580
10 33kV, single stay equipment		708					
normal ground	no.	347	125	43,375	45	15,615	58,990
laterite ground	no.	167	125	20,875	65	10,855	31,730
rock ground	no.	194	125	24,250	85	16,490	40,740
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	239	2,350	560,995	583	139,175	700,170
13 3-Phase, 33kV Load Isolator	no.	2	3,980	7,960	950	1,900	9,860
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		298					
normal ground	no.	140	378	52,920	90	12,600	65,520
laterite ground	no.	63	378	23,814	96	6,048	29,862
rock ground	no.	95	378	35,910	109	10,355	46,265
17 HV Wooden Poles for 33kV Lines (11m)		298					
normal ground	no.	142	439	62,338	90	12,780	75,118
laterite ground	no.	63	439	27,657	96	6,048	33,705
rock ground	no.	93	439	40,827	109	10,137	50,964
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		443					

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATWIMA MPONUA

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
normal ground	no.	215	1,250	268,750	90	19,350	288,100
laterite ground	no.	100	1,250	125,000	96	9,600	134,600
rock ground	no.	128	1,250	160,000	109	13,952	173,952
20 Line route survey	km	74			672	49,975	49,975
21 Bush Clearing	km	74			567	42,167	42,167
						Sub - Total	2,287,083

11kV, 3-Phase Network

22 Intermediate Pole	no.		145		38		
23 0 - 20 degree Intermediate	no.		210		38		
24 20 - 60 degree angle H Pole (MV)	no.		620		158		
25 60 - 90 degree angle H Pole (HV)	no.		590		153		
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.		720		198		
28 Tee-Off Pole	no.		1,169		279		
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350		
30 Section Pole	no.		580		155		
31 11kV, single stay equipment							
normal ground	no.		115		45		
laterite ground	no.		115		65		
rock ground	no.		115		85		
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km		2,350		583		
34 3-Phase, 11kV Load Isolator	no.		3,100		650		
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	kVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
38 HV Wooden Poles for 11kV Lines (11m)							
normal ground	no.		439		90		
laterite ground	no.		439		96		

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATWIMA MPONUA

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)							
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
41 Line route survey	km				672		
42 Bush Clearing	km				567		

Sub - Total

Pole Mounted Transformer Substations

43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	18	8,220	147,960	1,719	30,942	178,902
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	13	9,870	128,310	2,145	27,885	156,195
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		11,230		2,789		
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568		
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656		
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		

Sub - Total

335,097

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATWIMA MPONUA

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	514	90	46,260	18	9,252	55,512
50 4-Wire, 0 - 20 degree angle	no.	55	96	5,280	18	990	6,270
51 4-Wire, 20 - 60 degree angle	no.	7	175	1,225	40	280	1,505
52 4-Wire, 60 - 90 heavy angle	no.	46	223	10,258	40	1,840	12,098
53 4-Wire, Terminal Pole	no.	282	86	24,252	25	7,050	31,302
54 4-Wire, Tee-Off	no.	155	125	19,375	35	5,425	24,800
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,940	21	40,740	15	29,100	69,840
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	45	45	2,025	21	945	2,970
57 LV Stay arrangement		451					
normal ground	no.	218	110	23,980	41	8,938	32,918
laterite ground	no.	104	110	11,440	65	6,760	18,200
rock ground	no.	129	110	14,190	78	10,062	24,252
58 50sqmm Al Conductor	km	184	951	175,113	450	82,861	257,975
59 8m LV poles		638					
normal ground	no.	310	226	70,060	76	23,560	93,620
laterite ground	no.	150	226	33,900	84	12,600	46,500
rock ground	no.	178	226	40,228	93	16,554	56,782
60 9m LV poles		419					
normal ground	no.	202	261	52,722	76	15,352	68,074
laterite ground	no.	95	261	24,795	84	7,980	32,775
rock ground	no.	122	261	31,842	93	11,346	43,188
61 LV Earthing, neutral conductor PME	no.	248	55	13,640	19	4,712	18,352
62 Survey & Preparation of Town Layout	km	46			500	23,017	23,017
63 Preparation of LV Designs	km	46			400	18,414	18,414
64 Preparation of As-Built Drawings	km	46			450	20,715	20,715
						Sub - Total	959,078

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATWIMA MPONUA

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost Local Transportation Installation & Commissioning (US\$)	Total Cost Local Transportation Installation & Commissioning (US\$)	Total Cost of Mat. & Install (US\$)
Service Connections							
65 1-Phase Electronic meter	no.	1,940	204	395,760	66	128,040	523,800
66 3-Phase Electronic meter	no.	45	516	23,220	93	4,185	27,405
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	734	176	129,184	64	46,976	176,160
68 7m service pole normal ground	no.	362	195	70,590	65	23,530	94,120
laterite ground	no.	181	195	35,295	86	15,566	50,861
rock ground	no.	191	195	37,245	95	18,145	55,390
69 fiber glass meter box for outside use and complete with fixings	no.	767	97	74,399	35	26,845	101,244
Sub - Total							1,028,980

TOTAL

Summary

33kV, 3-Phase Network

11kV, 3-Phase Network

Pole Mounted Transformer Substations

Low Voltage (LV) Networks

Service Connections

2,287,083

335,097

959,078

1,028,980

TOTAL

4,610,239

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Summary

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

OFFINSO SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	169	250	42,250	60	10,140	52,390
2 0 - 20 degree Intermediate	no.	32	250	8,000	60	1,920	9,920
3 20 - 60 degree angle H Pole (MV)	no.	36	830	29,880	192	6,912	36,792
4 60 - 90 degree angle H Pole (HV)	no.	1	620	620	180	180	800
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	2	790	1,580	247	494	2,074
7 Tee-Off Pole	no.	2	1,629	3,258	398	796	4,054
8 H-Pole for Transformer (Terminal & Intermediate)	no.	4	1,506	6,024	354	1,416	7,440
9 Section Pole	no.	4	760	3,040	195	780	3,820
10 33kV, single stay equipment		200					
normal ground	no.	99	125	12,375	45	4,455	16,830
laterite ground	no.	48	125	6,000	65	3,120	9,120
rock ground	no.	53	125	6,625	85	4,505	11,130
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	84	2,350	198,205	583	49,172	247,377
13 3-Phase, 33kV Load Isolator	no.	2	3,980	7,960	950	1,900	9,860
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	KVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		86					
normal ground	no.	42	378	15,876	90	3,780	19,656
laterite ground	no.	20	378	7,560	96	1,920	9,480
rock ground	no.	24	378	9,072	109	2,616	11,688
17 HV Wooden Poles for 33kV Lines (11m)		83					
normal ground	no.	41	439	17,999	90	3,690	21,689
laterite ground	no.	19	439	8,341	96	1,824	10,165
rock ground	no.	23	439	10,097	109	2,507	12,604
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		125					

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

OFFINSO SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.	61	1,250	76,250	90	5,490	81,740
laterite ground	no.	30	1,250	37,500	96	2,880	40,380
rock ground	no.	34	1,250	42,500	109	3,706	46,206
20 Line route survey	km	26			672	17,657	17,657
21 Bush Clearing	km	26			567	14,898	14,898
Sub - Total							697,770
11kV, 3-Phase Network							
22 Intermediate Pole	no.	199	145	28,855	38	7,562	36,417
23 0 - 20 degree Intermediate	no.	36	210	7,560	38	1,368	8,928
24 20 - 60 degree angle H Pole (MV)	no.	58	620	35,960	158	9,164	45,124
25 60 - 90 degree angle H Pole (HV)	no.	5	590	2,950	153	765	3,715
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.	3	720	2,160	198	594	2,754
28 Tee-Off Pole	no.	3	1,169	3,507	279	837	4,344
29 H-Pole for Transformer (Terminal & Intermediate)	no.	11	1,350	14,850	350	3,850	18,700
30 Section Pole	no.	6	580	3,480	155	930	4,410
31 11kV, single stay equipment		328					
normal ground	no.	161	115	18,515	45	7,245	25,760
laterite ground	no.	77	115	8,855	65	5,005	13,860
rock ground	no.	90	115	10,350	85	7,650	18,000
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km	117	2,350	275,051	583	68,236	343,287
34 3-Phase, 11kV Load Isolator	no.	3	3,100	9,300	650	1,950	11,250
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	kVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)		116					
normal ground	no.	55	378	20,790	90	4,950	25,740
laterite ground	no.	25	378	9,450	96	2,400	11,850
rock ground	no.	36	378	13,608	109	3,924	17,532
38 HV Wooden Poles for 11kV Lines (11m)		156					
normal ground	no.	75	439	32,925	90	6,750	39,675
laterite ground	no.	36	439	15,804	96	3,456	19,260

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

OFFINSO SOUTH

Description	Unit	Quantity	Unit Cost (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.	45	439	19,755	109	4,905	24,660
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)		130					
normal ground	no.	62	1,250	77,500	90	5,580	83,080
laterite ground	no.	28	1,250	35,000	96	2,688	37,688
rock ground	no.	40	1,250	50,000	109	4,360	54,360
41 Line route survey	km	36			672	24,502	24,502
42 Bush Clearing	km	36			567	20,674	20,674
						Sub - Total	895,571
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	2	8,220	16,440	1,719	3,438	19,878
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	1	9,870	9,870	2,145	2,145	12,015
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	1	11,230	11,230	2,789	2,789	14,019
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	8	6,459	51,672	1,568	12,544	64,216
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	3	7,500	22,500	1,656	4,968	27,468
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		
						Sub - Total	137,596

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

OFFINSO SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	157	90	14,130	18	2,826	16,956
50 4-Wire, 0 - 20 degree angle	no.	32	96	3,072	18	576	3,648
51 4-Wire, 20 - 60 degree angle	no.	8	175	1,400	40	320	1,720
52 4-Wire, 60 - 90 heavy angle	no.	40	223	8,920	40	1,600	10,520
53 4-Wire, Terminal Pole	no.	177	86	15,222	25	4,425	19,647
54 4-Wire, Tee-Off	no.	92	125	11,500	35	3,220	14,720
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	920	21	19,320	15	13,800	33,120
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	21	45	945	21	441	1,386
57 LV Stay arrangement		332					
normal ground	no.	162	110	17,820	41	6,642	24,462
laterite ground	no.	76	110	8,360	65	4,940	13,300
rock ground	no.	94	110	10,340	78	7,332	17,672
58 50sqmm Al Conductor	km	84	951	80,120	450	37,912	118,031
59 8m LV poles		251					
normal ground	no.	121	226	27,346	76	9,196	36,542
laterite ground	no.	57	226	12,882	84	4,788	17,670
rock ground	no.	73	226	16,498	93	6,789	23,287
60 9m LV poles		220					
normal ground	no.	108	261	28,188	76	8,208	36,396
laterite ground	no.	51	261	13,311	84	4,284	17,595
rock ground	no.	61	261	15,921	93	5,673	21,594
61 LV Earthing, neutral conductor PME	no.	145	55	7,975	19	2,755	10,730
62 Survey & Preparation of Town Layout	km	21			500	10,531	10,531
63 Preparation of LV Designs	km	21			400	8,425	8,425
64 Preparation of As-Built Drawings	km	21			450	9,478	9,478
Sub - Total							467,430

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

OFFINSO SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	920	204	187,680	66	60,720	248,400
66 3-Phase Electronic meter	no.	21	516	10,836	93	1,953	12,789
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	369	176	64,944	64	23,616	88,560
68 7m service pole		369					
normal ground	no.	184	195	35,880	65	11,960	47,840
laterite ground	no.	92	195	17,940	86	7,912	25,852
rock ground	no.	93	195	18,135	95	8,835	26,970
69 fiber glass meter box for outside use and complete with fixings	no.	369	97	35,793	35	12,915	48,708
Sub - Total							499,119

TOTAL

Summary

33kV, 3-Phase Network	697,770
11kV, 3-Phase Network	895,571
Pole Mounted Transformer Substations	137,596
Low Voltage (LV) Networks	467,430
Service Connections	499,119
TOTAL	2,697,486

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

AMANSIE WEST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	594	250	148,500	60	35,640	184,140
2 0 - 20 degree Intermediate	no.	158	250	39,500	60	9,480	48,980
3 20 - 60 degree angle H Pole (MV)	no.	84	830	69,720	192	16,128	85,848
4 60 - 90 degree angle H Pole (HV)	no.	6	620	3,720	180	1,080	4,800
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	4	790	3,160	247	988	4,148
7 Tee-Off Pole	no.	11	1,629	17,919	398	4,378	22,297
8 H-Pole for Transformer (Terminal & Intermediate)	no.	36	1,506	54,216	354	12,744	66,960
9 Section Pole	no.	87	760	66,120	195	16,965	83,085
10 33kV, single stay equipment		786					
normal ground	no.	383	125	47,875	45	17,235	65,110
laterite ground	no.	180	125	22,500	65	11,700	34,200
rock ground	no.	223	125	27,875	85	18,955	46,830
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	274	2,350	643,000	583	159,519	802,519
13 3-Phase, 33kV Load Isolator	no.	4	3,980	15,920	950	3,800	19,720
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	KVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		333					
normal ground	no.	160	378	60,480	90	14,400	74,880
laterite ground	no.	74	378	27,972	96	7,104	35,076
rock ground	no.	99	378	37,422	109	10,791	48,213
17 HV Wooden Poles for 33kV Lines (11m)		334					
normal ground	no.	162	439	71,118	90	14,580	85,698
laterite ground	no.	72	439	31,608	96	6,912	38,520
rock ground	no.	100	439	43,900	109	10,900	54,800
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		496					

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

AMANSIE WEST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
normal ground	no.	240	1,250	300,000	90	21,600	321,600	
laterite ground	no.	109	1,250	136,250	96	10,464	146,714	
rock ground	no.	147	1,250	183,750	109	16,023	199,773	
20 Line route survey	km	85			672	57,281	57,281	
21 Bush Clearing	km	85			567	48,331	48,331	
Sub - Total							2,579,522	
11kV, 3-Phase Network								
22 Intermediate Pole	no.		145		38			
23 0 - 20 degree Intermediate	no.		210		38			
24 20 - 60 degree angle H Pole (MV)	no.		620		158			
25 60 - 90 degree angle H Pole (HV)	no.		590		153			
26 Section Pole with Drop-Out Fuses	no.		980		248			
27 Section Pole for Mounting Load Isolator	no.		720		198			
28 Tee-Off Pole	no.		1,169		279			
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350			
30 Section Pole	no.		580		155			
31 11kV, single stay equipment								
normal ground	no.		115		45			
laterite ground	no.		115		65			
rock ground	no.		115		85			
32 11kV, flying stay equipment	no.							
33 120sqmm Al Conductor	km		2,350		583			
34 3-Phase, 11kV Load Isolator	no.		3,100		650			
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980			
36 11kV Shunt Capacitor	KVAR		6		3			
37 HV Wooden Poles for 11kV Lines (10m)								
normal ground	no.		378		90			
laterite ground	no.		378		96			
rock ground	no.		378		109			
38 HV Wooden Poles for 11kV Lines (11m)								
normal ground	no.		439		90			
laterite ground	no.		439		96			

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

AMANSIE WEST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)							
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
41 Line route survey	km				672		
42 Bush Clearing	km				567		

Sub - Total

Pole Mounted Transformer Substations

43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	20	8,220	164,400	1,719	34,380	198,780
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	15	9,870	148,050	2,145	32,175	180,225
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	2	11,230	22,460	2,789	5,578	28,038
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568		
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656		
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		

Sub - Total

407,043

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

AMANSIE WEST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	523	90	47,070	18	9,414	56,484
50 4-Wire, 0 - 20 degree angle	no.	48	96	4,608	18	864	5,472
51 4-Wire, 20 - 60 degree angle	no.	11	175	1,925	40	440	2,365
52 4-Wire, 60 - 90 heavy angle	no.	86	223	19,178	40	3,440	22,618
53 4-Wire, Terminal Pole	no.	506	86	43,516	25	12,650	56,166
54 4-Wire, Tee-Off	no.	292	125	36,500	35	10,220	46,720
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	2,400	21	50,400	15	36,000	86,400
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	56	45	2,520	21	1,176	3,696
57 LV Stay arrangement		859					
normal ground	no.	422	110	46,420	41	17,302	63,722
laterite ground	no.	201	110	22,110	65	13,065	35,175
rock ground	no.	236	110	25,960	78	18,408	44,368
58 50sqmm Al Conductor	km	237	951	225,254	450	106,587	331,841
59 8m LV poles		826					
normal ground	no.	403	226	91,078	76	30,628	121,706
laterite ground	no.	194	226	43,844	84	16,296	60,140
rock ground	no.	229	226	51,754	93	21,297	73,051
60 9m LV poles		528					
normal ground	no.	253	261	66,033	76	19,228	85,261
laterite ground	no.	121	261	31,581	84	10,164	41,745
rock ground	no.	154	261	40,194	93	14,322	54,516
61 LV Earthing, neutral conductor PME	no.	411	55	22,605	19	7,809	30,414
62 Survey & Preparation of Town Layout	km	59			500	29,608	29,608
63 Preparation of LV Designs	km	59			400	23,686	23,686
64 Preparation of As-Built Drawings	km	59			450	26,647	26,647
						Sub - Total	1,301,800

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Price Schedules (Bill of Quantities)

Name of Region **ASHANTI REGION**

Name of District **AMANSIE WEST**

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	2,400	204	489,600	66	158,400	648,000
66 3-Phase Electronic meter	no.	56	516	28,896	93	5,208	34,104
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	964	176	169,664	64	61,696	231,360
68 7m service pole		964					
normal ground	no.	480	195	93,600	65	31,200	124,800
laterite ground	no.	240	195	46,800	86	20,640	67,440
rock ground	no.	244	195	47,580	95	23,180	70,760
69 fiber glass meter box for outside use and complete with fixings	no.	964	97	93,508	35	33,740	127,248
						Sub - Total	1,303,712

TOTAL

Summary

33kV, 3-Phase Network	2,579,522
11kV, 3-Phase Network	
Pole Mounted Transformer Substations	407,043
Low Voltage (LV) Networks	1,301,800
Service Connections	1,303,712

TOTAL

5,592,077

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

NEW EDUBIASE

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.		250		60		
2 0 - 20 degree Intermediate	no.		250		60		
3 20 - 60 degree angle H Pole (MV)	no.		830		192		
4 60 - 90 degree angle H Pole (HV)	no.		620		180		
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.		790		247		
7 Tee-Off Pole	no.		1,629		398		
8 H-Pole for Transformer (Terminal & Intermediate)	no.		1,506		354		
9 Section Pole.	no.		760		195		
10 33kV, single stay equipment							
normal ground	no.		125		45		
laterite ground	no.		125		65		
rock ground	no.		125		85		
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km		2,350		583		
13 3-Phase, 33kV Load Isolator	no.		3,980		950		
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	KVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
17 HV Wooden Poles for 33kV Lines (11m)							
normal ground	no.		439		90		
laterite ground	no.		439		96		
rock ground	no.		439		109		
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)							

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Sum

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

NEW EDUBIASE

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
20 Line route survey	km				672		
21 Bush Clearing	km				567		
					Sub - Total		
11kV, 3-Phase Network							
22 Intermediate Pole	no.	388	145	56,260	38	14,744	71,004
23 0 - 20 degree Intermediate	no.	37	210	7,770	38	1,406	9,176
24 20 - 60 degree angle H Pole (MV)	no.	101	620	62,620	158	15,958	78,578
25 60 - 90 degree angle H Pole (HV)	no.	10	590	5,900	153	1,530	7,430
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.	2	720	1,440	198	396	1,836
28 Tee-Off Pole	no.	25	1,169	29,225	279	6,975	36,200
29 H-Pole for Transformer (Terminal & Intermediate)	no.	56	1,350	75,600	350	19,600	95,200
30 Section Pole	no.	31	580	17,980	155	4,805	22,785
31 11kV, single stay equipment		705					
normal ground	no.	345	115	39,675	45	15,525	55,200
laterite ground	no.	159	115	18,285	65	10,335	28,620
rock ground	no.	201	115	23,115	85	17,085	40,200
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km	177	2,350	417,035	583	103,460	520,495
34 3-Phase, 11kV Load Isolator	no.	2	3,100	6,200	650	1,300	7,500
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	KVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)		239					
normal ground	no.	111	378	41,958	90	9,990	51,948
laterite ground	no.	48	378	18,144	96	4,608	22,752
rock ground	no.	80	378	30,240	109	8,720	38,960
38 HV Wooden Poles for 11kV Lines (11m)		308					
normal ground	no.	116	439	50,924	90	10,440	61,364
laterite ground	no.	50	439	21,950	96	4,800	26,750

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

NEW EDUBIASE

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
rock ground	no.	88	439	38,632	109	9,592	48,224
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)		449					
normal ground	no.	176	1,250	220,000	90	15,840	235,840
laterite ground	no.	77	1,250	96,250	96	7,392	103,642
rock ground	no.	118	1,250	147,500	109	12,862	160,362
41 Line route survey	km	55			672	37,151	37,151
42 Bush Clearing		55			567	31,346	31,346
						Sub - Total	1,792,563

Pole Mounted Transformer Substations

43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		8,220		1,719		
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		9,870		2,145		
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		11,230		2,789		
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	41	6,459	264,819	1,568	64,288	329,107
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	12	7,500	90,000	1,656	19,872	109,872
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	4	8,386	33,544	2,132	8,528	42,072
						Sub - Total	481,051

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

NEW EDUBIASE

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	934	90	84,060	18	16,812	100,872
50 4-Wire, 0 - 20 degree angle	no.	81	96	7,776	18	1,458	9,234
51 4-Wire, 20 - 60 degree angle	no.	37	175	6,475	40	1,480	7,955
52 4-Wire, 60 - 90 heavy angle	no.	90	223	20,070	40	3,600	23,670
53 4-Wire, Terminal Pole	no.	369	86	31,734	25	9,225	40,959
54 4-Wire, Tee-Off	no.	171	125	21,375	35	5,985	27,360
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	3,410	21	71,610	15	51,150	122,760
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	84	45	3,780	21	1,764	5,544
57 LV Stay arrangement		734					
normal ground	no.	355	110	39,050	41	14,555	53,605
laterite ground	no.	168	110	18,480	65	10,920	29,400
rock ground	no.	211	110	23,210	78	16,458	39,668
58 50sqmm Al Conductor	km	321	951	305,518	450	144,567	450,085
59 8m LV poles		1,278					
normal ground	no.	628	226	141,928	76	47,728	189,656
laterite ground	no.	303	226	68,478	84	25,452	93,930
rock ground	no.	347	226	78,422	93	32,271	110,693
60 9m LV poles		500					
normal ground	no.	242	261	63,162	76	18,392	81,554
laterite ground	no.	113	261	29,493	84	9,492	38,985
rock ground	no.	145	261	37,845	93	13,485	51,330
61 LV Earthing, neutral conductor PME	no.	375	55	20,625	19	7,125	27,750
62 Survey & Preparation of Town Layout	km	80			500	40,158	40,158
63 Preparation of LV Designs	km	80			400	32,126	32,126
64 Preparation of As-Built Drawings	km	80			450	36,142	36,142
						Sub - Total	1,613,436

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

NEW EDUBIASE

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	3,410	204	695,640	66	225,060	920,700
66 3-Phase Electronic meter	no.	84	516	43,344	93	7,812	51,156
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	1,381	176	243,056	64	88,384	331,440
68 7m service pole normal ground	no.	1,381	195	133,575	65	44,525	178,100
laterite ground	no.	685	195	66,495	86	29,326	95,821
rock ground	no.	341	195	69,225	95	33,725	102,950
69 fiber glass meter box for outside use and complete with fixings	no.	355	97	133,957	35	48,335	182,292
Sub - Total							1,862,459

TOTAL

Summary

33kV, 3-Phase Network	1,792,663
11kV, 3-Phase Network	481,051
Pole Mounted Transformer Substations	1,613,436
Low Voltage (LV) Networks	1,862,459
Service Connections	
TOTAL	5,749,508

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATIWMA KWANWOMA

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	15	250	3,750	60	900	4,650
2 0 - 20 degree Intermediate	no.	1	250	250	60	60	310
3 20 - 60 degree angle H Pole (MV)	no.	4	830	3,320	192	768	4,088
4 60 - 90 degree angle H Pole (HV)	no.	1	620	620	180	180	800
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.		790		247		
7 Tee-Off Pole	no.	1	1,629	1,629	398	398	2,027
8 H-Pole for Transformer (Terminal & Intermediate)	no.	1	1,506	1,506	354	354	1,860
9 Section Pole	no.	1	760	760	195	195	955
10 33kV, single stay equipment		27					
normal ground	no.	13	125	1,625	45	585	2,210
laterite ground	no.	6	125	750	65	390	1,140
rock ground	no.	8	125	1,000	85	680	1,680
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	7	2,350	15,396	583	3,820	19,216
13 3-Phase, 33kV Load Isolator	no.		3,980		950		
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		10					
normal ground	no.	5	378	1,890	90	450	2,340
laterite ground	no.	2	378	756	96	192	948
rock ground	no.	3	378	1,134	109	327	1,461
17 HV Wooden Poles for 33kV Lines (11m)		14					
normal ground	no.	7	439	3,073	90	630	3,703
laterite ground	no.	3	439	1,317	96	288	1,605
rock ground	no.	4	439	1,756	109	436	2,192
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		12					

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Price Schedules (Bill of Quantities)

ASHANTI REGION

ATIWMA KWANWOMA

Name of Region	ASHANTI REGION						
Name of District	ATIWMA KWANWOMA						
Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost Local Transportation Installation & Commissioning (US\$)	Total Cost Local Transportation Installation & Commissioning (US\$)	Total Cost of Mat. & Install (US\$)
normal ground	no.	6	1,250	7,500	90	540	8,040
laterite ground	no.	3	1,250	3,750	96	288	4,038
rock ground	no.	3	1,250	3,750	109	327	4,077
20 Line route survey	km	2			672	1,372	1,372
21 Bush Clearing	km	2			567	1,157	1,157
Sub - Total							69,869
11kV, 3-Phase Network							
22 Intermediate Pole	no.	74	145	10,730	38	2,812	13,542
23 0 - 20 degree Intermediate	no.	6	210	1,260	38	228	1,488
24 20 - 60 degree angle H Pole (MV)	no.	14	620	8,680	158	2,212	10,892
25 60 - 90 degree angle H Pole (HV)	no.	2	590	1,180	153	306	1,486
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.	1	720	720	198	198	918
28 Tee-Off Pole	no.	2	1,169	2,338	279	558	2,896
29 H-Pole for Transformer (Terminal & Intermediate)	no.	5	1,350	6,750	350	1,750	8,500
30 Section Pole	no.	7	580	4,060	155	1,085	5,145
31 11kV, single stay equipment		98					
normal ground	no.	48	115	5,520	45	2,160	7,680
laterite ground	no.	23	115	2,645	65	1,495	4,140
rock ground	no.	27	115	3,105	85	2,295	5,400
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km	31	2,350	73,700	583	18,284	91,984
34 3-Phase, 11kV Load Isolator	no.	1	3,100	3,100	650	650	3,750
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	KVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)		39					
normal ground	no.	18	378	6,804	90	1,620	8,424
laterite ground	no.	8	378	3,024	96	768	3,792
rock ground	no.	13	378	4,914	109	1,417	6,331
38 HV Wooden Poles for 11kV Lines (11m)		39					
normal ground	no.	18	439	7,902	90	1,620	9,522
laterite ground	no.	8	439	3,512	96	768	4,280

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATIWMA KWANWOMA

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
rock ground	no.	13	439	5,707	109	1,417	7,124	
39 HV Steel Poles for 11kV Lines (10m) normal ground	no.		1,100		90			
laterite ground	no.		1,100		96			
rock ground	no.		1,100		109			
40 HV Steel Poles for 11kV Lines (11m) normal ground	no.	58	1,250	35,000	90	2,520	37,520	
laterite ground	no.	28	1,250	15,000	96	1,152	16,152	
rock ground	no.	12	1,250	22,500	109	1,962	24,462	
41 Line route survey	km	18			672	6,565	6,565	
42 Bush Clearing		10			567	5,540	5,540	
Sub - Total								287,533
Pole Mounted Transformer Substations								
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	1	8,220	8,220	1,719	1,719	9,939	
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		9,870		2,145			
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		11,230		2,789			
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	5	6,459	32,295	1,568	7,840	40,135	
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656			
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132			
Sub - Total								50,074

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATIWMA KWANWOMA

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	54	90	4,860	18	972	5,832
50 4-Wire, 0 - 20 degree angle	no.	6	96	576	18	108	684
51 4-Wire, 20 - 60 degree angle	no.	1	175	175	40	40	215
52 4-Wire, 60 - 90 heavy angle	no.	9	223	2,007	40	360	2,367
53 4-Wire, Terminal Pole	no.	42	86	3,612	25	1,050	4,662
54 4-Wire, Tee-Off	no.	12	125	1,500	35	420	1,920
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	300	21	6,300	15	4,500	10,800
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	6	45	270	21	126	396
57 LV Stay arrangement		67					
normal ground	no.	33	110	3,630	41	1,353	4,983
laterite ground	no.	15	110	1,650	65	975	2,625
rock ground	no.	19	110	2,090	78	1,482	3,572
58 50sqmm Al Conductor	km	22	951	20,922	450	9,900	30,822
59 8m LV poles		106					
normal ground	no.	52	226	11,752	76	3,952	15,704
laterite ground	no.	26	226	5,876	84	2,184	8,060
rock ground	no.	28	226	6,328	93	2,604	8,932
60 9m LV poles		20					
normal ground	no.	11	261	2,871	76	836	3,707
laterite ground	no.	6	261	1,566	84	504	2,070
rock ground	no.	3	261	783	93	279	1,062
61 LV Earthing, neutral conductor PME	no.	30	55	1,650	19	570	2,220
62 Survey & Preparation of Town Layout	km	6			500	2,750	2,750
63 Preparation of LV Designs	km	6			400	2,200	2,200
64 Preparation of As-Built Drawings	km	6			450	2,475	2,475
Sub - Total							118,058

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATIWMA KWANWOMA

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	300	204	61,200	66	19,800	81,000
66 3-Phase Electronic meter	no.	6	516	3,096	93	558	3,654
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	120	176	21,120	64	7,680	28,800
68 7m service pole normal ground	no.	60	195	11,700	65	3,900	15,600
laterite ground	no.	30	195	5,850	86	2,580	8,430
rock ground	no.	30	195	5,850	95	2,850	8,700
69 fiber glass meter box for outside use and complete with fixings	no.	120	97	11,640	35	4,200	15,840
						Sub - Total	162,024

TOTAL

Summary

33kV, 3-Phase Network	69,869
11kV, 3-Phase Network	287,533
Pole Mounted Transformer Substations	50,074
Low Voltage (LV) Networks	118,058
Service Connections	162,024
TOTAL	687,558

Sum

Price Schedules (Bill of Quantities)

Name of Region		ASHANTI REGION						
Name of District		Ahafo Ano North						
Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
33kV, 3-Phase Network								
1	Intermediate Pole	no.	472	250	118,000	60	28,320	146,320
2	0 - 20 degree Intermediate	no.	48	250	12,000	60	2,880	14,880
3	20 - 60 degree angle H Pole (MV)	no.	101	830	83,830	192	19,392	103,222
4	60 - 90 degree angle H Pole (HV)	no.	4	620	2,480	180	720	3,200
5	Section Pole with Drop-Out Fuses	no.	3	1,350	3,375	337	741	3,111
6	Section Pole for Mounting Load Isolator	no.	3	790	2,370	247	741	3,111
7	Tee-Off Pole	no.	10	1,629	16,290	398	3,980	20,270
8	H-Pole for Transformer (Terminal & Intermediate)	no.	26	1,506	39,156	354	9,204	48,360
9	Section Pole	no.	33	760	25,080	195	6,435	31,515
10	33kV, single stay equipment		606					
	normal ground	no.	300	125	37,500	45	13,500	51,000
	laterite ground	no.	144	125	18,000	65	9,360	27,360
	rock ground	no.	162	125	20,250	85	13,770	34,020
11	33kV, flying stay equipment	no.						
12	120sqmm Al Conductor	km	198	2,350	464,642	583	115,271	579,913
13	3-Phase, 33kV Load Isolator	no.	3	3,980	11,940	950	2,850	14,790
14	3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15	33kV Shunt Capacitor	kVAR		7		3		
16	HV Wooden Poles for 33kV Lines (10m)		238					
	normal ground	no.	113	378	42,714	90	10,170	52,884
	laterite ground	no.	51	378	19,278	96	4,896	24,174
	rock ground	no.	74	378	27,972	109	8,066	36,038
17	HV Wooden Poles for 33kV Lines (11m)		240					
	normal ground	no.	116	439	50,924	90	10,440	61,364
	laterite ground	no.	53	439	23,267	96	5,088	28,355
	rock ground	no.	71	439	31,169	109	7,739	38,908
18	HV Steel Poles for 33kV Lines (10m)			1,100		90		
	normal ground	no.		1,100		96		
	laterite ground	no.		1,100		109		
	rock ground	no.		1,100		109		
19	HV Steel Poles for 33kV Lines (11m)		355					

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Ahafo Ano North

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
normal ground	no.	173	1,250	216,250	90	15,570	231,820	
laterite ground	no.	81	1,250	101,250	96	7,776	109,026	
rock ground	no.	101	1,250	126,250	109	11,009	137,259	
20 Line route survey	km	62			672	41,392	41,392	
21 Bush Clearing	km	62			567	34,924	34,924	
Sub - Total							1,874,105	
11kV, 3-Phase Network								
22 Intermediate Pole	no.		145		38			
23 0 - 20 degree Intermediate	no.		210		38			
24 20 - 60 degree angle H Pole (MV)	no.		620		158			
25 60 - 90 degree angle H Pole (HV)	no.		590		153			
26 Section Pole with Drop-Out Fuses	no.		980		248			
27 Section Pole for Mounting Load Isolator	no.		720		198			
28 Tee-Off Pole	no.		1,169		279			
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350			
30 Section Pole	no.		580		155			
31 11kV, single stay equipment								
normal ground	no.		115		45			
laterite ground	no.		115		65			
rock ground	no.		115		85			
32 11kV, flying stay equipment	no.							
33 120sqmm Al Conductor	km		2,350		583			
34 3-Phase, 11kV Load Isolator	no.		3,100		650			
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980			
36 11kV Shunt Capacitor	KVAR		6		3			
37 HV Wooden Poles for 11kV Lines (10m)								
normal ground	no.		378		90			
laterite ground	no.		378		96			
rock ground	no.		378		109			
38 HV Wooden Poles for 11kV Lines (11m)								
normal ground	no.		439		90			
laterite ground	no.		439		96			

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Ahafo Ano North

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)							
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
41 Line route survey	km				672		
42 Bush Clearing					567		

Sub - Total

Pole Mounted Transformer Substations

43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	8	8,220	65,760	1,719	13,752	79,512
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	17	9,870	167,790	2,145	36,465	204,255
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	1	11,230	11,230	2,789	2,789	14,019
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568		
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656		
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		

Sub - Total

297,786

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Ahafo Ano North

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	524	90	47,160	18	9,432	56,592
50 4-Wire, 0 - 20 degree angle	no.	94	96	9,024	18	1,692	10,716
51 4-Wire, 20 - 60 degree angle	no.	14	175	2,450	40	560	3,010
52 4-Wire, 60 - 90 heavy angle	no.	43	223	9,589	40	1,720	11,309
53 4-Wire, Terminal Pole	no.	263	86	22,618	25	6,575	29,193
54 4-Wire, Tee-Off	no.	106	125	13,250	35	3,710	16,960
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,880	21	39,060	15	27,900	66,960
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	45	45	2,025	21	945	2,970
57 LV Stay arrangement		501					
normal ground	no.	247	110	27,170	41	10,127	37,297
laterite ground	no.	118	110	12,980	65	7,670	20,650
rock ground	no.	136	110	14,960	78	10,608	25,568
58 50sqmm Al Conductor	km	211	951	200,771	450	95,002	295,774
59 8m LV poles		725					
normal ground	no.	357	226	80,682	76	27,132	107,814
laterite ground	no.	172	226	38,872	84	14,448	53,320
rock ground	no.	196	226	44,296	93	18,228	62,524
60 9m LV poles		451					
normal ground	no.	221	261	57,681	76	16,796	74,477
laterite ground	no.	104	261	27,144	84	8,736	35,880
rock ground	no.	126	261	32,886	93	11,718	44,604
61 LV Earthing, neutral conductor PME	no.	170	55	9,350	19	3,230	12,580
62 Survey & Preparation of Town Layout	km	53			500	26,390	26,390
63 Preparation of LV Designs	km	53			400	21,112	21,112
64 Preparation of As-Built Drawings	km	53			450	23,751	23,751
						Sub - Total	1,039,449

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Ahafo Ano North

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	1,860	204	379,440	66	122,760	502,200
66 3-Phase Electronic meter	no.	45	516	23,220	93	4,185	27,405
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	749	176	131,824	64	47,936	179,760
68 7m service pole normal ground	no.	749					
	no.	372	195	72,540	65	24,180	96,720
laterite ground	no.	186	195	36,270	86	15,996	52,266
rock ground	no.	191	195	37,245	95	18,145	55,390
69 fiber glass meter box for outside use and complete with fixings	no.	749	97	72,653	35	26,215	98,868
						Sub - Total	1,012,609

TOTAL

Summary

33kV, 3-Phase Network	1,874,105
11kV, 3-Phase Network	297,786
Pole Mounted Transformer Substations	1,039,449
Low Voltage (LV) Networks	1,012,609
Service Connections	4,223,949

TOTAL

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATWIMA NWABIAGYA NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.		250		60		
2 0 - 20 degree Intermediate	no.		250		60		
3 20 - 60 degree angle H Pole (MV)	no.		830		192		
4 60 - 90 degree angle H Pole (HV)	no.		620		180		
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.		790		247		
7 Tee-Off Pole	no.		1,629		398		
8 H-Pole for Transformer (Terminal & Intermediate)	no.		1,506		354		
9 Section Pole	no.		760		195		
10 33kV, single stay equipment							
normal ground	no.		125		45		
laterite ground	no.		125		65		
rock ground	no.		125		85		
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km		2,350		583		
13 3-Phase, 33kV Load Isolator	no.		3,980		950		
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	KVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
17 HV Wooden Poles for 33kV Lines (11m)							
normal ground	no.		439		90		
laterite ground	no.		439		96		
rock ground	no.		439		109		
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)							

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATWIMA NWABIAGYA NORTH

Description	Unit	Quantity	Unit Cost (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
20 Line route survey	km				672		
21 Bush Clearing	km				567		
					Sub - Total		
11kV, 3-Phase Network							
22 Intermediate Pole	no.	234	145	33,930	38	8,892	42,822
23 0 - 20 degree Intermediate	no.	27	210	5,670	38	1,026	6,696
24 20 - 60 degree angle H Pole (MV)	no.	33	620	20,460	158	5,214	25,674
25 60 - 90 degree angle H Pole (HV)	no.	5	590	2,950	153	765	3,715
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.	2	720	1,440	198	396	1,836
28 Tee-Off Pole	no.	5	1,169	5,845	279	1,395	7,240
29 H-Pole for Transformer (Terminal & Intermediate)	no.	10	1,350	13,500	350	3,500	17,000
30 Section Pole	no.	18	580	10,440	155	2,790	13,230
31 11kV, single stay equipment		245					
normal ground	no.	121	115	13,915	45	5,445	19,360
laterite ground	no.	58	115	6,670	65	3,770	10,440
rock ground	no.	66	115	7,590	85	5,610	13,200
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km	94	2,350	220,889	583	54,799	275,688
34 3-Phase, 11kV Load Isolator	no.	2	3,100	6,200	650	1,300	7,500
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	kVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)		114					
normal ground	no.	56	378	21,168	90	5,040	26,208
laterite ground	no.	25	378	9,450	96	2,400	11,850
rock ground	no.	33	378	12,474	109	3,597	16,071
38 HV Wooden Poles for 11kV Lines (11m)		113					
normal ground	no.	56	439	24,584	90	5,040	29,624
laterite ground	no.	24	439	10,536	96	2,304	12,840

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATWIMA NWABIAGYA NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
rock ground	no.	33	439	14,487	109	3,597	18,084	
39 HV Steel Poles for 11kV Lines (10m)								
normal ground	no.		1,100		90			
laterite ground	no.		1,100		96			
rock ground	no.		1,100		109			
40 HV Steel Poles for 11kV Lines (11m)		167						
normal ground	no.	82	1,250	102,500	90	7,380	109,880	
laterite ground	no.	39	1,250	48,750	96	3,744	52,494	
rock ground	no.	46	1,250	57,500	109	5,014	62,514	
41 Line route survey	km	29			672	19,678	19,678	
42 Bush Clearing	km	29			567	16,603	16,603	
Sub - Total							820,246	
Pole Mounted Transformer Substations								
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		8,220		1,719			
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		9,870		2,145			
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		11,230		2,789			
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	4	6,459	25,836	1,568	6,272	32,108	
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	6	7,500	45,000	1,656	9,936	54,936	
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132			
Sub - Total							87,044	

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AMS

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATWIMA NWABIAGYA NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	235	90	21,150	18	4,230	25,380
50 4-Wire, 0 - 20 degree angle	no.	32	96	3,072	18	576	3,648
51 4-Wire, 20 - 60 degree angle	no.	5	175	875	40	200	1,075
52 4-Wire, 60 - 90 heavy angle	no.	14	223	3,122	40	560	3,682
53 4-Wire, Terminal Pole	no.	145	86	12,470	25	3,625	16,095
54 4-Wire, Tee-Off	no.	71	125	8,875	35	2,485	11,360
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	680	21	14,280	15	10,200	24,480
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	16	45	720	21	336	1,056
57 LV Stay arrangement		232					
normal ground	no.	114	110	12,540	41	4,674	17,214
laterite ground	no.	54	110	5,940	65	3,510	9,450
rock ground	no.	64	110	7,040	78	4,992	12,032
58 50sqmm Al Conductor	km	96	951	90,897	450	43,011	133,908
59 8m LV poles		333					
normal ground	no.	164	226	37,064	76	12,464	49,528
laterite ground	no.	80	226	18,080	84	6,720	24,800
rock ground	no.	89	226	20,114	93	8,277	28,391
60 9m LV poles		200					
normal ground	no.	95	261	24,795	76	7,220	32,015
laterite ground	no.	44	261	11,484	84	3,696	15,180
rock ground	no.	61	261	15,921	93	5,673	21,594
61 LV Earthing, neutral conductor PME	no.	145	55	7,975	19	2,755	10,730
62 Survey & Preparation of Town Layout	km	24			500	11,948	11,948
63 Preparation of LV Designs	km	24			400	9,558	9,558
64 Preparation of As-Built Drawings	km	24			450	10,753	10,753
						Sub - Total	473,876

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATWIMA NWABIAGYA NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	680	204	138,720	66	44,880	183,600
66 3-Phase Electronic meter	no.	16	516	8,256	93	1,488	9,744
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	272	176	47,872	64	17,408	65,280
68 7m service pole normal ground	no.	136	195	26,520	65	8,840	35,360
laterite ground	no.	68	195	13,260	86	5,848	19,108
rock ground	no.	68	195	13,260	95	6,460	19,720
69 fiber glass meter box for outside use and complete with fixings	no.	272	97	26,384	35	9,520	35,904
Sub - Total							368,716

TOTAL

Summary

33kV, 3-Phase Network	820,246
11kV, 3-Phase Network	87,044
Pole Mounted Transformer Substations	473,876
Low Voltage (LV) Networks	368,716
Service Connections	

1,749,882

TOTAL

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATWIMA NWABIAGYA SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.		250		60		
2 0 - 20 degree Intermediate	no.		250		60		
3 20 - 60 degree angle H Pole (MV)	no.		830		192		
4 60 - 90 degree angle H Pole (HV)	no.		620		180		
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.		790		247		
7 Tee-Off Pole	no.		1,629		398		
8 H-Pole for Transformer (Terminal & Intermediate)	no.		1,506		354		
9 Section Pole	no.		760		195		
10 33kV, single stay equipment							
normal ground	no.		125		45		
laterite ground	no.		125		65		
rock ground	no.		125		85		
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km		2,350		583		
13 3-Phase, 33kV Load Isolator	no.		3,980		950		
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	KVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
17 HV Wooden Poles for 33kV Lines (11m)							
normal ground	no.		439		90		
laterite ground	no.		439		96		
rock ground	no.		439		109		
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)							

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATWIMA NWABIAGYA SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
20 Line route survey	km				672		
21 Bush Clearing	km				567		
Sub - Total							
11kV, 3-Phase Network							
22 Intermediate Pole	no.	102	145	14,790	38	3,876	18,666
23 0 - 20 degree Intermediate	no.	15	210	3,150	38	570	3,720
24 20 - 60 degree angle H Pole (MV)	no.	26	620	16,120	158	4,108	20,228
25 60 - 90 degree angle H Pole (HV)	no.	4	590	2,360	153	612	2,972
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.		720		198		
28 Tee-Off Pole	no.	4	1,169	4,676	279	1,116	5,792
29 H-Pole for Transformer (Terminal & Intermediate)	no.	8	1,350	10,800	350	2,800	13,600
30 Section Pole	no.	10	580	5,800	155	1,550	7,350
31 11kV, single stay equipment		179					
normal ground	no.	88	115	10,120	45	3,960	14,080
laterite ground	no.	43	115	4,945	65	2,795	7,740
rock ground	no.	48	115	5,520	85	4,080	9,600
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km	46	2,350	107,797	583	26,743	134,539
34 3-Phase, 11kV Load Isolator	no.		3,100		650		
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	kVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)		59					
normal ground	no.	27	378	10,206	90	2,430	12,636
laterite ground	no.	10	378	3,780	96	960	4,740
rock ground	no.	22	378	8,316	109	2,398	10,714
38 HV Wooden Poles for 11kV Lines (11m)		60					
normal ground	no.	28	439	12,292	90	2,520	14,812
laterite ground	no.	10	439	4,390	96	960	5,350

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATWIMA NWABIAGYA SOUTH

Description	Unit	Quantity	Unit Cost (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation	Local Transportation	
					Installation & Commissioning (US\$)	Installation & Commissioning (US\$)	
rock ground	no.	22	439	9,658	109	2,398	12,056
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)		88					
normal ground	no.	43	1,250	53,750	90	3,870	57,620
laterite ground	no.	20	1,250	25,000	96	1,920	26,920
rock ground	no.	25	1,250	31,250	109	2,725	33,975
41 Line route survey	km	14			672	9,603	9,603
42 Bush Clearing		14			567	8,102	8,102
Sub - Total							434,816

Pole Mounted Transformer Substations

43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		8,220		1,719		
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		9,870		2,145		
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		11,230		2,789		
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	5	6,459	32,295	1,568	7,840	40,135
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	3	7,500	22,500	1,656	4,968	27,468
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		
Sub - Total							67,603

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATWIMA NWABIAGYA SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	117	90	10,530	18	2,106	12,636
50 4-Wire, 0 - 20 degree angle	no.	12	96	1,152	18	216	1,368
51 4-Wire, 20 - 60 degree angle	no.	1	175	175	40	40	215
52 4-Wire, 60 - 90 heavy angle	no.	13	223	2,899	40	520	3,419
53 4-Wire, Terminal Pole	no.	108	86	9,288	25	2,700	11,988
54 4-Wire, Tee-Off	no.	51	125	6,375	35	1,785	8,160
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	490	21	10,290	15	7,350	17,640
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	11	45	495	21	231	726
57 LV Stay arrangement		151					
normal ground	no.	74	110	8,140	41	3,034	11,174
laterite ground	no.	35	110	3,850	65	2,275	6,125
rock ground	no.	42	110	4,620	78	3,276	7,896
58 50sqmm Al Conductor	km	53	951	50,669	450	23,976	74,645
59 8m LV poles		201					
normal ground	no.	99	226	22,374	76	7,524	29,898
laterite ground	no.	47	226	10,622	84	3,948	14,570
rock ground	no.	55	226	12,430	93	5,115	17,545
60 9m LV poles		95					
normal ground	no.	46	261	12,006	76	3,496	15,502
laterite ground	no.	21	261	5,481	84	1,764	7,245
rock ground	no.	28	261	7,308	93	2,604	9,912
61 LV Earthing, neutral conductor PME	no.	87	55	4,785	19	1,653	6,438
62 Survey & Preparation of Town Layout	km	13			500	6,660	6,660
63 Preparation of LV Designs	km	13			400	5,328	5,328
64 Preparation of As-Built Drawings	km	13			450	5,994	5,994
						Sub - Total	275,084

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

ATWIMA NWABIAGYA SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	490	204	99,960	66	32,340	132,300
66 3-Phase Electronic meter	no.	11	516	5,676	93	1,023	6,699
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	196	176	34,496	64	12,544	47,040
68 7m service pole normal ground	no.	98	195	19,110	65	6,370	25,480
laterite ground	no.	49	195	9,555	86	4,214	13,769
rock ground	no.	49	195	9,555	95	4,655	14,210
69 fiber glass meter box for outside use and complete with fixings	no.	196	97	19,012	35	6,860	25,872
						Sub - Total	265,370

TOTAL

Summary

33kV, 3-Phase Network	
11kV, 3-Phase Network	434,816
Pole Mounted Transformer Substations	67,603
Low Voltage (LV) Networks	275,084
Service Connections	265,370

TOTAL

1,042,873

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Ahafo Ano South West

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	653	250	163,250	60	39,180	202,430
2 0 - 20 degree Intermediate	no.	55	250	13,750	60	3,300	17,050
3 20 - 60 degree angle H Pole (MV)	no.	115	830	95,450	192	22,080	117,530
4 60 - 90 degree angle H Pole (HV)	no.	19	620	11,780	180	3,420	15,200
5 Section Pole with Drop-Out Fuses	no.	21	1,350	28,350	337	7,077	35,427
6 Section Pole for Mounting Load Isolator	no.	2	790	1,580	247	494	2,074
7 Tee-Off Pole	no.	29	1,629	47,241	398	11,542	58,783
8 H-Pole for Transformer (Terminal & Intermediate)	no.	45	1,506	67,770	354	15,930	83,700
9 Section Pole	no.	29	760	22,040	195	5,655	27,695
10 33kV, single stay equipment		590	0	0	0	0	0
normal ground	no.	284	125	35,500	45	12,780	48,280
laterite ground	no.	132	125	16,500	65	8,580	25,080
rock ground	no.	174	125	21,750	85	14,790	36,540
11 33kV, flying stay equipment	no.	0	0	0	0	0	0
12 120sqmm Al Conductor	km	293	2,350	689,295	583	171,004	860,299
13 3-Phase, 33kV Load Isolator	no.	2	3,980	7,960	950	1,900	9,860
14 3-Phase, 33kV Auto Recloser	no.	0	21,887	0	3,880	0	0
15 33kV Shunt Capacitor	kVAR	0	7	0	3	0	0
16 HV Wooden Poles for 33kV Lines (10m)		445	0	0	0	0	0
normal ground	no.	213	378	80,514	90	19,170	99,684
laterite ground	no.	99	378	37,422	96	9,504	46,926
rock ground	no.	133	378	50,274	109	14,497	64,771
17 HV Wooden Poles for 33kV Lines (11m)		286	0	0	0	0	0
normal ground	no.	135	439	59,265	90	12,150	71,415
laterite ground	no.	59	439	25,901	96	5,664	31,565
rock ground	no.	92	439	40,388	109	10,028	50,416
18 HV Steel Poles for 33kV Lines (10m)		0	0	0	0	0	0
normal ground	no.	0	1,100	0	90	0	0
laterite ground	no.	0	1,100	0	96	0	0
rock ground	no.	0	1,100	0	109	0	0
19 HV Steel Poles for 33kV Lines (11m)		428	0	0	0	0	0

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Ahafo Ano South West

Description	Unit	Quantity	Unit Cost (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
normal ground	no.	204	1,250	255,000	90	18,360	273,360	
laterite ground	no.	94	1,250	117,500	96	9,024	126,524	
rock ground	no.	130	1,250	162,500	109	14,170	176,670	
20 Line route survey	km	91	0	0	672	61,405	61,405	
21 Bush Clearing	km	91	0	0	567	51,810	51,810	
Sub - Total							2,594,494	
11kV, 3-Phase Network								
22 Intermediate Pole	no.	0	145	0	38	0	0	
23 0 - 20 degree Intermediate	no.	0	210	0	38	0	0	
24 20 - 60 degree angle H Pole (MV)	no.	0	620	0	158	0	0	
25 60 - 90 degree angle H Pole (HV)	no.	0	590	0	153	0	0	
26 Section Pole with Drop-Out Fuses	no.	0	980	0	248	0	0	
27 Section Pole for Mounting Load Isolator	no.	0	720	0	198	0	0	
28 Tee-Off Pole	no.	0	1,169	0	279	0	0	
29 H-Pole for Transformer (Terminal & Intermediate)	no.	0	1,350	0	350	0	0	
30 Section Pole	no.	0	580	0	155	0	0	
31 11kV, single stay equipment		0	0	0	0	0	0	
normal ground	no.	0	115	0	45	0	0	
laterite ground	no.	0	115	0	65	0	0	
rock ground	no.	0	115	0	85	0	0	
32 11kV, flying stay equipment	no.	0	0	0	0	0	0	
33 120sqmm Al Conductor	km	0	2,350	0	583	0	0	
34 3-Phase, 11kV Load Isolator	no.	0	3,100	0	650	0	0	
35 3-Phase, 11kV Auto Recloser	no.	0	19,950	0	3,980	0	0	
36 11kV Shunt Capacitor	KVAR	0	6	0	3	0	0	
37 HV Wooden Poles for 11kV Lines (10m)		0	0	0	0	0	0	
normal ground	no.	0	378	0	90	0	0	
laterite ground	no.	0	378	0	96	0	0	
rock ground	no.	0	378	0	109	0	0	
38 HV Wooden Poles for 11kV Lines (11m)		0	0	0	0	0	0	
normal ground	no.	0	439	0	90	0	0	
laterite ground	no.	0	439	0	96	0	0	

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Ahafo Ano South West

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
rock ground	no.	0	439	0	109	0	0	
39 HV Steel Poles for 11kV Lines (10m)		0	0	0	0	0	0	
normal ground	no.	0	1,100	0	90	0	0	
laterite ground	no.	0	1,100	0	96	0	0	
rock ground	no.	0	1,100	0	109	0	0	
40 HV Steel Poles for 11kV Lines (11m)		0	0	0	0	0	0	
normal ground	no.	0	1,250	0	90	0	0	
laterite ground	no.	0	1,250	0	96	0	0	
rock ground	no.	0	1,250	0	109	0	0	
41 Line route survey	km	0	0	0	672	0	0	
42 Bush Clearing	km	0	0	0	567	0	0	
Sub - Total								0

Pole Mounted Transformer Substations

43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	30	8,220	246,600	1,719	51,570	298,170	
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	15	9,870	148,050	2,145	32,175	180,225	
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	0	11,230	0	2,789	0	0	
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	0	6,459	0	1,568	0	0	
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	0	7,500	0	1,656	0	0	
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	0	8,386	0	2,132	0	0	
Sub - Total								478,395

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Ahafo Ano South West

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	457	90	41,130	18	8,226	49,356
50 4-Wire, 0 - 20 degree angle	no.	59	96	5,664	18	1,062	6,726
51 4-Wire, 20 - 60 degree angle	no.	12	175	2,100	40	480	2,580
52 4-Wire, 60 - 90 heavy angle	no.	225	223	50,175	40	9,000	59,175
53 4-Wire, Terminal Pole	no.	524	86	45,064	25	13,100	58,164
54 4-Wire, Tee-Off	no.	220	125	27,500	35	7,700	35,200
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	2,700	21	56,700	15	40,500	97,200
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	61	45	2,745	21	1,281	4,026
57 LV Stay arrangement		934	0	0		0	0
normal ground	no.	458	110	50,380	41	18,778	69,158
laterite ground	no.	219	110	24,090	65	14,235	38,325
rock ground	no.	257	110	28,270	78	20,046	48,316
58 50sqmm Al Conductor	km	268	951	254,499	450	120,425	374,924
59 8m LV poles		1,205	0	0		0	0
normal ground	no.	592	226	133,792	76	44,992	178,784
laterite ground	no.	287	226	64,862	84	24,108	88,970
rock ground	no.	326	226	73,676	93	30,318	103,994
60 9m LV poles		67	0	0		0	0
normal ground	no.	25	261	6,525	76	1,900	8,425
laterite ground	no.	4	261	1,044	84	336	1,380
rock ground	no.	38	261	9,918	93	3,534	13,452
61 LV Earthing, neutral conductor PME	no.	483	55	26,565	19	9,177	35,742
62 Survey & Preparation of Town Layout	km	67	0	0	500	33,452	33,452
63 Preparation of LV Designs	km	67	0	0	400	26,761	26,761
64 Preparation of As-Built Drawings	km	67	0	0	450	30,106	30,106

Sub - Total 1,364,216

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Ahafo Ano South West

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	2,700	204	550,800	66	178,200	729,000
66 3-Phase Electronic meter	no.	61	516	31,476	93	5,673	37,149
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	1,082	176	190,432	64	69,248	259,680
68 7m service pole		1,082	0	0		0	0
normal ground	no.	541	195	105,495	65	35,165	140,660
laterite ground	no.	270	195	52,650	86	23,220	75,870
rock ground	no.	271	195	52,845	95	25,745	78,590
69 fiber glass meter box for outside use and complete with fixings	no.	1,082	97	104,954	35	37,870	142,824
Sub - Total						Sub - Total	1,463,773

TOTAL

Summary

33kV, 3-Phase Network
 11kV, 3-Phase Network
 Pole Mounted Transformer Substations
 Low Voltage (LV) Networks
 Service Connections

2,594,494
 0
 478,395
 1,364,216
 1,463,773
 5,900,878

TOTAL

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Ahafo Ano South East

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	307	250	76,750	60	18,420	95,170
2 0 - 20 degree Intermediate	no.	40	250	10,000	60	2,400	12,400
3 20 - 60 degree angle H Pole (MV)	no.	47	830	39,010	192	9,024	48,034
4 60 - 90 degree angle H Pole (HV)	no.	17	620	10,540	180	3,060	13,600
5 Section Pole with Drop-Out Fuses	no.	9	1,350	12,150	337	3,033	15,183
6 Section Pole for Mounting Load Isolator	no.	2	790	1,580	247	494	2,074
7 Tee-Off Pole	no.	15	1,629	24,435	398	5,970	30,405
8 H-Pole for Transformer (Terminal & Intermediate)	no.	17	1,506	25,602	354	6,018	31,620
9 Section Pole	no.	15	760	11,400	195	2,925	14,325
10 33kV, single stay equipment		299	0	0	0	0	0
normal ground	no.	146	125	18,250	45	6,570	24,820
laterite ground	no.	71	125	8,875	65	4,615	13,490
rock ground	no.	82	125	10,250	85	6,970	17,220
11 33kV, flying stay equipment	no.	0	0	0	0	0	0
12 120sqmm Al Conductor	km	136	2,350	319,090	583	79,161	398,252
13 3-Phase, 33kV Load Isolator	no.	2	3,980	7,960	950	1,900	9,860
14 3-Phase, 33kV Auto Recloser	no.	0	21,887	0	3,880	0	0
15 33kV Shunt Capacitor	KVAR	0	7	0	3	0	0
16 HV Wooden Poles for 33kV Lines (10m)		164	0	0	0	0	0
normal ground	no.	77	378	29,106	90	6,930	36,036
laterite ground	no.	34	378	12,852	96	3,264	16,116
rock ground	no.	53	378	20,034	109	5,777	25,811
17 HV Wooden Poles for 33kV Lines (11m)		162	0	0	0	0	0
normal ground	no.	78	439	34,242	90	7,020	41,262
laterite ground	no.	34	439	14,926	96	3,264	18,190
rock ground	no.	50	439	21,950	109	5,450	27,400
18 HV Steel Poles for 33kV Lines (10m)		0	0	0	0	0	0
normal ground	no.	0	1,100	0	90	0	0
laterite ground	no.	0	1,100	0	96	0	0
rock ground	no.	0	1,100	0	109	0	0
19 HV Steel Poles for 33kV Lines (11m)		244	0	0	0	0	0

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Ahafo Ano South East

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost		Total Cost of Mat. & Install (US\$)	
					Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
normal ground	no.	117	1,250	146,250	90	10,530	156,780	
laterite ground	no.	53	1,250	66,250	96	5,088	71,338	
rock ground	no.	74	1,250	92,500	109	8,066	100,566	
20 Line route survey	km	42	0	0	672	28,426	28,426	
21 Bush Clearing	km	42	0	0	567	23,984	23,984	
Sub - Total							1,272,361	
11kV, 3-Phase Network								
22 Intermediate Pole	no.	0	145	0	38	0	0	
23 0 - 20 degree Intermediate	no.	0	210	0	38	0	0	
24 20 - 60 degree angle H Pole (MV)	no.	0	620	0	158	0	0	
25 60 - 90 degree angle H Pole (HV)	no.	0	590	0	153	0	0	
26 Section Pole with Drop-Out Fuses	no.	0	980	0	248	0	0	
27 Section Pole for Mounting Load Isolator	no.	0	720	0	198	0	0	
28 Tee-Off Pole	no.	0	1,169	0	279	0	0	
29 H-Pole for Transformer (Terminal & Intermediate)	no.	0	1,350	0	350	0	0	
30 Section Pole	no.	0	580	0	155	0	0	
31 11kV, single stay equipment		0	0	0	0	0	0	
normal ground	no.	0	115	0	45	0	0	
laterite ground	no.	0	115	0	65	0	0	
rock ground	no.	0	115	0	85	0	0	
32 11kV, flying stay equipment	no.	0	0	0	0	0	0	
33 120sqmm Al Conductor	km	0	2,350	0	583	0	0	
34 3-Phase, 11kV Load Isolator	no.	0	3,100	0	650	0	0	
35 3-Phase, 11kV Auto Recloser	no.	0	19,950	0	3,980	0	0	
36 11kV Shunt Capacitor	KVAR	0	6	0	3	0	0	
37 HV Wooden Poles for 11kV Lines (10m)		0	0	0	0	0	0	
normal ground	no.	0	378	0	90	0	0	
laterite ground	no.	0	378	0	96	0	0	
rock ground	no.	0	378	0	109	0	0	
38 HV Wooden Poles for 11kV Lines (11m)		0	0	0	0	0	0	
normal ground	no.	0	439	0	90	0	0	
laterite ground	no.	0	439	0	96	0	0	

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Ahafo Ano South East

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
rock ground	no.	0	439	0	109	0	0
39 HV Steel Poles for 11kV Lines (10m)		0	0	0	0	0	0
normal ground	no.	0	1,100	0	90	0	0
laterite ground	no.	0	1,100	0	96	0	0
rock ground	no.	0	1,100	0	109	0	0
40 HV Steel Poles for 11kV Lines (11m)		0	0	0	0	0	0
normal ground	no.	0	1,250	0	90	0	0
laterite ground	no.	0	1,250	0	96	0	0
rock ground	no.	0	1,250	0	109	0	0
41 Line route survey	km	0	0	0	672	0	0
42 Bush Clearing	km	0	0	0	567	0	0
Sub - Total							0

Pole Mounted Transformer Substations

43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	4	8,220	32,880	1,719	6,876	39,756
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	11	9,870	108,570	2,145	23,595	132,165
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	3	11,230	33,690	2,789	8,367	42,057
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	0	6,459	0	1,568	0	0
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	0	7,500	0	1,656	0	0
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	0	8,386	0	2,132	0	0
Sub - Total							213,978

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Ahafo Ano South East

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	456	90	41,040	18	8,208	49,248
50 4-Wire, 0 - 20 degree angle	no.	62	96	5,952	18	1,116	7,068
51 4-Wire, 20 - 60 degree angle	no.	25	175	4,375	40	1,000	5,375
52 4-Wire, 60 - 90 heavy angle	no.	90	223	20,070	40	3,600	23,670
53 4-Wire, Terminal Pole	no.	210	86	18,060	25	5,250	23,310
54 4-Wire, Tee-Off	no.	132	125	16,500	35	4,620	21,120
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,320	21	27,720	15	19,800	47,520
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	33	45	1,485	21	693	2,178
57 LV Stay arrangement		533	0	0		0	0
normal ground	no.	262	110	28,820	41	10,742	39,562
laterite ground	no.	126	110	13,860	65	8,190	22,050
rock ground	no.	145	110	15,950	78	11,310	27,260
58 50sqmm Al Conductor	km	165	951	156,725	450	74,160	230,885
59 8m LV poles		823	0	0		0	0
normal ground	no.	407	226	91,982	76	30,932	122,914
laterite ground	no.	200	226	45,200	84	16,800	62,000
rock ground	no.	216	226	48,816	93	20,088	68,904
60 9m LV poles		110	0	0		0	0
normal ground	no.	50	261	13,050	76	3,800	16,850
laterite ground	no.	20	261	5,220	84	1,680	6,900
rock ground	no.	40	261	10,440	93	3,720	14,160
61 LV Earthing, neutral conductor PME	no.	233	55	12,815	19	4,427	17,242
62 Survey & Preparation of Town Layout	km	41	0	0	500	20,600	20,600
63 Preparation of LV Designs	km	41	0	0	400	16,480	16,480
64 Preparation of As-Built Drawings	km	41	0	0	450	18,540	18,540
Sub - Total							863,836

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Ahafo Ano South East

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
Service Connections							
65 1-Phase Electronic meter	no.	1,320	204	269,280	66	87,120	356,400
66 3-Phase Electronic meter	no.	33	516	17,028	93	3,069	20,097
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	531	176	93,456	64	33,984	127,440
68 7m service pole normal ground	no.	531	0	0		0	0
laterite ground	no.	264	195	51,480	65	17,160	68,640
rock ground	no.	132	195	25,740	86	11,352	37,092
69 fiber glass meter box for outside use and complete with fixings	no.	135	195	26,325	95	12,825	39,150
		531	97	51,507	35	18,585	70,092
Sub - Total							718,911

TOTAL

Summary

33kV, 3-Phase Network	1,272,361
11kV, 3-Phase Network	0
Pole Mounted Transformer Substations	213,978
Low Voltage (LV) Networks	863,836
Service Connections	718,911
TOTAL	3,069,086

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Offinso North

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	249	250.00	62250	60	14940	77,190.00
2 0 - 20 degree Intermediate	no.	24	250.00	6000	60	1440	7,440.00
3 20 - 60 degree angle H Pole (MV)	no.	34	830.00	28220	192	6528	34,748.00
4 60 - 90 degree angle H Pole (HV)	no.	2	620.00	1240	180	360	1,600.00
5 Section Pole with Drop-Out Fuses	no.	9	1,350.00	12150	337	3033	15,183.00
6 Section Pole for Mounting Load Isolator	no.	0	790.00	0	247	0	-
7 Tee-Off Pole	no.	16	1,629.00	26064	398	6368	32,432.00
8 H-Pole for Transformer (Terminal & Intermediate)	no.	13	1,506.00	19578	354	4602	24,180.00
9 Section Pole	no.	9	760.00	6840	195	1755	8,595.00
10 33kV, single stay equipment		182	0.00	0	0	0	-
normal ground	no.	89	125.00	11125	45	4005	15,130.00
laterite ground	no.	41	125.00	5125	65	2665	7,790.00
rock ground	no.	52	125.00	6500	85	4420	10,920.00
11 33kV, flying stay equipment	no.	0	0.00	0	0	0	-
12 120sqmm Al Conductor	km	107	2,350.00	252330.075	583	62599.3335	314,929.41
13 3-Phase, 33kV Load Isolator	no.	0	3,980.00	0	950	0	-
14 3-Phase, 33kV Auto Recloser	no.	0	21,887.00	0	3880	0	-
15 33kV Shunt Capacitor	kVAR	0	7.00	0	3	0	-
16 HV Wooden Poles for 33kV Lines (10m)		121	0.00	0	0	0	-
normal ground	no.	57	378.00	21546	90	5130	26,676.00
laterite ground	no.	26	378.00	9828	96	2496	12,324.00
rock ground	no.	38	378.00	14364	109	4142	18,506.00
17 HV Wooden Poles for 33kV Lines (11m)		123	0.00	0	0	0	-
normal ground	no.	60	439.00	26340	90	5400	31,740.00
laterite ground	no.	27	439.00	11853	96	2592	14,445.00
rock ground	no.	36	439.00	15804	109	3924	19,728.00
18 HV Steel Poles for 33kV Lines (10m)		0	0.00	0	0	0	-
normal ground	no.	0	1,100.00	0	90	0	-
laterite ground	no.	0	1,100.00	0	96	0	-
rock ground	no.	0	1,100.00	0	109	0	-
19 HV Steel Poles for 33kV Lines (11m)		179	0.00	0	0	0	-

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Offinso North

Description	Unit	Quantity	Unit Cost		Total Cost		Total Cost of Mat. & Install (US\$)
			(US\$,CIF)	(US\$,CIF)	Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
normal ground	no.	88	1,250.00	110000	90	7920	117,920.00
laterite ground	no.	41	1,250.00	51250	96	3936	55,186.00
rock ground	no.	50	1,250.00	62500	109	5450	67,950.00
20 Line route survey	km	33	0.00	0	672	22478.4	22,478.40
21 Bush Clearing	km	33	0.00	0	567	18966.15	18,966.15
		0		0		0	956,056.96
11kV, 3-Phase Network		0		0		0	
22 Intermediate Pole	no.	0	145.00	0	38	0	-
23 0 - 20 degree Intermediate	no.	0	210.00	0	38	0	-
24 20 - 60 degree angle H Pole (MV)	no.	0	620.00	0	158	0	-
25 60 - 90 degree angle H Pole (HV)	no.	0	590.00	0	153	0	-
26 Section Pole with Drop-Out Fuses	no.	0	980.00	0	248	0	-
27 Section Pole for Mounting Load Isolator	no.	0	720.00	0	198	0	-
28 Tee-Off Pole	no.	0	1,169.00	0	279	0	-
29 H-Pole for Transformer (Terminal & Intermediate)	no.	0	1,350.00	0	350	0	-
30 Section Pole	no.	0	580.00	0	155	0	-
31 11kV, single stay equipment		0	0.00	0	0	0	-
normal ground	no.	0	115.00	0	45	0	-
laterite ground	no.	0	115.00	0	65	0	-
rock ground	no.	0	115.00	0	85	0	-
32 11kV, flying stay equipment	no.	0	0.00	0	0	0	-
33 120sqmm Al Conductor	km	0	2,350.00	0	583	0	-
34 3-Phase, 11kV Load Isolator	no.	0	3,100.00	0	650	0	-
35 3-Phase, 11kV Auto Recloser	no.	0	19,950.00	0	3980	0	-
36 11kV Shunt Capacitor	kVAR	0	6.00	0	3	0	-
37 HV Wooden Poles for 11kV Lines (10m)		0	0.00	0	0	0	-
normal ground	no.	0	378.00	0	90	0	-
laterite ground	no.	0	378.00	0	96	0	-
rock ground	no.	0	378.00	0	109	0	-
38 HV Wooden Poles for 11kV Lines (11m)		0	0.00	0	0	0	-
normal ground	no.	0	439.00	0	90	0	-
laterite ground	no.	0	439.00	0	96	0	-

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Offinso North

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.	0	439.00	0	109	0	-
39 HV Steel Poles for 11kV Lines (10m)		0	0.00	0	0	0	-
normal ground	no.	0	1,100.00	0	90	0	-
laterite ground	no.	0	1,100.00	0	96	0	-
rock ground	no.	0	1,100.00	0	109	0	-
40 HV Steel Poles for 11kV Lines (11m)		0	0.00	0	0	0	-
normal ground	no.	0	1,250.00	0	90	0	-
laterite ground	no.	0	1,250.00	0	96	0	-
rock ground	no.	0	1,250.00	0	109	0	-
41 Line route survey	km	0	0.00	0	672	0	-
42 Bush Clearing		0	0.00	0	567	0	-
		0		0		0	-
Pole Mounted Transformer Substations		0		0		0	
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	10	8,220.00	82200	1719	17190	99,390.00
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	2	9,870.00	19740	2145	4290	24,030.00
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	0	11,230.00	0	2789	0	-
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	0	6,459.00	0	1568	0	-
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	0	7,500.00	0	1656	0	-
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	0	8,386.00	0	2132	0	-
		0		0		0	123,420.00

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Offinso North

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks		0		0		0	
49 4-Wire, Intermediate (Type A)	no.	130	90.00	11700	18	2340	14,040.00
50 4-Wire, 0 - 20 degree angle	no.	10	96.00	960	18	180	1,140.00
51 4-Wire, 20 - 60 degree angle	no.	6	175.00	1050	40	240	1,290.00
52 4-Wire, 60 - 90 heavy angle	no.	50	223.00	11150	40	2000	13,150.00
53 4-Wire, Terminal Pole	no.	139	86.00	11954	25	3475	15,429.00
54 4-Wire, Tee-Off	no.	58	125.00	7250	35	2030	9,280.00
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	660	21.00	13860	15	9900	23,760.00
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	14	45.00	630	21	294	924.00
57 LV Stay arrangement		244	0.00	0		0	-
normal ground	no.	120	110.00	13200	41	4920	18,120.00
laterite ground	no.	57	110.00	6270	65	3705	9,975.00
rock ground	no.	67	110.00	7370	78	5226	12,596.00
58 50sqmm Al Conductor	km	70	951.00	66459.684	450	31447.8	97,907.48
59 8m LV poles		302	0.00	0		0	-
normal ground	no.	148	226.00	33448	76	11248	44,696.00
laterite ground	no.	72	226.00	16272	84	6048	22,320.00
rock ground	no.	82	226.00	18532	93	7626	26,158.00
60 9m LV poles		23	0.00	0		0	-
normal ground	no.	8	261.00	2088	76	608	2,696.00
laterite ground	no.	2	261.00	522	84	168	690.00
rock ground	no.	13	261.00	3393	93	1209	4,602.00
61 LV Earthing, neutral conductor PME	no.	125	55.00	6875	19	2375	9,250.00
62 Survey & Preparation of Town Layout	km	17	0.00	0	500	8735.5	8,735.50
63 Preparation of LV Designs	km	17	0.00	0	400	6988.4	6,988.40
64 Preparation of As-Built Drawings	km	17	0.00	0	450	7861.95	7,861.95
		0		0		0	351,609.33

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Offinso North

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections		0		0		0	
65 1-Phase Electronic meter	no.	660	204.00	134640	66	43560	178,200.00
66 3-Phase Electronic meter	no.	14	516.00	7224	93	1302	8,526.00
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	264	176.00	46464	64	16896	63,360.00
68 7m service pole normal ground	no.	264	0.00	0		0	-
laterite ground	no.	132	195.00	25740	65	8580	34,320.00
rock ground	no.	66	195.00	12870	86	5676	18,546.00
69 fiber glass meter box for outside use and complete with fixings	no.	66	195.00	12870	95	6270	19,140.00
Sub - Total		0		0		0	356,940.00

TOTAL

Summary

33kV, 3-Phase Network
 11kV, 3-Phase Network
 Pole Mounted Transformer Substations
 Low Voltage (LV) Networks
 Service Connections

956,056.96
 -
 123,420.00
 351,609.33
 356,940.00
 1,788,026.29

TOTAL

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Sekyere Central

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	388	250.00	97000	60	23280	120,280.00
2 0 - 20 degree Intermediate	no.	39	250.00	9750	60	2340	12,090.00
3 20 - 60 degree angle H Pole (MV)	no.	32	830.00	26560	192	6144	32,704.00
4 60 - 90 degree angle H Pole (HV)	no.	8	620.00	4960	180	1440	6,400.00
5 Section Pole with Drop-Out Fuses	no.	5	1,350.00	6750	337	1685	8,435.00
6 Section Pole for Mounting Load Isolator	no.	2	790.00	1580	247	494	2,074.00
7 Tee-Off Pole	no.	7	1,629.00	11403	398	2786	14,189.00
8 H-Pole for Transformer (Terminal & Intermediate)	no.	16	1,506.00	24096	354	5664	29,760.00
9 Section Pole	no.	16	760.00	12160	195	3120	15,280.00
10 33kV, single stay equipment		238	0.00	0	0	0	-
normal ground	no.	115	125.00	14375	45	5175	19,550.00
laterite ground	no.	52	125.00	6500	65	3380	9,880.00
rock ground	no.	71	125.00	8875	85	6035	14,910.00
11 33kV, flying stay equipment	no.	0	0.00	0	0	0	-
12 120sqmm Al Conductor	km	161	2,350.00	377235.348	583	93586.47144	470,821.82
13 3-Phase, 33kV Load Isolator	no.	2	3,980.00	7960	950	1900	9,860.00
14 3-Phase, 33kV Auto Recloser	no.	0	21,887.00	0	3880	0	-
15 33kV Shunt Capacitor	KVAR	0	7.00	0	3	0	-
16 HV Wooden Poles for 33kV Lines (10m)		169	0.00	0	0	0	-
normal ground	no.	81	378.00	30618	90	7290	37,908.00
laterite ground	no.	37	378.00	13986	96	3552	17,538.00
rock ground	no.	51	378.00	19278	109	5559	24,837.00
17 HV Wooden Poles for 33kV Lines (11m)		169	0.00	0	0	0	-
normal ground	no.	81	439.00	35559	90	7290	42,849.00
laterite ground	no.	37	439.00	16243	96	3552	19,795.00
rock ground	no.	51	439.00	22389	109	5559	27,948.00
18 HV Steel Poles for 33kV Lines (10m)		0	0.00	0	0	0	-
normal ground	no.	0	1,100.00	0	90	0	-
laterite ground	no.	0	1,100.00	0	96	0	-
rock ground	no.	0	1,100.00	0	109	0	-
19 HV Steel Poles for 33kV Lines (11m)		252	0.00	0	0	0	-

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Sekyere Central

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.	121	1,250.00	151250	90	10890	162,140.00
laterite ground	no.	56	1,250.00	70000	96	5376	75,376.00
rock ground	no.	75	1,250.00	93750	109	8175	101,925.00
20 Line route survey	km	50	0.00	0	672	33605.376	33,605.38
21 Bush Clearing	km	50	0.00	0	567	28354.536	28,354.54
		0		0		0	1,338,509.73
11kV, 3-Phase Network		0		0		0	
22 Intermediate Pole	no.	0	145.00	0	38	0	-
23 0 - 20 degree Intermediate	no.	0	210.00	0	38	0	-
24 20 - 60 degree angle H Pole (MV)	no.	0	620.00	0	158	0	-
25 60 - 90 degree angle H Pole (HV)	no.	0	590.00	0	153	0	-
26 Section Pole with Drop-Out Fuses	no.	0	980.00	0	248	0	-
27 Section Pole for Mounting Load Isolator	no.	0	720.00	0	198	0	-
28 Tee-Off Pole	no.	0	1,169.00	0	279	0	-
29 H-Pole for Transformer (Terminal & Intermediate)	no.	0	1,350.00	0	350	0	-
30 Section Pole	no.	0	580.00	0	155	0	-
31 11kV, single stay equipment		0	0.00	0	0	0	-
normal ground	no.	0	115.00	0	45	0	-
laterite ground	no.	0	115.00	0	65	0	-
rock ground	no.	0	115.00	0	85	0	-
32 11kV, flying stay equipment	no.	0	0.00	0	0	0	-
33 120sqmm Al Conductor	km	0	2,350.00	0	583	0	-
34 3-Phase, 11kV Load Isolator	no.	0	3,100.00	0	650	0	-
35 3-Phase, 11kV Auto Recloser	no.	0	19,950.00	0	3980	0	-
36 11kV Shunt Capacitor	KVAR	0	6.00	0	3	0	-
37 HV Wooden Poles for 11kV Lines (10m)		0	0.00	0	0	0	-
normal ground	no.	0	378.00	0	90	0	-
laterite ground	no.	0	378.00	0	96	0	-
rock ground	no.	0	378.00	0	109	0	-
38 HV Wooden Poles for 11kV Lines (11m)		0	0.00	0	0	0	-
normal ground	no.	0	439.00	0	90	0	-
laterite ground	no.	0	439.00	0	96	0	-

1.5m

Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Sekyere Central

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
39 HV Steel Poles for 11kV Lines (10m)	no.	0	439.00	0	109	0	-
normal ground	no.	0	0.00	0	0	0	-
laterite ground	no.	0	1,100.00	0	90	0	-
rock ground	no.	0	1,100.00	0	96	0	-
40 HV Steel Poles for 11kV Lines (11m)	no.	0	0.00	0	109	0	-
normal ground	no.	0	0.00	0	0	0	-
laterite ground	no.	0	1,250.00	0	90	0	-
rock ground	no.	0	1,250.00	0	96	0	-
41 Line route survey	km	0	0.00	0	109	0	-
42 Bush Clearing		0	0.00	0	672	0	-
		0		0	567	0	-
Pole Mounted Transformer Substations		0		0		0	-
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	6	8,220.00	49320	1719	10314	59,634.00
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	8	9,870.00	78960	2145	17160	96,120.00
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	2	11,230.00	22460	2789	5578	28,038.00
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	0	6,459.00	0	1568	0	-
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	0	7,500.00	0	1656	0	-
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	0	8,386.00	0	2132	0	-
		0		0		0	183,792.00

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Sekyere Central

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks		0		0		0	
49 4-Wire, Intermediate (Type A)	no.	419	90.00	37710	18	7542	45,252.00
50 4-Wire, 0 - 20 degree angle	no.	42	96.00	4032	18	756	4,788.00
51 4-Wire, 20 - 60 degree angle	no.	11	175.00	1925	40	440	2,365.00
52 4-Wire, 60 - 90 heavy angle	no.	104	223.00	23192	40	4160	27,352.00
53 4-Wire, Terminal Pole	no.	244	86.00	20984	25	6100	27,084.00
54 4-Wire, Tee-Off	no.	108	125.00	13500	35	3780	17,280.00
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,140	21.00	23940	15	17100	41,040.00
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	28	45.00	1260	21	588	1,848.00
57 LV Stay arrangement		479	0.00	0		0	-
normal ground	no.	237	110.00	26070	41	9717	35,787.00
laterite ground	no.	115	110.00	12650	65	7475	20,125.00
rock ground	no.	127	110.00	13970	78	9906	23,876.00
58 50sqmm Al Conductor	km	155	951.00	147047.424	450	69580.8	216,628.22
59 8m LV poles		734	0.00	0		0	-
normal ground	no.	362	226.00	81812	76	27512	109,324.00
laterite ground	no.	178	226.00	40228	84	14952	55,180.00
rock ground	no.	194	226.00	43844	93	18042	61,886.00
60 9m LV poles		110	0.00	0		0	-
normal ground	no.	51	261.00	13311	76	3876	17,187.00
laterite ground	no.	22	261.00	5742	84	1848	7,590.00
rock ground	no.	37	261.00	9657	93	3441	13,098.00
61 LV Earthing, neutral conductor PME	no.	249	55.00	13695	19	4731	18,426.00
62 Survey & Preparation of Town Layout	km	39	0.00	0	500	19328	19,328.00
63 Preparation of LV Designs	km	39	0.00	0	400	15462.4	15,462.40
64 Preparation of As-Built Drawings	km	39	0.00	0	450	17395.2	17,395.20
		0		0		0	798,301.82

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Price Schedules (Bill of Quantities)

Name of Region

ASHANTI REGION

Name of District

Sekyere Central

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
Service Connections		0		0		0	
65 1-Phase Electronic meter	no.	1,140	204.00	232560	66	75240	307,800.00
66 3-Phase Electronic meter	no.	28	516.00	14448	93	2604	17,052.00
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	458	176.00	80608	64	29312	109,920.00
68 7m service pole normal ground	no.	458	0.00	0		0	-
	no.	228	195.00	44460	65	14820	59,280.00
	no.	114	195.00	22230	86	9804	32,034.00
	no.	116	195.00	22620	95	11020	33,640.00
69 fiber glass meter box for outside use and complete with fixings	no.	458	97.00	44426	35	16030	60,456.00
Sub - Total		0		0		0	620,182.00

TOTAL

Summary

33kV, 3-Phase Network	1,338,509.73
11kV, 3-Phase Network	-
Pole Mounted Transformer Substations	183,792.00
Low Voltage (LV) Networks	798,301.82
Service Connections	620,182.00

TOTAL

2,940,785.56

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TOTAL AMOUNT OF SELF-HELP ELECTRIFICATION PROGRAMME IN FIVE REGIONS-PHASE 2

Name of Region BRONG AHAFO REGION

Name of District Total(Sub-total+3.5% of Contingency+2.5% Implementation)

Summary

<u>33kV, 3-Phase Network</u>	<u>US\$ 6,035,561</u>
<u>11kV, 3-Phase Network</u>	<u>US\$ 1,963,891</u>
<u>Pole Mounted Transformer Substations</u>	<u>US\$ 1,441,282</u>
<u>Low Voltage (LV) Networks</u>	<u>US\$ 6,695,603</u>
<u>Service Connections</u>	<u>US\$ 5,293,213</u>
<u>Sub-total</u>	<u>US\$ 21,429,550</u>
<u>Contingency (3.5%) =</u>	<u>US\$ 750,034</u>
<u>Implementation Unit (2.5%) =</u>	<u>US\$ 535,739</u>
<u>Total Amount</u>	<u>US\$ 22,715,323</u>

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Sum

Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	1,889	250	472,250	60	113,340	585,590
2 0 - 20 degree Intermediate	no.	193	250	48,250	60	11,580	59,830
3 20 - 60 degree angle H Pole (MV)	no.	112	830	92,960	192	21,504	114,464
4 60 - 90 degree angle H Pole (HV)	no.	71	620	44,020	180	12,780	56,800
5 Section Pole with Drop-Out Fuses	no.	9	1,350	12,150	337	3,033	15,183
6 Section Pole for Mounting Load Isolator	no.	13	790	10,270	247	3,211	13,481
7 Fused Tee off	no.	60	1,629	97,740	398	23,880	121,620
8 H-Pole for Transformer (Terminal & Intermediate)	no.	87	1,506	131,022	354	30,798	161,820
9 Section Pole	no.	207	760	157,320	195	40,365	197,685
10 33kV, single stay equipment		1,619					
normal ground	no.	798	125	99,750	45	35,910	135,660
laterite ground	no.	383	125	47,875	65	24,895	72,770
rock ground	no.	438	125	54,750	85	37,230	91,980
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	618	2,350	1,453,165	583	360,509	1,813,673
13 3-Phase, 33kV Load Isolator	no.	13	3,980	51,740	950	12,350	64,090
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		1,169					
normal ground	no.	577	378	218,106	90	51,930	270,036
laterite ground	no.	277	378	104,706	96	26,592	131,298
rock ground	no.	315	378	119,070	109	34,335	153,405
17 HV Wooden Poles for 33kV Lines (11m)		870					
normal ground	no.	423	439	185,697	90	38,070	223,767
laterite ground	no.	201	439	88,239	96	19,296	107,535
rock ground	no.	246	439	107,994	109	26,814	134,808
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
19 HV Steel Poles for 33kV Lines (11m)		944					
normal ground	no.	460	1,250	575,000	90	41,400	616,400
laterite ground	no.	213	1,250	266,250	96	20,448	286,698
rock ground	no.	271	1,250	338,750	109	29,539	368,289
20 Line route survey	km	193			672	129,453	129,453
21 Bush Clearing	km	193			567	109,226	109,226
					Sub-Total		6,035,561
11kV, 3-Phase Network							
22 Intermediate Pole	no.	491	145	71,195	38	18,658	89,853
23 0 - 20 degree Intermediate	no.	59	210	12,390	38	2,242	14,632
24 20 - 60 degree angle H Pole (MV)	no.	53	620	32,860	158	8,374	41,234
25 60 - 90 degree angle H Pole (HV)	no.	36	590	21,240	153	5,508	26,748
26 Section Pole with Drop-Out Fuses	no.	4	980	3,920	248	992	4,912
27 Section Pole for Mounting Load Isolator	no.	4	720	2,880	198	792	3,672
28 Fused Tee off	no.	29	1,169	33,901	279	8,091	41,992
29 H-Pole for Transformer (Terminal & Intermediate)	no.	40	1,350	54,000	350	14,000	68,000
30 Section Pole	no.	36	580	20,880	155	5,580	26,460
31 11kV, single stay equipment		621					
normal ground	no.	307	115	35,305	45	13,815	49,120
laterite ground	no.	150	115	17,250	65	9,750	27,000
rock ground	no.	164	115	18,860	85	13,940	32,800
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km	193	2,350	454,119	583	112,660	566,779
34 3-Phase, 11kV Load Isolator	no.	4	3,100	12,400	650	2,600	15,000
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	KVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)		333					
normal ground	no.	164	378	61,992	90	14,760	76,752
laterite ground	no.	75	378	28,350	96	7,200	35,550
rock ground	no.	94	378	35,532	109	10,246	45,778
38 HV Wooden Poles for 11kV Lines (11m)		246					

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.	116	439	50,924	90	10,440	61,364
laterite ground	no.	54	439	23,706	96	5,184	28,890
rock ground	no.	76	439	33,364	109	8,284	41,648
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)		439					
normal ground	no.	216	1,250	270,000	90	19,440	289,440
laterite ground	no.	106	1,250	132,500	96	10,176	142,676
rock ground	no.	117	1,250	146,250	109	12,753	159,003
41 Line route survey	km	60			672	40,454	40,454
42 Bush Clearing		60			567	34,133	34,133
						Sub-Total	1,963,891
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	33	8,220	271,260	1,719	56,727	327,987
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	44	9,870	434,280	2,145	94,380	528,660
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	19	11,230	213,370	2,789	52,991	266,361
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	14	6,459	90,426	1,568	21,952	112,378
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	11	7,500	82,500	1,656	18,216	100,716
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	10	8,385	83,860	2,132	21,320	105,180
						Sub-Total	1,441,282

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	3,912	90	352,080	18	70,416	422,496
50 4-Wire, 0 - 20 degree angle	no.	203	96	19,488	18	3,654	23,142
51 4-Wire, 20 - 60 degree angle	no.	136	175	23,800	40	5,440	29,240
52 4-Wire, 60 - 90 degree angle	no.	689	223	153,647	40	27,560	181,207
53 4-Wire, Terminal Pole	no.	2,158	86	185,588	25	53,950	239,538
54 4-Wire, Tee-Off	no.	934	125	116,750	35	32,690	149,440
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	9,650	21	202,650	15	144,750	347,400
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	256	45	11,520	21	5,376	16,896
57 LV Stay arrangement		3,855					
normal ground	no.	1,904	110	209,440	41	78,064	287,504
laterite ground	no.	929	110	102,180	65	60,385	162,575
rock ground	no.	1,022	110	112,420	78	79,716	192,136
58 50sqmm Al Conductor	km	1,251	951	1,189,537	450	562,873	1,752,410
59 8m LV poles		6,595					
normal ground	no.	3,227	226	729,302	76	245,252	974,554
laterite ground	no.	1,611	226	364,086	84	135,324	499,410
rock ground	no.	1,757	226	397,014	93	163,373	560,387
60 9m LV poles		696					
normal ground	no.	318	261	82,998	76	24,168	107,166
laterite ground	no.	138	261	36,018	84	11,592	47,610
rock ground	no.	240	261	62,718	93	22,340	85,066
61 LV Earthing, neutral conductor PME	no.	2,639	55	145,134	19	50,137	195,271
62 Survey & Preparation of Town Layout	km	313			500	156,354	156,354
63 Preparation of LV Designs	km	313			400	125,083	125,083
64 Preparation of As-Built Drawings	km	313			450	140,718	140,718
						Sub-Total	6,695,603

Sub-Total 6,695,603

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	9,650	204	1,968,600	66	636,900	2,605,500
66 3-Phase Electronic meter	no.	256	516	132,096	93	23,808	155,904
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	3,926	176	690,976	64	251,264	942,240
68 7m service pole normal ground	no.	1,950	195	380,250	65	126,750	507,000
laterite ground	no.	967	195	188,565	86	83,162	271,727
rock ground	no.	1,009	195	196,755	95	95,855	292,610
69 fiber glass meter box for outside use and complete with fixings	no.	3,926	97	380,822	35	137,410	518,232

Sub - Total 5,293,213

TOTAL

Summary

33kV, 3-Phase Network	6,035,561
11kV, 3-Phase Network	1,963,891
Pole Mounted Transformer Substations	1,441,282
Low Voltage (LV) Networks	6,695,803
Service Connections	5,293,213

Total 21,429,550

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

WENCHI

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	187	250	46,750	60	11,220	57,970
2 0 - 20 degree Intermediate	no.	17	250	4,250	60	1,020	5,270
3 20 - 60 degree angle H Pole (MV)	no.	14	830	11,620	192	2,688	14,308
4 60 - 90 degree angle H Pole (HV)	no.	10	620	6,200	180	1,800	8,000
5 Section Pole with Drop-Out Fuses	no.	2	1,350	2,700	337	674	3,374
6 Section Pole for Mounting Load Isolator	no.	1	790	790	247	247	1,037
7 Tee-Off Pole	no.	8	1,629	13,032	398	3,184	16,216
8 H-Pole for Transformer (Terminal & Intermediate)	no.	11	1,506	16,566	354	3,894	20,460
9 Section Pole	no.	18	760	13,680	195	3,510	17,190
10 33kV, single stay equipment		188					
normal ground	no.	92	125	11,500	45	4,140	15,640
laterite ground	no.	43	125	5,375	65	2,795	8,170
rock ground	no.	53	125	6,625	85	4,505	11,130
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	64	2,350	149,723	583	37,144	186,868
13 3-Phase, 33kV Load Isolator	no.	1	3,980	3,980	950	950	4,930
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		117					
normal ground	no.	57	378	21,546	90	5,130	26,676
laterite ground	no.	27	378	10,206	96	2,592	12,798
rock ground	no.	33	378	12,474	109	3,597	16,071
17 HV Wooden Poles for 33kV Lines (11m)		88					
normal ground	no.	43	439	18,877	90	3,870	22,747
laterite ground	no.	20	439	8,780	96	1,920	10,700
rock ground	no.	25	439	10,975	109	2,725	13,700
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		98					

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

WENCHI

Description	Unit	Quantity	Unit Cost	Total Cost	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
			Materials (US\$,CIF)	Materials (US\$,CIF)	Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
normal ground	no.	47	1,250	58,750	90	4,230	62,980	
laterite ground	no.	22	1,250	27,500	96	2,112	29,612	
rock ground	no.	29	1,250	36,250	109	3,161	39,411	
20 Line route survey	km	20			672	13,338	13,338	
21 Bush Clearing	km	20			567	11,254	11,254	
Sub-Total							629,849	
11kV, 3-Phase Network								
22 Intermediate Pole	no.	175	145	25,375	38	6,650	32,025	
23 0 - 20 degree Intermediate	no.	12	210	2,520	38	456	2,976	
24 20 - 60 degree angle H Pole (MV)	no.	8	620	4,960	158	1,264	6,224	
25 60 - 90 degree angle H Pole (HV)	no.	7	590	4,130	153	1,071	5,201	
26 Section Pole with Drop-Out Fuses	no.		980		248			
27 Section Pole for Mounting Load Isolator	no.	1	720	720	198	198	918	
28 Tee-Off Pole	no.	9	1,169	10,521	279	2,511	13,032	
29 H-Pole for Transformer (Terminal & Intermediate)	no.	10	1,350	13,500	350	3,500	17,000	
30 Section Pole	no.	16	580	9,280	155	2,480	11,760	
31 11kV, single stay equipment		142						
normal ground	no.	70	115	8,050	45	3,150	11,200	
laterite ground	no.	34	115	3,910	65	2,210	6,120	
rock ground	no.	38	115	4,370	85	3,230	7,600	
32 11kV, flying stay equipment	no.							
33 120sqmm Al Conductor	km	53	2,350	124,845	583	30,972	155,817	
34 3-Phase, 11kV Load Isolator	no.	1	3,100	3,100	650	650	3,750	
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980			
36 11kV Shunt Capacitor	KVAR		6		3			
37 HV Wooden Poles for 11kV Lines (10m)		102						
normal ground	no.	50	378	18,900	90	4,500	23,400	
laterite ground	no.	23	378	8,694	96	2,208	10,902	
rock ground	no.	29	378	10,962	109	3,161	14,123	
38 HV Wooden Poles for 11kV Lines (11m)		76						
normal ground	no.	35	439	15,365	90	3,150	18,515	
laterite ground	no.	17	439	7,463	96	1,632	9,095	

Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

WENCHI

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.	24	439	10,536	109	2,616	13,152
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)		254					
normal ground	no.	124	1,250	155,000	90	11,160	166,160
laterite ground	no.	62	1,250	77,500	96	5,952	83,452
rock ground	no.	68	1,250	85,000	109	7,412	92,412
41 Line route survey	km	17			672	11,122	11,122
42 Bush Clearing	km	17			567	9,384	9,384
					Sub-Total		725,340
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	5	8,220	41,100	1,719	8,595	49,695
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	4	9,870	39,480	2,145	8,580	48,060
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	1	11,230	11,230	2,789	2,789	14,019
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	4	6,459	25,836	1,568	6,272	32,108
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	2	7,500	15,000	1,656	3,312	18,312
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	4	8,386	33,544	2,132	8,528	42,072
					Sub-Total		204,266

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

WENCHI

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	496	90	44,640	18	8,928	53,568
50 4-Wire, 0 - 20 degree angle	no.	21	96	2,016	18	378	2,394
51 4-Wire, 20 - 60 degree angle	no.	9	175	1,575	40	360	1,935
52 4-Wire, 60 - 90 heavy angle	no.	97	223	21,631	40	3,880	25,511
53 4-Wire, Terminal Pole	no.	250	86	21,500	25	6,250	27,750
54 4-Wire, Tee-Off	no.	97	125	12,125	35	3,395	15,520
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,430	21	30,030	15	21,450	51,480
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	36	45	1,620	21	756	2,376
57 LV Stay arrangement		505					
normal ground	no.	250	110	27,500	41	10,250	37,750
laterite ground	no.	121	110	13,310	65	7,865	21,175
rock ground	no.	134	110	14,740	78	10,452	25,192
58 50sqmm Al Conductor	km	155	951	147,329	450	69,714	217,043
59 8m LV poles		830					
normal ground	no.	410	226	92,660	76	31,160	123,820
laterite ground	no.	201	226	45,426	84	16,884	62,310
rock ground	no.	219	226	49,494	93	20,367	69,861
60 9m LV poles		84					
normal ground	no.	37	261	9,657	76	2,812	12,469
laterite ground	no.	15	261	3,915	84	1,260	5,175
rock ground	no.	32	261	8,352	93	2,976	11,328
61 LV Earthing, neutral conductor PME	no.	327	55	17,985	19	6,213	24,198
62 Survey & Preparation of Town Layout	km	39			500	19,365	19,365
63 Preparation of LV Designs	km	39			400	15,492	15,492
64 Preparation of As-Built Drawings	km	39			450	17,429	17,429
Sub-Total							843,140

Price Schedules (Bill of Quantities)

BRONG AHAFO REGION

Name of Region

Name of District

WENCHI

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	1,430	204	291,720	66	94,380	386,100
66 3-Phase Electronic meter	no.	36	516	18,576	93	3,348	21,924
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	581	176	102,256	64	37,184	139,440
68 7m service pole normal ground	no.	288	195	56,160	65	18,720	74,880
laterite ground	no.	143	195	27,885	86	12,298	40,183
rock ground	no.	150	195	29,250	95	14,250	43,500
69 fiber glass meter box for outside use and complete with fixings	no.	581	97	56,357	35	20,335	76,692
						Sub - Total	782,719

TOTAL

Summary

33kV, 3-Phase Network	629,849
11kV, 3-Phase Network	725,340
Pole Mounted Transformer Substations	204,266
Low Voltage (LV) Networks	843,140
Service Connections	782,719
TOTAL	3,185,314

Signature

Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

JAMAN NORTH

Description	Unit	Quantity	Unit Cost	Total Cost	Unit Cost	Total Cost	Total Cost of Mat & Install (US\$)
			Materials (US\$,CIF)	Materials (US\$,CIF)	Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	197	250	49,250	60	11,820	61,070
2 0 - 20 degree Intermediate	no.	14	250	3,500	60	840	4,340
3 20 - 60 degree angle H Pole (MV)	no.	10	830	8,300	192	1,920	10,220
4 60 - 90 degree angle H Pole (HV)	no.	11	620	6,820	180	1,980	8,800
5 Section Pole with Drop-Out Fuses	no.	1	1,350	1,350	337	337	1,687
6 Section Pole for Mounting Load Isolator	no.	1	790	790	247	247	1,037
7 Tee-Off Pole	no.	9	1,629	14,661	398	3,582	18,243
8 H-Pole for Transformer (Terminal & Intermediate)	no.	14	1,506	21,084	354	4,956	26,040
9 Section Pole	no.	19	760	14,440	195	3,705	18,145
10 33kV, single stay equipment		176					
normal ground	no.	86	125	10,750	45	3,870	14,620
laterite ground	no.	42	125	5,250	65	2,730	7,980
rock ground	no.	48	125	6,000	85	4,080	10,080
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	65	2,350	153,058	583	37,971	191,029
13 3-Phase, 33kV Load Isolator	no.	1	3,980	3,980	950	950	4,930
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		127					
normal ground	no.	62	378	23,436	90	5,580	29,016
laterite ground	no.	30	378	11,340	96	2,880	14,220
rock ground	no.	35	378	13,230	109	3,815	17,045
17 HV Wooden Poles for 33kV Lines (11m)		95					
normal ground	no.	46	439	20,194	90	4,140	24,334
laterite ground	no.	22	439	9,658	96	2,112	11,770
rock ground	no.	27	439	11,853	109	2,943	14,796
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		101					

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Sum

Price Schedules (Bill of Quantities)

BRONG AHAFO REGION

Name of Region

Name of District

JAMAN NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.	49	1,250	61,250	90	4,410	65,660
laterite ground	no.	23	1,250	28,750	96	2,208	30,958
rock ground	no.	29	1,250	36,250	109	3,161	39,411
20 Line route survey	km	20			672	13,635	13,635
21 Bush Clearing	km	20			567	11,504	11,504
					Sub-Total		650,570
11kV, 3-Phase Network							
22 Intermediate Pole	no.		145		38		
23 0 - 20 degree Intermediate	no.		210		38		
24 20 - 60 degree angle H Pole (MV)	no.		620		158		
25 60 - 90 degree angle H Pole (HV)	no.		590		153		
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.		720		198		
28 Tee-Off Pole	no.		1,169		279		
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350		
30 Section Pole	no.		580		155		
31 11kV, single stay equipment							
normal ground	no.		115		45		
laterite ground	no.		115		65		
rock ground	no.		115		85		
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km		2,350		583		
34 3-Phase, 11kV Load Isolator	no.		3,100		650		
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	kVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
38 HV Wooden Poles for 11kV Lines (11m)							
normal ground	no.		439		90		
laterite ground	no.		439		96		

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

JAMAN NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
rock ground	no.		439		109			
39 HV Steel Poles for 11kV Lines (10m)								
normal ground	no.		1,100		90			
laterite ground	no.		1,100		96			
rock ground	no.		1,100		109			
40 HV Steel Poles for 11kV Lines (11m)								
normal ground	no.		1,250		90			
laterite ground	no.		1,250		96			
rock ground	no.		1,250		109			
41 Line route survey	km				672			
42 Bush Clearing	km				567			
Sub-Total								
Pole Mounted Transformer Substations								
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	4	8,220	32,880	1,719	6,876	39,756	
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	7	9,870	69,090	2,145	15,015	84,105	
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	3	11,230	33,690	2,789	8,367	42,057	
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568			
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656			
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132			
Sub-Total							165,918	

11/8/2018

Price Schedules (Bill of Quantities)

BRONG AHAFO REGION

Name of Region

Name of District

JAMAN NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	319	90	28,710	18	5,742	34,452
50 4-Wire, 0 - 20 degree angle	no.	11	96	1,056	18	198	1,254
51 4-Wire, 20 - 60 degree angle	no.	8	175	1,400	40	320	1,720
52 4-Wire, 60 - 90 heavy angle	no.	61	223	13,603	40	2,440	16,043
53 4-Wire, Terminal Pole	no.	216	86	18,576	25	5,400	23,976
54 4-Wire, Tee-Off	no.	81	125	10,125	35	2,835	12,960
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,060	21	22,260	15	15,900	38,160
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	29	45	1,305	21	609	1,914
57 LV Stay arrangement		387					
normal ground	no.	192	110	21,120	41	7,872	28,992
laterite ground	no.	95	110	10,450	65	6,175	16,625
rock ground	no.	100	110	11,000	78	7,800	18,800
58 50sqmm Al Conductor	km	133	951	126,711	450	59,958	186,669
59 8m LV poles		726					
normal ground	no.	319	226	72,094	76	24,244	96,338
laterite ground	no.	178	226	40,228	84	14,952	55,180
rock ground	no.	229	226	51,754	93	21,297	73,051
60 9m LV poles		70					
normal ground	no.	33	261	8,613	76	2,508	11,121
laterite ground	no.	15	261	3,915	84	1,260	5,175
rock ground	no.	22	261	5,742	93	2,046	7,788
61 LV Earthing, neutral conductor PME	no.	258	55	14,190	19	4,902	19,092
62 Survey & Preparation of Town Layout	km	33			500	16,655	16,655
63 Preparation of LV Designs	km	33			400	13,324	13,324
64 Preparation of As-Built Drawings	km	33			450	14,990	14,990
Sub-Total							694,279

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Price Schedules (Bill of Quantities)

BRONG AHAFO REGION

Name of Region

Name of District

JAMAN NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	1,060	204	216,240	66	69,960	286,200
66 3-Phase Electronic meter	no.	29	516	14,964	93	2,697	17,661
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	433	176	76,208	64	27,712	103,920
68 7m service pole normal ground	no.	433	195	42,120	65	14,040	56,160
laterite ground	no.	107	195	20,865	86	9,202	30,067
rock ground	no.	110	195	21,450	95	10,450	31,900
69 fiber glass meter box for outside use and complete with fixings	no.	433	97	42,001	35	15,155	57,156
Sub - Total							583,064
TOTAL							
Summary							
							650,570
33kV, 3-Phase Network							
11kV, 3-Phase Network							165,918
Pole Mounted Transformer Substations							694,279
Low Voltage (LV) Networks							583,064
Service Connections							
TOTAL							2,093,831

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Price Schedules (Bill of Quantities)

BRONG AHAFO REGION

Name of Region

Name of District

TANO SOUTH

Unit Cost
Local

Total Cost
Local

Transportation
Installation &
Commissioning
(US\$)

Transportation
Installation &
Commissioning
(US\$)

Total Cost of
Mat. & Install
(US\$)

Unit Cost
Materials
(US\$,CIF)

Total Cost
Materials
(US\$,CIF)

Unit Quantity

Description

33kV, 3-Phase Network

1	Intermediate Pole	no.	219	250	54,750	60	13,140	67,890
2	0 - 20 degree Intermediate	no.	14	250	3,500	60	840	4,340
3	20 - 60 degree angle H Pole (MV)	no.	16	830	13,280	192	3,072	16,352
4	60 - 90 degree angle H Pole (HV)	no.	11	620	6,820	180	1,980	8,800
5	Section Pole with Drop-Out Fuses	no.	2	1,350	2,700	337	674	3,374
6	Section Pole for Mounting Load Isolator	no.	2	790	1,580	247	494	2,074
7	Tee-Off Pole	no.	4	1,629	6,516	398	1,592	8,108
8	H-Pole for Transformer (Terminal & Intermediate)	no.	6	1,506	9,036	354	2,124	11,160
9	Section Pole	no.	24	760	18,240	195	4,680	22,920
10	33kV, single stay equipment		203					
	normal ground	no.	101	125	12,625	45	4,545	17,170
	laterite ground	no.	48	125	6,000	65	3,120	9,120
	rock ground	no.	54	125	6,750	85	4,590	11,340
11	33kV, flying stay equipment	no.						
12	120sqmm Al Conductor	km	73	2,350	171,162	583	42,463	213,625
13	3-Phase, 33kV Load Isolator	no.	2	3,980	7,960	950	1,900	9,860
14	3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15	33kV Shunt Capacitor	kVAR		7		3		
16	HV Wooden Poles for 33kV Lines (10m)		135					
	normal ground	no.	67	378	25,326	90	6,030	31,356
	laterite ground	no.	31	378	11,718	96	2,976	14,694
	rock ground	no.	37	378	13,986	109	4,033	18,019
17	HV Wooden Poles for 33kV Lines (11m)		101					
	normal ground	no.	49	439	21,511	90	4,410	25,921
	laterite ground	no.	23	439	10,097	96	2,208	12,305
	rock ground	no.	29	439	12,731	109	3,161	15,892
18	HV Steel Poles for 33kV Lines (10m)							
	normal ground	no.		1,100		90		
	laterite ground	no.		1,100		96		
	rock ground	no.		1,100		109		
19	HV Steel Poles for 33kV Lines (11m)		109					

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

TANO SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
normal ground	no.	53	1,250	66,250	90	4,770	71,020	
laterite ground	no.	25	1,250	31,250	96	2,400	33,650	
rock ground	no.	31	1,250	38,750	109	3,379	42,129	
20 Line route survey	km	23			672	15,248	15,248	
21 Bush Clearing	km	23			567	12,865	12,865	
Sub - Total							699,232	
11kV, 3-Phase Network								
22 Intermediate Pole	no.		145		38			
23 0 - 20 degree Intermediate	no.		210		38			
24 20 - 60 degree angle H Pole (MV)	no.		620		158			
25 60 - 90 degree angle H Pole (HV)	no.		590		153			
26 Section Pole with Drop-Out Fuses	no.		980		248			
27 Section Pole for Mounting Load Isolator	no.		720		198			
28 Tee-Off Pole	no.		1,169		279			
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350			
30 Section Pole	no.		580		155			
31 11kV, single stay equipment								
normal ground	no.		115		45			
laterite ground	no.		115		65			
rock ground	no.		115		85			
32 11kV, flying stay equipment	no.							
33 120sqmm Al Conductor	km		2,350		583			
34 3-Phase, 11kV Load Isolator	no.		3,100		650			
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980			
36 11kV Shunt Capacitor	KVAR		6		3			
37 HV Wooden Poles for 11kV Lines (10m)								
normal ground	no.		378		90			
laterite ground	no.		378		96			
rock ground	no.		378		109			
38 HV Wooden Poles for 11kV Lines (11m)								
normal ground	no.		439		90			
laterite ground	no.		439		96			

Price Schedules (Bill of Quantities)

BRONG AHAFO REGION

Name of Region

Name of District

TANO SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
rock ground	no.		439		109			
39 HV Steel Poles for 11kV Lines (10m)	no.		1,100		90			
normal ground	no.		1,100		96			
laterite ground	no.		1,100		109			
rock ground	no.							
40 HV Steel Poles for 11kV Lines (11m)	no.		1,250		90			
normal ground	no.		1,250		96			
laterite ground	no.		1,250		109			
rock ground	no.				672			
41 Line route survey	km				567			
42 Bush Clearing	km							
Sub - Total								

Pole Mounted Transformer Substations

43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	2	8,220	16,440	1,719	3,438	19,878	
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	6	9,870	59,220	2,145	12,870	72,090	
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		11,230		2,789			
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568			
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656			
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132			
Sub - Total							91,968	

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Price Schedules (Bill of Quantities)

BRONG AHAFO REGION

Name of Region

Name of District

TANO SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	196	90	17,640	18	3,528	21,168
50 4-Wire, 0 - 20 degree angle	no.	8	96	768	18	144	912
51 4-Wire, 20 - 60 degree angle	no.	12	175	2,100	40	480	2,580
52 4-Wire, 60 - 90 heavy angle	no.	40	223	8,920	40	1,600	10,520
53 4-Wire, Terminal Pole	no.	115	86	9,890	25	2,875	12,765
54 4-Wire, Tee-Off	no.	44	125	5,500	35	1,540	7,040
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	580	21	12,180	15	8,700	20,880
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	14	45	630	21	294	924
57 LV Stay arrangement		248					
normal ground	no.	121	110	13,310	41	4,961	18,271
laterite ground	no.	57	110	6,270	65	3,705	9,975
rock ground	no.	70	110	7,700	78	5,460	13,160
58 50sqmm Al Conductor	km	65	951	61,587	450	29,142	90,729
59 8m LV poles		339					
normal ground	no.	166	226	37,516	76	12,616	50,132
laterite ground	no.	81	226	18,306	84	6,804	25,110
rock ground	no.	92	226	20,792	93	8,556	29,348
60 9m LV poles		34					
normal ground	no.	15	261	3,915	76	1,140	5,055
laterite ground	no.	6	261	1,566	84	504	2,070
rock ground	no.	13	261	3,393	93	1,209	4,602
61 LV Earthing, neutral conductor PME	no.	144	55	7,920	19	2,736	10,656
62 Survey & Preparation of Town Layout	km	16			500	8,095	8,095
63 Preparation of LV Designs	km	16			400	6,476	6,476
64 Preparation of As-Built Drawings	km	16			450	7,286	7,286
Sub - Total							357,753

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Price Schedules (Bill of Quantities)

BRONG AHAFO REGION

Name of Region

Name of District

TANO SOUTH

Description	Unit Quantity		Unit Cost	Total Cost	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
			(US\$,CIF)	(US\$,CIF)	Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	580	204	118,320	66	38,280	156,600
66 3-Phase Electronic meter	no.	14	516	7,224	93	1,302	8,526
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	232	176	40,832	64	14,848	55,680
68 7m service pole normal ground	no.	232	195	22,620	65	7,540	30,160
laterite ground	no.	116	195	11,310	86	4,988	16,298
rock ground	no.	58	195	11,310	95	5,510	16,820
69 fiber glass meter box for outside use and complete with fixings	no.	58	97	22,504	35	8,120	30,624
						Sub - Total	314,708

TOTAL

Summary

33kV, 3-Phase Network	699,232
11kV, 3-Phase Network	91,968
Pole Mounted Transformer Substations	357,753
Low Voltage (LV) Networks	314,708
Service Connections	
TOTAL	1,463,661

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

BEREKUM EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	152	250	38,000	60	9,120	47,120
2 0 - 20 degree Intermediate	no.	11	250	2,750	60	660	3,410
3 20 - 60 degree angle H Pole (MV)	no.	11	830	9,130	192	2,112	11,242
4 60 - 90 degree angle H Pole (HV)	no.	9	620	5,580	180	1,620	7,200
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	1	790	790	247	247	1,037
7 Tee-Off Pole	no.	8	1,629	13,032	398	3,184	16,216
8 H-Pole for Transformer (Terminal & Intermediate)	no.	14	1,506	21,084	354	4,956	26,040
9 Section Pole	no.	8	760	6,080	195	1,560	7,640
10 33kV, single stay equipment		157					
normal ground	no.	78	125	9,750	45	3,510	13,260
laterite ground	no.	38	125	4,750	65	2,470	7,220
rock ground	no.	41	125	5,125	85	3,485	8,610
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	47	2,350	109,682	583	27,211	136,893
13 3-Phase, 33kV Load Isolator	no.	1	3,980	3,980	950	950	4,930
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	KVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		97					
normal ground	no.	48	378	18,144	90	4,320	22,464
laterite ground	no.	23	378	8,694	96	2,208	10,902
rock ground	no.	26	378	9,828	109	2,834	12,662
17 HV Wooden Poles for 33kV Lines (11m)		71					
normal ground	no.	34	439	14,926	90	3,060	17,986
laterite ground	no.	16	439	7,024	96	1,536	8,560
rock ground	no.	21	439	9,219	109	2,289	11,508
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		78					

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

BEREKUM EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.	38	1,250	47,500	90	3,420	50,920
laterite ground	no.	17	1,250	21,250	96	1,632	22,882
rock ground	no.	23	1,250	28,750	109	2,507	31,257
20 Line route survey	km	15			672	9,771	9,771
21 Bush Clearing	km	15			567	8,244	8,244
Sub - Total							497,974
11kV, 3-Phase Network							
22 Intermediate Pole	no.	53	145	7,685	38	2,014	9,699
23 0 - 20 degree Intermediate	no.	5	210	1,050	38	190	1,240
24 20 - 60 degree angle H Pole (MV)	no.	1	620	620	158	158	778
25 60 - 90 degree angle H Pole (HV)	no.	9	590	5,310	153	1,377	6,687
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.	1	720	720	198	198	918
28 Tee-Off Pole	no.	6	1,169	7,014	279	1,674	8,688
29 H-Pole for Transformer (Terminal & Intermediate)	no.	6	1,350	8,100	350	2,100	10,200
30 Section Pole	no.	5	580	2,900	155	775	3,675
31 11kV, single stay equipment		80					
normal ground	no.	39	115	4,485	45	1,755	6,240
laterite ground	no.	19	115	2,185	65	1,235	3,420
rock ground	no.	22	115	2,530	85	1,870	4,400
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km	39	2,350	91,654	583	22,738	114,391
34 3-Phase, 11kV Load Isolator	no.	1	3,100	3,100	650	650	3,750
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	kVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)		39					
normal ground	no.	19	378	7,182	90	1,710	8,892
laterite ground	no.	7	378	2,646	96	672	3,318
rock ground	no.	13	378	4,914	109	1,417	6,331
38 HV Wooden Poles for 11kV Lines (11m)		28					
normal ground	no.	12	439	5,268	90	1,080	6,348
laterite ground	no.	5	439	2,195	96	480	2,675

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

BEREKUM EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
39 HV Steel Poles for 11kV Lines (10m)	no.	11	439	4,829	109	1,199	6,028
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)		33					
normal ground	no.	16	1,250	20,000	90	1,440	21,440
laterite ground	no.	7	1,250	8,750	96	672	9,422
rock ground	no.	10	1,250	12,500	109	1,090	13,590
41 Line route survey	km	12			672	8,165	8,165
42 Bush Clearing	km	12			567	6,889	6,889
Sub - Total							267,184
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	2	8,220	16,440	1,719	3,438	19,878
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	6	9,870	59,220	2,145	12,870	72,090
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	4	11,230	44,920	2,789	11,156	56,076
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	1	6,459	6,459	1,568	1,568	8,027
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	2	7,500	15,000	1,656	3,312	18,312
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	3	8,386	25,158	2,132	6,396	31,554
Sub - Total							205,937

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

BEREKUM EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	706	90	63,540	18	12,708	76,248
50 4-Wire, 0 - 20 degree angle	no.	28	96	2,688	18	504	3,192
51 4-Wire, 20 - 60 degree angle	no.	15	175	2,625	40	600	3,225
52 4-Wire, 60 - 90 heavy angle	no.	58	223	12,934	40	2,320	15,254
53 4-Wire, Terminal Pole	no.	292	86	25,112	25	7,300	32,412
54 4-Wire, Tee-Off	no.	170	125	21,250	35	5,950	27,200
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,490	21	31,290	15	22,350	53,640
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	42	45	1,890	21	882	2,772
57 LV Stay arrangement		592					
normal ground	no.	293	110	32,230	41	12,013	44,243
laterite ground	no.	143	110	15,730	65	9,295	25,025
rock ground	no.	156	110	17,160	78	12,168	29,328
58 50sqmm Al Conductor	km	212	951	201,346	450	95,274	296,620
59 8m LV poles		1,075					
normal ground	no.	536	226	121,136	76	40,736	161,872
laterite ground	no.	264	226	59,664	84	22,176	81,840
rock ground	no.	275	226	62,150	93	25,575	87,725
60 9m LV poles		114					
normal ground	no.	53	261	13,833	76	4,028	17,861
laterite ground	no.	25	261	6,525	84	2,100	8,625
rock ground	no.	36	261	9,396	93	3,348	12,744
61 LV Earthing, neutral conductor PME	no.	375	55	20,625	19	7,125	27,750
62 Survey & Preparation of Town Layout	km	53			500	26,465	26,465
63 Preparation of LV Designs	km	53			400	21,172	21,172
64 Preparation of As-Built Drawings	km	53			450	23,819	23,819
Sub - Total							1,079,031

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

BEREKUM EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	1,490	204	303,960	66	98,340	402,300
66 3-Phase Electronic meter	no.	42	516	21,672	93	3,906	25,578
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	610	176	107,360	64	39,040	146,400
68 7m service pole normal ground	no.	301	195	58,695	65	19,565	78,260
laterite ground	no.	149	195	29,055	86	12,814	41,869
rock ground	no.	160	195	31,200	95	15,200	46,400
69 fiber glass meter box for outside use and complete with fixings	no.	610	97	59,170	35	21,350	80,520
Sub - Total							821,327

TOTAL

Summary

33kV, 3-Phase Network	497,974
11kV, 3-Phase Network	267,184
Pole Mounted Transformer Substations	205,937
Low Voltage (LV) Networks	1,079,031
Service Connections	821,327
TOTAL	2,871,454

1/1/2018

Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

TECHIMAN NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	87	250	21,750	60	5,220	26,970
2 0 - 20 degree Intermediate	no.	10	250	2,500	60	600	3,100
3 20 - 60 degree angle H Pole (MV)	no.	4	830	3,320	192	768	4,088
4 60 - 90 degree angle H Pole (HV)	no.	3	620	1,860	180	540	2,400
5 Section Pole with Drop-Out Fuses	no.	1	1,350	1,350	337	337	1,687
6 Section Pole for Mounting Load Isolator	no.	1	790	790	247	247	1,037
7 Tee-Off Pole	no.	10	1,629	16,290	398	3,980	20,270
8 H-Pole for Transformer (Terminal & Intermediate)	no.	14	1,506	21,084	354	4,956	26,040
9 Section Pole	no.	13	760	9,880	195	2,535	12,415
10 33kV, single stay equipment		120					
normal ground	no.	59	125	7,375	45	2,655	10,030
laterite ground	no.	28	125	3,500	65	1,820	5,320
rock ground	no.	33	125	4,125	85	2,805	6,930
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	36	2,350	85,770	583	21,278	107,048
13 3-Phase, 33kV Load Isolator	no.	1	3,980	3,980	950	950	4,930
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		65					
normal ground	no.	32	378	12,096	90	2,880	14,976
laterite ground	no.	16	378	6,048	96	1,536	7,584
rock ground	no.	17	378	6,426	109	1,853	8,279
17 HV Wooden Poles for 33kV Lines (11m)		48					
normal ground	no.	23	439	10,097	90	2,070	12,167
laterite ground	no.	11	439	4,829	96	1,056	5,885
rock ground	no.	14	439	6,146	109	1,526	7,672
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		59					

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

TECHIMAN NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost		Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
normal ground	no.	28	1,250	35,000	90	2,520	37,520
laterite ground	no.	11	1,250	13,750	96	1,056	14,806
rock ground	no.	20	1,250	25,000	109	2,180	27,180
20 Line route survey	km	11			672	7,641	7,641
21 Bush Clearing	km	11			567	6,447	6,447
Sub - Total							382,421
11kV, 3-Phase Network							
22 Intermediate Pole	no.	263	145	38,135	38	9,994	48,129
23 0 - 20 degree Intermediate	no.	42	210	8,820	38	1,596	10,416
24 20 - 60 degree angle H Pole (MV)	no.	44	620	27,280	158	6,952	34,232
25 60 - 90 degree angle H Pole (HV)	no.	20	590	11,800	153	3,060	14,860
26 Section Pole with Drop-Out Fuses	no.	4	980	3,920	248	992	4,912
27 Section Pole for Mounting Load Isolator	no.	2	720	1,440	198	396	1,836
28 Tee-Off Pole	no.	14	1,169	16,366	279	3,906	20,272
29 H-Pole for Transformer (Terminal & Intermediate)	no.	24	1,350	32,400	350	8,400	40,800
30 Section Pole	no.	15	580	8,700	155	2,325	11,025
31 11kV, single stay equipment		399					
normal ground	no.	198	115	22,770	45	8,910	31,680
laterite ground	no.	97	115	11,155	65	6,305	17,460
rock ground	no.	104	115	11,960	85	8,840	20,800
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km	101	2,350	237,620	583	58,950	296,570
34 3-Phase, 11kV Load Isolator	no.	2	3,100	6,200	650	1,300	7,500
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	kVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)		192					
normal ground	no.	95	378	35,910	90	8,550	44,460
laterite ground	no.	45	378	17,010	96	4,320	21,330
rock ground	no.	52	378	19,656	109	5,668	25,324
38 HV Wooden Poles for 11kV Lines (11m)		142					
normal ground	no.	69	439	30,291	90	6,210	36,501
laterite ground	no.	32	439	14,048	96	3,072	17,120

Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

TECHIMAN NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
rock ground	no.	41	439	17,999	109	4,469	22,468	
39 HV Steel Poles for 11kV Lines (10m)								
normal ground	no.		1,100		90			
laterite ground	no.		1,100		96			
rock ground	no.		1,100		109			
40 HV Steel Poles for 11kV Lines (11m)		152						
normal ground	no.	76	1,250	95,000	90	6,840	101,840	
laterite ground	no.	37	1,250	46,250	96	3,552	49,802	
rock ground	no.	39	1,250	48,750	109	4,251	53,001	
41 Line route survey	km	32			672	21,168	21,168	
42 Bush Clearing	km	32			567	17,861	17,861	
Sub - Total							971,367	
Pole Mounted Transformer Substations								
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	2	8,220	16,440	1,719	3,438	19,878	
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	9	9,870	88,830	2,145	19,305	108,135	
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	5	11,230	56,150	2,789	13,945	70,095	
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	9	6,459	58,131	1,568	14,112	72,243	
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	7	7,500	52,500	1,656	11,592	64,092	
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	3	8,386	25,158	2,132	6,396	31,554	
Sub - Total							365,997	

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

TECHIMAN NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	1,267	90	114,030	18	22,806	136,836
50 4-Wire, 0 - 20 degree angle	no.	72	96	6,912	18	1,296	8,208
51 4-Wire, 20 - 60 degree angle	no.	53	175	9,275	40	2,120	11,395
52 4-Wire, 60 - 90 heavy angle	no.	228	223	50,844	40	9,120	59,964
53 4-Wire, Terminal Pole	no.	659	86	56,674	25	16,475	73,149
54 4-Wire, Tee-Off	no.	339	125	42,375	35	11,865	54,240
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	2,630	21	55,230	15	39,450	94,680
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	71	45	3,195	21	1,491	4,686
57 LV Stay arrangement		1,055					
normal ground	no.	522	110	57,420	41	21,402	78,822
laterite ground	no.	256	110	28,160	65	16,640	44,800
rock ground	no.	277	110	30,470	78	21,606	52,076
58 50sqmm Al Conductor	km	370	951	352,087	450	166,603	518,689
59 8m LV poles		1,957					
normal ground	no.	976	226	220,576	76	74,176	294,752
laterite ground	no.	484	226	109,384	84	40,656	150,040
rock ground	no.	497	226	112,322	93	46,221	158,543
60 9m LV poles		209					
normal ground	no.	100	261	26,100	76	7,600	33,700
laterite ground	no.	46	261	12,006	84	3,864	15,870
rock ground	no.	63	261	16,443	93	5,859	22,302
61 LV Earthing, neutral conductor PME	no.	795	55	43,714	19	15,101	58,815
62 Survey & Preparation of Town Layout	km	93			500	46,279	46,279
63 Preparation of LV Designs	km	93			400	37,023	37,023
64 Preparation of As-Built Drawings	km	93			450	41,651	41,651
Sub - Total							1,996,520

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

TECHIMAN NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	2,630	204	536,520	66	173,580	710,100
66 3-Phase Electronic meter	no.	71	516	36,636	93	6,603	43,239
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	1,073	176	188,848	64	68,672	257,520
68 7m service pole		1,073					
normal ground	no.	534	195	104,130	65	34,710	138,840
laterite ground	no.	264	195	51,480	86	22,704	74,184
rock ground	no.	275	195	53,625	95	26,125	79,750
69 fiber glass meter box for outside use and complete with fixings	no.	1,073	97	104,081	35	37,555	141,636
						Sub - Total	1,445,269

TOTAL

Summary

33kV, 3-Phase Network	382,421
11kV, 3-Phase Network	971,367
Pole Mounted Transformer Substations	365,997
Low Voltage (LV) Networks	1,996,520
Service Connections	1,445,269
TOTAL	5,161,574

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

NKORANZA NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	714	250	178,500	60	42,840	221,340
2 0 - 20 degree Intermediate	no.	99	250	24,750	60	5,940	30,690
3 20 - 60 degree angle H Pole (MV)	no.	27	830	22,410	192	5,184	27,594
4 60 - 90 degree angle H Pole (HV)	no.	15	620	9,300	180	2,700	12,000
5 Section Pole with Drop-Out Fuses	no.	1	1,350	1,350	337	337	1,687
6 Section Pole for Mounting Load Isolator	no.	4	790	3,160	247	988	4,148
7 Tee-Off Pole	no.	13	1,629	21,177	398	5,174	26,351
8 H-Pole for Transformer (Terminal & Intermediate)	no.	19	1,506	28,614	354	6,726	35,340
9 Section Pole	no.	90	760	68,400	195	17,550	85,950
10 33kV, single stay equipment		461					
normal ground	no.	227	125	28,375	45	10,215	38,590
laterite ground	no.	109	125	13,625	65	7,085	20,710
rock ground	no.	125	125	15,625	85	10,625	26,250
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	221	2,350	519,596	583	128,904	648,500
13 3-Phase, 33kV Load Isolator	no.	4	3,980	15,920	950	3,800	19,720
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		418					
normal ground	no.	207	378	78,246	90	18,630	96,876
laterite ground	no.	100	378	37,800	96	9,600	47,400
rock ground	no.	111	378	41,958	109	12,099	54,057
17 HV Wooden Poles for 33kV Lines (11m)		311					
normal ground	no.	152	439	66,728	90	13,680	80,408
laterite ground	no.	73	439	32,047	96	7,008	39,055
rock ground	no.	86	439	37,754	109	9,374	47,128
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		332					

Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

NKORANZA NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.	163	1,250	203,750	90	14,670	218,420
laterite ground	no.	77	1,250	96,250	96	7,392	103,642
rock ground	no.	92	1,250	115,000	109	10,028	125,028
20 Line route survey	km	69			672	46,287	46,287
21 Bush Clearing	km	69			567	39,055	39,055
Sub - Total							2,096,227
11kV, 3-Phase Network							
22 Intermediate Pole	no.		145		38		
23 0 - 20 degree Intermediate	no.		210		38		
24 20 - 60 degree angle H Pole (MV)	no.		620		158		
25 60 - 90 degree angle H Pole (HV)	no.		590		153		
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.		720		198		
28 Tee-Off Pole	no.		1,169		279		
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350		
30 Section Pole	no.		580		155		
31 11kV, single stay equipment							
normal ground	no.		115		45		
laterite ground	no.		115		65		
rock ground	no.		115		85		
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km		2,350		583		
34 3-Phase, 11kV Load Isolator	no.		3,100		650		
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	kVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
38 HV Wooden Poles for 11kV Lines (11m)							
normal ground	no.		439		90		
laterite ground	no.		439		96		

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

NKORANZA NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)							
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
41 Line route survey	km				672		
42 Bush Clearing	km				567		
					Sub - Total		
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	12	8,220	98,640	1,719	20,628	119,268
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	9	9,870	88,830	2,145	19,305	108,135
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	5	11,230	56,150	2,789	13,945	70,095
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568		
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656		
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		
					Sub - Total		297,498

Sum

Price Schedules (Bill of Quantities)

BRONG AHAFO REGION

Name of Region

Name of District

NKORANZA NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	660	90	59,400	18	11,880	71,280
50 4-Wire, 0 - 20 degree angle	no.	49	96	4,704	18	882	5,586
51 4-Wire, 20 - 60 degree angle	no.	28	175	4,900	40	1,120	6,020
52 4-Wire, 60 - 90 heavy angle	no.	182	223	40,586	40	7,280	47,866
53 4-Wire, Terminal Pole	no.	549	86	47,214	25	13,725	60,939
54 4-Wire, Tee-Off	no.	175	125	21,875	35	6,125	28,000
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,820	21	38,220	15	27,300	65,520
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	49	45	2,205	21	1,029	3,234
57 LV Stay arrangement		893					
normal ground	no.	441	110	48,510	41	18,081	66,591
laterite ground	no.	216	110	23,760	65	14,040	37,800
rock ground	no.	236	110	25,960	78	18,408	44,368
58 50sqmm Al Conductor	km	247	951	235,049	450	111,222	346,271
59 8m LV poles		1,308					
normal ground	no.	644	226	145,544	76	48,944	194,488
laterite ground	no.	318	226	71,868	84	26,712	98,580
rock ground	no.	346	226	78,128	93	32,150	110,278
60 9m LV poles		145					
normal ground	no.	65	261	16,965	76	4,940	21,905
laterite ground	no.	27	261	7,047	84	2,268	9,315
rock ground	no.	53	261	13,911	93	4,957	18,868
61 LV Earthing, neutral conductor PME	no.	617	55	33,935	19	11,723	45,658
62 Survey & Preparation of Town Layout	km	62			500	30,895	30,895
63 Preparation of LV Designs	km	62			400	24,716	24,716
64 Preparation of As-Built Drawings	km	62			450	27,806	27,806
Sub - Total							1,365,984

Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

NKORANZA NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	1,820	204	371,280	66	120,120	491,400
66 3-Phase Electronic meter	no.	49	516	25,284	93	4,557	29,841
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	740	176	130,240	64	47,360	177,600
68 7m service pole		740					
normal ground	no.	367	195	71,565	65	23,855	95,420
laterite ground	no.	182	195	35,490	86	15,652	51,142
rock ground	no.	191	195	37,245	95	18,145	55,390
69 fiber glass meter box for outside use and complete with fixings	no.	740	97	71,780	35	25,900	97,680
						Sub - Total	998,473

TOTAL

Summary

33kV, 3-Phase Network	2,096,227
11kV, 3-Phase Network	297,498
Pole Mounted Transformer Substations	1,365,984
Low Voltage (LV) Networks	998,473
Service Connections	
TOTAL	4,758,182

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

DORMAA CENTRAL

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	333	250	83,250	60	19,980	103,230
2 0 - 20 degree Intermediate	no.	28	250	7,000	60	1,680	8,680
3 20 - 60 degree angle H Pole (MV)	no.	30	830	24,900	192	5,760	30,660
4 60 - 90 degree angle H Pole (HV)	no.	12	620	7,440	180	2,160	9,600
5 Section Pole with Drop-Out Fuses	no.	2	1,350	2,700	337	674	3,374
6 Section Pole for Mounting Load Isolator	no.	3	790	2,370	247	741	3,111
7 Tee-Off Pole	no.	8	1,629	13,032	398	3,184	16,216
8 H-Pole for Transformer (Terminal & Intermediate)	no.	9	1,506	13,554	354	3,186	16,740
9 Section Pole	no.	35	760	26,600	195	6,825	33,425
10 33kV, single stay equipment		314					
normal ground	no.	155	125	19,375	45	6,975	26,350
laterite ground	no.	75	125	9,375	65	4,875	14,250
rock ground	no.	84	125	10,500	85	7,140	17,640
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	112	2,350	264,173	583	65,537	329,711
13 3-Phase, 33kV Load Isolator	no.	3	3,980	11,940	950	2,850	14,790
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		210					
normal ground	no.	104	378	39,312	90	9,360	48,672
laterite ground	no.	50	378	18,900	96	4,800	23,700
rock ground	no.	56	378	21,168	109	6,104	27,272
17 HV Wooden Poles for 33kV Lines (11m)		156					
normal ground	no.	76	439	33,364	90	6,840	40,204
laterite ground	no.	36	439	15,804	96	3,456	19,260
rock ground	no.	44	439	19,316	109	4,796	24,112
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		167					

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

DORMAA CENTRAL

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
normal ground	no.	82	1,250	102,500	90	7,380	109,880
laterite ground	no.	38	1,250	47,500	96	3,648	51,148
rock ground	no.	47	1,250	58,750	109	5,123	63,873
20 Line route survey	km	35			672	23,533	23,533
21 Bush Clearing	km	35			567	19,856	19,856
Sub - Total							1,079,288
11kV, 3-Phase Network							
22 Intermediate Pole	no.		145		38		
23 0 - 20 degree Intermediate	no.		210		38		
24 20 - 60 degree angle H Pole (MV)	no.		620		158		
25 60 - 90 degree angle H Pole (HV)	no.		590		153		
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.		720		198		
28 Tee-Off Pole	no.		1,169		279		
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350		
30 Section Pole	no.		580		155		
31 11kV, single stay equipment							
normal ground	no.		115		45		
laterite ground	no.		115		65		
rock ground	no.		115		85		
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km		2,350		583		
34 3-Phase, 11kV Load Isolator	no.		3,100		650		
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	KVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
38 HV Wooden Poles for 11kV Lines (11m)							
normal ground	no.		439		90		
laterite ground	no.		439		96		

Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

DORMAA CENTRAL

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)							
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
41 Line route survey	km				672		
42 Bush Clearing	km				567		

Sub - Total

Pole Mounted Transformer Substations

43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	6	8,220	49,320	1,719	10,314	59,634
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	3	9,870	29,610	2,145	6,435	36,045
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	1	11,230	11,230	2,789	2,789	14,019
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568		
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656		
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		

Sub - Total

109,698

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Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

DORMAA CENTRAL

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	268	90	24,120	18	4,824	28,944
50 4-Wire, 0 - 20 degree angle	no.	14	96	1,344	18	252	1,596
51 4-Wire, 20 - 60 degree angle	no.	11	175	1,925	40	440	2,365
52 4-Wire, 60 - 90 heavy angle	no.	23	223	5,129	40	920	6,049
53 4-Wire, Terminal Pole	no.	77	86	6,622	25	1,925	8,547
54 4-Wire, Tee-Off	no.	28	125	3,500	35	980	4,480
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	640	21	13,440	15	9,600	23,040
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	15	45	675	21	315	990
57 LV Stay arrangement		175					
normal ground	no.	85	110	9,350	41	3,485	12,835
laterite ground	no.	41	110	4,510	65	2,665	7,175
rock ground	no.	49	110	5,390	78	3,822	9,212
58 50sqmm Al Conductor	km	69	951	65,429	450	30,960	96,389
59 8m LV poles		360					
normal ground	no.	176	226	39,776	76	13,376	53,152
laterite ground	no.	85	226	19,210	84	7,140	26,350
rock ground	no.	99	226	22,374	93	9,207	31,581
60 9m LV poles		40					
normal ground	no.	15	261	3,915	76	1,140	5,055
laterite ground	no.	4	261	1,044	84	336	1,380
rock ground	no.	21	261	5,481	93	1,953	7,434
61 LV Earthing, neutral conductor PME	no.	123	55	6,765	19	2,337	9,102
62 Survey & Preparation of Town Layout	km	17			500	8,600	8,600
63 Preparation of LV Designs	km	17			400	6,880	6,880
64 Preparation of As-Built Drawings	km	17			450	7,740	7,740
Sub - Total							358,896

Sum

Price Schedules (Bill of Quantities)

Name of Region

BRONG AHAFO REGION

Name of District

DORMAA CENTRAL

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	640	204	130,560	66	42,240	172,800
66 3-Phase Electronic meter	no.	15	516	7,740	93	1,395	9,135
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	257	176	45,232	64	16,448	61,680
68 7m service pole		257					
normal ground	no.	128	195	24,960	65	8,320	33,280
laterite ground	no.	64	195	12,480	86	5,504	17,984
rock ground	no.	65	195	12,675	95	6,175	18,850
69 fiber glass meter box for outside use and complete with fixings	no.	257	97	24,929	35	8,995	33,924
						Sub - Total	347,653

TOTAL

Summary

33kV, 3-Phase Network	1,079,288
11kV, 3-Phase Network	
Pole Mounted Transformer Substations	109,698
Low Voltage (LV) Networks	358,896
Service Connections	347,653
TOTAL	1,895,534

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TOTAL AMOUNT OF SELF-HELP ELECTRIFICATION PROGRAMME IN FIVE REGIONS-PHASE 2

Name of Region EASTERN REGION

Name of District Total(Sub-total+3.5% of Contingency+2.5% Implementation)

Summary

<u>33kV, 3-Phase Network</u>	<u>US\$ 1,546,837</u>
<u>11kV, 3-Phase Network</u>	<u>US\$ 1,040,454</u>
<u>Pole Mounted Transformer Substations</u>	<u>US\$ 552,037</u>
<u>Low Voltage (LV) Networks</u>	<u>US\$ 1,572,274</u>
<u>Service Connections</u>	<u>US\$ 1,819,992</u>
<u>Sub-total</u>	<u>US\$ 6,531,594</u>
<u>Contingency (3.5%) =</u>	<u>US\$ 228,606</u>
<u>Implementation Unit (2.5%) =</u>	<u>US\$ 163,290</u>
<u>Total Amount</u>	<u>US\$ 6,923,490</u>

Sum
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Price Schedules (Bill of Quantities)

Name of Region

EASTERN

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	405	250	101,250	60	24,300	125,550
2 0 - 20 degree Intermediate	no.	65	250	16,250	60	3,900	20,150
3 20 - 60 degree angle H Pole (MV)	no.	38	830	31,540	192	7,296	38,836
4 60 - 90 degree angle H Pole (HV)	no.	6	620	3,720	180	1,080	4,800
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	2	790	1,580	247	494	2,074
7 Fused Tee off	no.	27	1,629	43,983	398	10,746	54,729
8 H-Pole for Transformer (Terminal & Intermediate)	no.	34	1,506	51,204	354	12,036	63,240
9 Section Pole	no.	26	760	19,760	195	5,070	24,830
10 33kV, single stay equipment		415					
normal ground	no.	201	125	25,125	45	9,045	34,170
laterite ground	no.	94	125	11,750	65	6,110	17,860
rock ground	no.	120	125	15,000	85	10,200	25,200
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	188	2,350	441,687	583	109,576	551,263
13 3-Phase, 33kV Load Isolator	no.	2	3,980	7,960	950	1,900	9,860
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		199					
normal ground	no.	96	378	36,288	90	8,640	44,928
laterite ground	no.	43	378	16,254	96	4,128	20,382
rock ground	no.	60	378	22,680	109	6,540	29,220
17 HV Wooden Poles for 33kV Lines (11m)		370					
normal ground	no.	175	439	76,825	90	15,750	92,575
laterite ground	no.	79	439	34,681	96	7,584	42,265
rock ground	no.	116	439	50,924	109	12,644	63,568
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
19 HV Steel Poles for 33kV Lines (11m)		155					
normal ground	no.	75	1,250	93,750	90	6,750	100,500
laterite ground	no.	33	1,250	41,250	96	3,168	44,418
rock ground	no.	47	1,250	58,750	109	5,123	63,873
20 Line route survey	km	59			672	39,347	39,347
21 Bush Clearing	km	59			567	33,198	33,198
11kV, 3-Phase Network					Sub - Total		1,546,837
22 Intermediate Pole	no.	273	145	39,585	38	10,374	49,959
23 0 - 20 degree Intermediate	no.	53	210	11,130	38	2,014	13,144
24 20 - 60 degree angle H Pole (MV)	no.	9	620	5,580	158	1,422	7,002
25 60 - 90 degree angle H Pole (HV)	no.	29	590	17,110	153	4,437	21,547
26 Section Pole with Drop-Out Fuses	no.	1	980	980	248	248	1,228
27 Section Pole for Mounting Load Isolator	no.	1	720	720	198	198	918
28 Fused Tee off	no.	11	1,169	12,859	279	3,069	15,928
29 H-Pole for Transformer (Terminal & Intermediate)	no.	22	1,350	29,700	350	7,700	37,400
30 Section Pole	no.	6	580	3,480	155	930	4,410
31 11kV, single stay equipment		269					
normal ground	no.	130	115	14,950	45	5,850	20,800
laterite ground	no.	61	115	7,015	65	3,965	10,980
rock ground	no.	78	115	8,970	85	6,630	15,600
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km	100	2,350	235,591	583	58,447	294,038
34 3-Phase, 11kV Load Isolator	no.	1	3,100	3,100	650	650	3,750
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	KVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)		44					
normal ground	no.	18	378	6,804	90	1,620	8,424
laterite ground	no.	4	378	1,512	96	384	1,896
rock ground	no.	22	378	8,316	109	2,398	10,714
38 HV Wooden Poles for 11kV Lines (11m)		109					

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.	53	439	23,267	90	4,770	28,037
laterite ground	no.	22	439	9,658	96	2,112	11,770
rock ground	no.	34	439	14,926	109	3,706	18,632
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)		316					
normal ground	no.	154	1,250	192,500	90	13,860	206,360
laterite ground	no.	72	1,250	90,000	96	6,912	96,912
rock ground	no.	90	1,250	112,500	109	9,810	122,310
41 Line route survey	km	31			672	20,987	20,987
42 Bush Clearing		31			567	17,708	17,708
Sub - Total							1,040,454
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	29	8,220	238,380	1,719	49,851	288,231
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	5	9,870	49,350	2,145	10,725	60,075
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	1	11,230	11,230	2,789	2,789	14,019
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	14	6,459	90,426	1,568	21,952	112,378
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	5	7,500	37,500	1,656	8,280	45,780
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	3	8,386	25,158	2,132	6,396	31,554
Sub - Total							552,037

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	655	90	58,950	18	11,790	70,740
50 4-Wire, 0 - 20 degree angle	no.	95	96	9,120	18	1,710	10,830
51 4-Wire, 20 - 60 degree angle	no.	49	175	8,575	40	1,960	10,535
52 4-Wire, 60 - 90 heavy angle	no.	87	223	19,401	40	3,480	22,881
53 4-Wire, Terminal Pole	no.	462	86	39,732	25	11,550	51,282
54 4-Wire, Tee-Off	no.	280	125	35,000	35	9,800	44,800
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	3,350	21	70,350	15	50,250	120,600
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	77	45	3,465	21	1,617	5,082
57 LV Stay arrangement		947					
normal ground	no.	459	110	50,490	41	18,819	69,309
laterite ground	no.	215	110	23,650	65	13,975	37,625
rock ground	no.	273	110	30,030	78	21,294	51,324
58 50sqmm Al Conductor	km	300	951	285,553	450	135,120	420,673
59 8m LV poles		1,162					
normal ground	no.	571	226	129,046	76	43,396	172,442
laterite ground	no.	273	226	61,698	84	22,932	84,630
rock ground	no.	318	226	71,868	93	29,574	101,442
60 9m LV poles		439					
normal ground	no.	204	261	53,244	76	15,504	68,748
laterite ground	no.	87	261	22,707	84	7,308	30,015
rock ground	no.	148	261	38,628	93	13,764	52,392
61 LV Earthing, neutral conductor PME	no.	616	55	33,880	19	11,704	45,584
62 Survey & Preparation of Town Layout	km	75			500	37,533	37,533
63 Preparation of LV Designs	km	75			400	30,027	30,027
64 Preparation of As-Built Drawings	km	75			450	33,780	33,780
Sub - Total							1,572,274

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	3,350	204	683,400	66	221,100	904,500
66 3-Phase Electronic meter	no.	77	516	39,732	93	7,161	46,893
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	1,347	176	237,072	64	86,208	323,280
68 7m service pole normal ground	no.	670	195	130,650	65	43,550	174,200
laterite ground	no.	335	195	65,325	86	28,810	94,135
rock ground	no.	342	195	66,690	95	32,490	99,180
69 fiber glass meter box for outside use and complete with fixings	no.	1,347	97	130,659	35	47,145	177,804
Sub - Total							1,819,992
TOTAL							
Summary							
33kV, 3-Phase Network							1,546,837
11kV, 3-Phase Network							1,040,454
Pole Mounted Transformer Substations							552,037
Low Voltage (LV) Networks							1,572,274
Service Connections							1,819,992
Total							6,531,594

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

AKUAPIM SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	145	250	36,250	60	8,700	44,950
2 0 - 20 degree Intermediate	no.	13	250	3,250	60	780	4,030
3 20 - 60 degree angle H Pole (MV)	no.	12	830	9,960	192	2,304	12,264
4 60 - 90 degree angle H Pole (HV)	no.	5	620	3,100	180	900	4,000
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.		790		247		
7 Tee-Off Pole	no.	2	1,629	3,258	398	796	4,054
8 H-Pole for Transformer (Terminal & Intermediate)	no.	7	1,506	10,542	354	2,478	13,020
9 Section Pole	no.	1	760	760	195	195	955
10 33kV, single stay equipment		101					
normal ground	no.	49	125	6,125	45	2,205	8,330
laterite ground	no.	23	125	2,875	65	1,495	4,370
rock ground	no.	29	125	3,625	85	2,465	6,090
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	55	2,350	128,994	583	32,001	160,995
13 3-Phase, 33kV Load Isolator	no.		3,980		950		
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	KVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
17 HV Wooden Poles for 33kV Lines (11m)		213					
normal ground	no.	105	439	46,095	90	9,450	55,545
laterite ground	no.	52	439	22,828	96	4,992	27,820
rock ground	no.	56	439	24,584	109	6,104	30,688
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)							

Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

AKUAPIM SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
20 Line route survey	km	17			672	11,491	11,491
21 Bush Clearing	km	17			567	9,696	9,696
						Sub - Total	398,298
11kV, 3-Phase Network							
22 Intermediate Pole	no.		145		38		
23 0 - 20 degree Intermediate	no.		210		38		
24 20 - 60 degree angle H Pole (MV)	no.		620		158		
25 60 - 90 degree angle H Pole (HV)	no.		590		153		
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.		720		198		
28 Tee-Off Pole	no.		1,169		279		
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350		
30 Section Pole	no.		580		155		
31 11kV, single stay equipment							
normal ground	no.		115		45		
laterite ground	no.		115		65		
rock ground	no.		115		85		
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km		2,350		583		
34 3-Phase, 11kV Load Isolator	no.		3,100		650		
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	KVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
38 HV Wooden Poles for 11kV Lines (11m)							
normal ground	no.		439		90		
laterite ground	no.		439		96		

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

AKUAPIM SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)							
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
41 Line route survey	km				672		
42 Bush Clearing	km				567		
Sub - Total							
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	4	8,220	32,880	1,719	6,876	39,756
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	2	9,870	19,740	2,145	4,290	24,030
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	1	11,230	11,230	2,789	2,789	14,019
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568		
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656		
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		
Sub - Total							77,805

Sum

Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

AKUAPIM SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	141	90	12,690	18	2,538	15,228
50 4-Wire, 0 - 20 degree angle	no.	9	96	864	18	162	1,026
51 4-Wire, 20 - 60 degree angle	no.	8	175	1,400	40	320	1,720
52 4-Wire, 60 - 90 heavy angle	no.	3	223	669	40	120	789
53 4-Wire, Terminal Pole	no.	73	86	6,278	25	1,825	8,103
54 4-Wire, Tee-Off	no.	47	125	5,875	35	1,645	7,520
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	460	21	9,660	15	6,900	16,560
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	11	45	495	21	231	726
57 LV Stay arrangement		106					
normal ground	no.	52	110	5,720	41	2,132	7,852
laterite ground	no.	24	110	2,640	65	1,560	4,200
rock ground	no.	30	110	3,300	78	2,340	5,640
58 50sqmm Al Conductor	km	50	951	47,862	450	22,648	70,510
59 8m LV poles		156					
normal ground	no.	76	226	17,176	76	5,776	22,952
laterite ground	no.	37	226	8,362	84	3,108	11,470
rock ground	no.	43	226	9,718	93	3,999	13,717
60 9m LV poles		115					
normal ground	no.	55	261	14,355	76	4,180	18,535
laterite ground	no.	26	261	6,786	84	2,184	8,970
rock ground	no.	34	261	8,874	93	3,162	12,036
61 LV Earthing, neutral conductor PME	no.	96	55	5,280	19	1,824	7,104
62 Survey & Preparation of Town Layout	km	13			500	6,291	6,291
63 Preparation of LV Designs	km	13			400	5,033	5,033
64 Preparation of As-Built Drawings	km	13			450	5,662	5,662
Sub - Total							251,643

Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

AKUAPIM SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	460	204	93,840	66	30,360	124,200
66 3-Phase Electronic meter	no.	11	516	5,676	93	1,023	6,699
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	185	176	32,560	64	11,840	44,400
68 7m service pole		185					
normal ground	no.	92	195	17,940	65	5,980	23,920
laterite ground	no.	46	195	8,970	86	3,956	12,926
rock ground	no.	47	195	9,165	95	4,465	13,630
69 fiber glass meter box for outside use and complete with fixings	no.	185	97	17,945	35	6,475	24,420
Sub - Total							250,195

TOTAL

Summary

33kV, 3-Phase Network	398,298
11kV, 3-Phase Network	
Pole Mounted Transformer Substations	77,805
Low Voltage (LV) Networks	251,643
Service Connections	250,195
TOTAL	977,941

Signature

Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

DENKYEMBOUR

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	152	250	38,000	60	9,120	47,120
2 0 - 20 degree Intermediate	no.	22	250	5,500	60	1,320	6,820
3 20 - 60 degree angle H Pole (MV)	no.	17	830	14,110	192	3,264	17,374
4 60 - 90 degree angle H Pole (HV)	no.		620		180		
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	1	790	790	247	247	1,037
7 Tee-Off Pole	no.	16	1,629	26,064	398	6,368	32,432
8 H-Pole for Transformer (Terminal & Intermediate)	no.	18	1,506	27,108	354	6,372	33,480
9 Section Pole	no.	13	760	9,880	195	2,535	12,415
10 33kV, single stay equipment		184					
normal ground	no.	89	125	11,125	45	4,005	15,130
laterite ground	no.	41	125	5,125	65	2,665	7,790
rock ground	no.	54	125	6,750	85	4,590	11,340
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	69	2,350	161,129	583	39,974	201,103
13 3-Phase, 33kV Load Isolator	no.	1	3,980	3,980	950	950	4,930
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		116					
normal ground	no.	57	378	21,546	90	5,130	26,676
laterite ground	no.	25	378	9,450	96	2,400	11,850
rock ground	no.	34	378	12,852	109	3,706	16,558
17 HV Wooden Poles for 33kV Lines (11m)		80					
normal ground	no.	34	439	14,926	90	3,060	17,986
laterite ground	no.	11	439	4,829	96	1,056	5,885
rock ground	no.	35	439	15,365	109	3,815	19,180
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		72					

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

DENKYEMBOUR

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
normal ground	no.	36	1,250	45,000	90	3,240	48,240
laterite ground	no.	15	1,250	18,750	96	1,440	20,190
rock ground	no.	21	1,250	26,250	109	2,289	28,539
20 Line route survey	km	21			672	14,354	14,354
21 Bush Clearing	km	21			567	12,111	12,111
11kV, 3-Phase Network					Sub - Total		612,540
22 Intermediate Pole	no.		145		38		
23 0 - 20 degree Intermediate	no.		210		38		
24 20 - 60 degree angle H Pole (MV)	no.		620		158		
25 60 - 90 degree angle H Pole (HV)	no.		590		153		
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.		720		198		
28 Tee-Off Pole	no.		1,169		279		
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350		
30 Section Pole	no.		580		155		
31 11kV, single stay equipment							
normal ground	no.		115		45		
laterite ground	no.		115		65		
rock ground	no.		115		85		
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km		2,350		583		
34 3-Phase, 11kV Load Isolator	no.		3,100		650		
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	KVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
38 HV Wooden Poles for 11kV Lines (11m)							
normal ground	no.		439		90		
laterite ground	no.		439		96		

Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

DENKYEMBOUR

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
39 HV Steel Poles for 11kV Lines (10m) rock ground	no.		439		109		
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m) normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
41 Line route survey	km				672		
42 Bush Clearing	km				567		
					Sub - Total		
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	16	8,220	131,520	1,719	27,504	159,024
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	3	9,870	29,610	2,145	6,435	36,045
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		11,230		2,789		
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568		
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656		
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		
					Sub - Total		195,069

Sum

Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

DENKYEMBOUR

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	139	90	12,510	18	2,502	15,012
50 4-Wire, 0 - 20 degree angle	no.	16	96	1,536	18	288	1,824
51 4-Wire, 20 - 60 degree angle	no.	19	175	3,325	40	760	4,085
52 4-Wire, 60 - 90 heavy angle	no.	6	223	1,338	40	240	1,578
53 4-Wire, Terminal Pole	no.	119	86	10,234	25	2,975	13,209
54 4-Wire, Tee-Off	no.	68	125	8,500	35	2,380	10,880
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,040	21	21,840	15	15,600	37,440
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	22	45	990	21	462	1,452
57 LV Stay arrangement		197					
normal ground	no.	94	110	10,340	41	3,854	14,194
laterite ground	no.	43	110	4,730	65	2,795	7,525
rock ground	no.	60	110	6,600	78	4,680	11,280
58 50sqmm Al Conductor	km	73	951	69,711	450	32,986	102,697
59 8m LV poles		209					
normal ground	no.	101	226	22,826	76	7,676	30,502
laterite ground	no.	45	226	10,170	84	3,780	13,950
rock ground	no.	63	226	14,238	93	5,859	20,097
60 9m LV poles		146					
normal ground	no.	67	261	17,487	76	5,092	22,579
laterite ground	no.	29	261	7,569	84	2,436	10,005
rock ground	no.	50	261	13,050	93	4,650	17,700
61 LV Earthing, neutral conductor PME	no.	170	55	9,350	19	3,230	12,580
62 Survey & Preparation of Town Layout	km	18			500	9,163	9,163
63 Preparation of LV Designs	km	18			400	7,330	7,330
64 Preparation of As-Built Drawings	km	18			450	8,247	8,247
Sub - Total							373,328

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

DENKYEMBOUR

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
Service Connections							
65	no.	1,040	204	212,160	66	68,640	280,800
66	no.	22	516	11,352	93	2,046	13,398
67	no.	417	176	73,392	64	26,688	100,080
68	no.	417					
	no.	208	195	40,560	65	13,520	54,080
	no.	104	195	20,280	86	8,944	29,224
	no.	105	195	20,475	95	9,975	30,450
69	no.	417	97	40,449	35	14,595	55,044
					Sub - Total		563,076

TOTAL

Summary

33kV, 3-Phase Network	612,540
11kV, 3-Phase Network	
Pole Mounted Transformer Substations	195,069
Low Voltage (LV) Networks	373,328
Service Connections	563,076
TOTAL	1,744,013

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

BIRIM NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	89	250	22,250	60	5,340	27,590
2 0 - 20 degree Intermediate	no.	29	250	7,250	60	1,740	8,990
3 20 - 60 degree angle H Pole (MV)	no.	9	830	7,470	192	1,728	9,198
4 60 - 90 degree angle H Pole (HV)	no.	1	620	620	180	180	800
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	1	790	790	247	247	1,037
7 Tee-Off Pole	no.	8	1,629	13,032	398	3,184	16,216
8 H-Pole for Transformer (Terminal & Intermediate)	no.	7	1,506	10,542	354	2,478	13,020
9 Section Pole	no.	10	760	7,600	195	1,950	9,550
10 33kV, single stay equipment		119					
normal ground	no.	58	125	7,250	45	2,610	9,860
laterite ground	no.	28	125	3,500	65	1,820	5,320
rock ground	no.	33	125	4,125	85	2,805	6,930
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	57	2,350	134,229	583	33,300	167,529
13 3-Phase, 33kV Load Isolator	no.	1	3,980	3,980	950	950	4,930
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	KVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		83					
normal ground	no.	39	378	14,742	90	3,510	18,252
laterite ground	no.	18	378	6,804	96	1,728	8,532
rock ground	no.	26	378	9,828	109	2,834	12,662
17 HV Wooden Poles for 33kV Lines (11m)		48					
normal ground	no.	22	439	9,658	90	1,980	11,638
laterite ground	no.	10	439	4,390	96	960	5,350
rock ground	no.	16	439	7,024	109	1,744	8,768
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		83					

Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

BIRIM NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
normal ground	no.	39	1,250	48,750	90	3,510	52,260	
laterite ground	no.	18	1,250	22,500	96	1,728	24,228	
rock ground	no.	26	1,250	32,500	109	2,834	35,334	
20 Line route survey	km	18			672	11,958	11,958	
21 Bush Clearing	km	18			567	10,089	10,089	
Sub - Total							480,041	
11kV, 3-Phase Network								
22 Intermediate Pole	no.		145		38			
23 0 - 20 degree Intermediate	no.		210		38			
24 20 - 60 degree angle H Pole (MV)	no.		620		158			
25 60 - 90 degree angle H Pole (HV)	no.		590		153			
26 Section Pole with Drop-Out Fuses	no.		980		248			
27 Section Pole for Mounting Load Isolator	no.		720		198			
28 Tee-Off Pole	no.		1,169		279			
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350			
30 Section Pole	no.		580		155			
31 11kV, single stay equipment								
normal ground	no.		115		45			
laterite ground	no.		115		65			
rock ground	no.		115		85			
32 11kV, flying stay equipment	no.							
33 120sqmm Al Conductor	km		2,350		583			
34 3-Phase, 11kV Load Isolator	no.		3,100		650			
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980			
36 11kV Shunt Capacitor	KVAR		6		3			
37 HV Wooden Poles for 11kV Lines (10m)								
normal ground	no.		378		90			
laterite ground	no.		378		96			
rock ground	no.		378		109			
38 HV Wooden Poles for 11kV Lines (11m)								
normal ground	no.		439		90			
laterite ground	no.		439		96			

Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

BIRIM NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
39 HV Steel Poles for 11kV Lines (10m)	no.		439		109			
rock ground								
normal ground	no.		1,100		90			
laterite ground	no.		1,100		96			
rock ground	no.		1,100		109			
40 HV Steel Poles for 11kV Lines (11m)								
normal ground	no.		1,250		90			
laterite ground	no.		1,250		96			
rock ground	no.		1,250		109			
41 Line route survey	km				672			
42 Bush Clearing	km				567			
					Sub - Total			
Pole Mounted Transformer Substations								
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	7	8,220	57,540	1,719	12,033	69,573	
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		9,870		2,145			
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		11,230		2,789			
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568			
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656			
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132			
					Sub - Total			69,573

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

BIRIM NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local	Local		
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)		
Low Voltage (LV) Networks								
49	4-Wire, Intermediate (Type A)	no.	18	90	1,620	18	324	1,944
50	4-Wire, 0 - 20 degree angle	no.	3	96	288	18	54	342
51	4-Wire, 20 - 60 degree angle	no.		175		40		
52	4-Wire, 60 - 90 heavy angle	no.	4	223	892	40	160	1,052
53	4-Wire, Terminal Pole	no.	50	86	4,300	25	1,250	5,550
54	4-Wire, Tee-Off	no.	23	125	2,875	35	805	3,680
55	Service Tee-Off, 1-Phase (excluding pole structure)	no.	350	21	7,350	15	5,250	12,600
56	Service Tee-Off, 3-Phase (excluding pole structure)	no.	7	45	315	21	147	462
57	LV Stay arrangement		63					
	normal ground	no.	30	110	3,300	41	1,230	4,530
	laterite ground	no.	13	110	1,430	65	845	2,275
	rock ground	no.	20	110	2,200	78	1,560	3,760
58	50sqmm Al Conductor	km	15	951	14,489	450	6,856	21,346
59	8m LV poles		64					
	normal ground	no.	31	226	7,006	76	2,356	9,362
	laterite ground	no.	15	226	3,390	84	1,260	4,650
	rock ground	no.	18	226	4,068	93	1,674	5,742
60	9m LV poles		27					
	normal ground	no.	11	261	2,871	76	836	3,707
	laterite ground	no.	4	261	1,044	84	336	1,380
	rock ground	no.	12	261	3,132	93	1,116	4,248
61	LV Earthing, neutral conductor PME	no.	54	55	2,970	19	1,026	3,996
62	Survey & Preparation of Town Layout	km	4			500	1,905	1,905
63	Preparation of LV Designs	km	4			400	1,524	1,524
64	Preparation of As-Built Drawings	km	4			450	1,714	1,714
Sub - Total								95,768

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

BIRIM NORTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	350	204	71,400	66	23,100	94,500
66 3-Phase Electronic meter	no.	7	516	3,612	93	651	4,263
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	140	176	24,640	64	8,960	33,600
68 7m service pole normal ground	no.	140					
	no.	70	195	13,650	65	4,550	18,200
	no.	35	195	6,825	86	3,010	9,835
	no.	35	195	6,825	95	3,325	10,150
69 fiber glass meter box for outside use and complete with fixings	no.	140	97	13,580	35	4,900	18,480

Sub - Total 189,028

TOTAL

Summary

33kV, 3-Phase Network	480,041
11kV, 3-Phase Network	
Pole Mounted Transformer Substations	69,573
Low Voltage (LV) Networks	95,768
Service Connections	189,028

TOTAL 834,410

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

KWAEBIRIREM

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	19	250	4750	60	1140	5,890.00
2 0 - 20 degree Intermediate	no.	1	250	250	60	60	310.00
3 20 - 60 degree angle H Pole (MV)	no.		830		192		-
4 60 - 90 degree angle H Pole (HV)	no.		620		180		-
5 Section Pole with Drop-Out Fuses	no.		1350		337		-
6 Section Pole for Mounting Load Isolator	no.		790		247		-
7 Tee-Off Pole	no.	1	1629	1629	398	398	2,027.00
8 H-Pole for Transformer (Terminal & Intermediate)	no.	2	1506	3012	354	708	3,720.00
9 Section Pole	no.	2	760	1520	195	390	1,910.00
10 33kV, single stay equipment		11					-
normal ground	no.	5	125	625	45	225	850.00
laterite ground	no.	2	125	250	65	130	380.00
rock ground	no.	4	125	500	85	340	840.00
11 33kV, flying stay equipment	no.						-
12 120sqmm Al Conductor	km	7	2350	17334.963	583	4300.54614	21,635.51
13 3-Phase, 33kV Load Isolator	no.		3980		950		-
14 3-Phase, 33kV Auto Recloser	no.		21887		3880		-
15 33kV Shunt Capacitor	kVAR	7			3		-
16 HV Wooden Poles for 33kV Lines (10m)							-
normal ground	no.		378		90		-
laterite ground	no.		378		96		-
rock ground	no.		378		109		-
17 HV Wooden Poles for 33kV Lines (11m)		29					-
normal ground	no.	14	439	6146	90	1260	7,406.00
laterite ground	no.	6	439	2634	96	576	3,210.00
rock ground	no.	9	439	3951	109	981	4,932.00
18 HV Steel Poles for 33kV Lines (10m)							-
normal ground	no.		1100		90		-
laterite ground	no.		1100		96		-
rock ground	no.		1100		109		-
19 HV Steel Poles for 33kV Lines (11m)							-

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

KWAEBIRIREM

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
normal ground	no.		1250		90		-
laterite ground	no.		1250		96		-
rock ground	no.		1250		109		-
20 Line route survey	km	2			672	1544.256	1,544.26
21 Bush Clearing	km	2			567	1302.966	1,302.97
11kV, 3-Phase Network					Sub - Total		55,957.73
22 Intermediate Pole	no.		145		38		-
23 0 - 20 degree Intermediate	no.		210		38		-
24 20 - 60 degree angle H Pole (MV)	no.		620		158		-
25 60 - 90 degree angle H Pole (HV)	no.		590		153		-
26 Section Pole with Drop-Out Fuses	no.		980		248		-
27 Section Pole for Mounting Load Isolator	no.		720		198		-
28 Tee-Off Pole	no.		1169		279		-
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1350		350		-
30 Section Pole	no.		580		155		-
31 11kV, single stay equipment							-
normal ground	no.		115		45		-
laterite ground	no.		115		65		-
rock ground	no.		115		85		-
32 11kV, flying stay equipment	no.						-
33 120sqmm Al Conductor	km		2350		583		-
34 3-Phase, 11kV Load Isolator	no.		3100		650		-
35 3-Phase, 11kV Auto Recloser	no.		19950		3980		-
36 11kV Shunt Capacitor	KVAR		6		3		-
37 HV Wooden Poles for 11kV Lines (10m)							-
normal ground	no.		378		90		-
laterite ground	no.		378		96		-
rock ground	no.		378		109		-
38 HV Wooden Poles for 11kV Lines (11m)							-
normal ground	no.		439		90		-
laterite ground	no.		439		96		-

Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

KWAEBIRIREM

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		-
39 HV Steel Poles for 11kV Lines (10m)							-
normal ground	no.		1100		90		-
laterite ground	no.		1100		96		-
rock ground	no.		1100		109		-
40 HV Steel Poles for 11kV Lines (11m)							-
normal ground	no.		1250		90		-
laterite ground	no.		1250		96		-
rock ground	no.		1250		109		-
41 Line route survey	km				672		-
42 Bush Clearing	km				567		-
						Sub - Total	-
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	2	8220	16440	1719	3438	19,878.00
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		9870		2145		-
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		11230		2789		-
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6459		1568		-
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7500		1656		-
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8386		2132		-
						Sub - Total	19,878.00

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

KWAEBIRIREM

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	9	90	810	18	162	972.00
50 4-Wire, 0 - 20 degree angle	no.	2	96	192	18	36	228.00
51 4-Wire, 20 - 60 degree angle	no.	2	175	350	40	80	430.00
52 4-Wire, 60 - 90 heavy angle	no.	1	223	223	40	40	263.00
53 4-Wire, Terminal Pole	no.	10	86	860	25	250	1,110.00
54 4-Wire, Tee-Off	no.	4	125	500	35	140	640.00
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	100	21	2100	15	1500	3,600.00
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	2	45	90	21	42	132.00
57 LV Stay arrangement		17					-
normal ground	no.	8	110	880	41	328	1,208.00
laterite ground	no.	4	110	440	65	260	700.00
rock ground	no.	5	110	550	78	390	940.00
58 50sqmm Al Conductor	km	6	951	5686.98	450	2691	8,377.98
59 8m LV poles		12					-
normal ground	no.	5	226	1130	76	380	1,510.00
laterite ground	no.	2	226	452	84	168	620.00
rock ground	no.	5	226	1130	93	465	1,595.00
60 9m LV poles		13					-
normal ground	no.	6	261	1566	76	456	2,022.00
laterite ground	no.	2	261	522	84	168	690.00
rock ground	no.	5	261	1305	93	465	1,770.00
61 LV Earthing, neutral conductor PME	no.	13	55	715	19	247	962.00
62 Survey & Preparation of Town Layout	km	1			500	747.5	747.50
63 Preparation of LV Designs	km	1			400	598	598.00
64 Preparation of As-Built Drawings	km	1			450	672.75	672.75
Sub - Total							29,788.23

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

KWAEBIRIREM

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	100	204	20400	66	6600	27,000.00
66 3-Phase Electronic meter	no.	2	516	1032	93	186	1,218.00
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	40	176	7040	64	2560	9,600.00
68 7m service pole		40					-
normal ground	no.	20	195	3900	65	1300	5,200.00
laterite ground	no.	10	195	1950	86	860	2,810.00
rock ground	no.	10	195	1950	95	950	2,900.00
69 fiber glass meter box for outside use and complete with fixings	no.	40	97	3880	35	1400	5,280.00
						Sub - Total	54,008.00

TOTAL

Summary

33kV, 3-Phase Network	55,957.73
11kV, 3-Phase Network	-
Pole Mounted Transformer Substations	19,878.00
Low Voltage (LV) Networks	29,788.23
Service Connections	54,008.00
TOTAL	169,631.96

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

LOWER WEST AKIM

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	0	250	0	60	0	-
2 0 - 20 degree Intermediate	no.	0	250	0	60	0	-
3 20 - 60 degree angle H Pole (MV)	no.	0	830	0	192	0	-
4 60 - 90 degree angle H Pole (HV)	no.	0	620	0	180	0	-
5 Section Pole with Drop-Out Fuses	no.	0	1350	0	337	0	-
6 Section Pole for Mounting Load Isolator	no.	0	790	0	247	0	-
7 Tee-Off Pole	no.	0	1629	0	398	0	-
8 H-Pole for Transformer (Terminal & Intermediate)	no.	0	1506	0	354	0	-
9 Section Pole	no.	0	760	0	195	0	-
10 33kV, single stay equipment		0	0	0	0	0	-
normal ground	no.	0	125	0	45	0	-
laterite ground	no.	0	125	0	65	0	-
rock ground	no.	0	125	0	85	0	-
11 33kV, flying stay equipment	no.	0	0	0	0	0	-
12 120sqmm Al Conductor	km	0	2350	0	583	0	-
13 3-Phase, 33kV Load Isolator	no.	0	3980	0	950	0	-
14 3-Phase, 33kV Auto Recloser	no.	0	21887	0	3880	0	-
15 33kV Shunt Capacitor	kVAR	0	7	0	3	0	-
16 HV Wooden Poles for 33kV Lines (10m)		0	0	0	0	0	-
normal ground	no.	0	378	0	90	0	-
laterite ground	no.	0	378	0	96	0	-
rock ground	no.	0	378	0	109	0	-
17 HV Wooden Poles for 33kV Lines (11m)		0	0	0	0	0	-
normal ground	no.	0	439	0	90	0	-
laterite ground	no.	0	439	0	96	0	-
rock ground	no.	0	439	0	109	0	-
18 HV Steel Poles for 33kV Lines (10m)		0	0	0	0	0	-
normal ground	no.	0	1100	0	90	0	-
laterite ground	no.	0	1100	0	96	0	-
rock ground	no.	0	1100	0	109	0	-
19 HV Steel Poles for 33kV Lines (11m)		0	0	0	0	0	-

WMS

Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

LOWER WEST AKIM

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost		Total Cost Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
normal ground	no.	0	1250	0	90	0	-	
laterite ground	no.	0	1250	0	96	0	-	
rock ground	no.	0	1250	0	109	0	-	
20 Line route survey	km	0	0	0	672	0	-	
21 Bush Clearing	km	0	0	0	567	0	-	
Sub - Total								-
11kV, 3-Phase Network								
22 Intermediate Pole	no.	273	145	39585	38	10374	49,959.00	
23 0 - 20 degree Intermediate	no.	53	210	11130	38	2014	13,144.00	
24 20 - 60 degree angle H Pole (MV)	no.	9	620	5580	158	1422	7,002.00	
25 60 - 90 degree angle H Pole (HV)	no.	29	590	17110	153	4437	21,547.00	
26 Section Pole with Drop-Out Fuses	no.	1	980	980	248	248	1,228.00	
27 Section Pole for Mounting Load Isolator	no.	1	720	720	198	198	918.00	
28 Tee-Off Pole	no.	11	1169	12859	279	3069	15,928.00	
29 H-Pole for Transformer (Terminal & Intermediate)	no.	22	1350	29700	350	7700	37,400.00	
30 Section Pole	no.	6	580	3480	155	930	4,410.00	
31 11kV, single stay equipment		269	0	0	0	0	-	
normal ground	no.	130	115	14950	45	5850	20,800.00	
laterite ground	no.	61	115	7015	65	3965	10,980.00	
rock ground	no.	78	115	8970	85	6630	15,600.00	
32 11kV, flying stay equipment	no.	0	0	0	0	0	-	
33 120sqmm Al Conductor	km	100	2350	235591.0485	583	58446.63033	294,037.68	
34 3-Phase, 11kV Load Isolator	no.	1	3100	3100	650	650	3,750.00	
35 3-Phase, 11kV Auto Recloser	no.	0	19950	0	3980	0	-	
36 11kV Shunt Capacitor	KVAR	0	6	0	3	0	-	
37 HV Wooden Poles for 11kV Lines (10m)		44	0	0	0	0	-	
normal ground	no.	18	378	6804	90	1620	8,424.00	
laterite ground	no.	4	378	1512	96	384	1,896.00	
rock ground	no.	22	378	8316	109	2398	10,714.00	
38 HV Wooden Poles for 11kV Lines (11m)		109	0	0	0	0	-	
normal ground	no.	53	439	23267	90	4770	28,037.00	
laterite ground	no.	22	439	9658	96	2112	11,770.00	

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

LOWER WEST AKIM

Description	Unit	Quantity	Unit Cost		Total Cost		Total Cost of Mat. & Install (US\$)
			(US\$,CIF)	(US\$,CIF)	(US\$)	(US\$)	
					Unit Cost Local	Total Cost Local	
					Transportation	Transportation	
					Installation & Commissioning	Installation & Commissioning	
					(US\$)	(US\$)	
39 HV Steel Poles for 11kV Lines (10m)	no.	34	439	14926	109	3706	18,632.00
rock ground	no.	0	0	0	0	0	-
normal ground	no.	0	1100	0	90	0	-
laterite ground	no.	0	1100	0	96	0	-
rock ground	no.	0	1100	0	109	0	-
40 HV Steel Poles for 11kV Lines (11m)		316	0	0	0	0	-
normal ground	no.	154	1250	192500	90	13860	206,360.00
laterite ground	no.	72	1250	90000	96	6912	96,912.00
rock ground	no.	90	1250	112500	109	9810	122,310.00
41 Line route survey	km	31	0	0	672	20987.232	20,987.23
42 Bush Clearing	km	31	0	0	567	17707.977	17,707.98
					Sub - Total		1,040,453.89
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	0	8220	0	1719	0	-
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	0	9870	0	2145	0	-
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	0	11230	0	2789	0	-
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	14	6459	90426	1568	21952	112,378.00
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	5	7500	37500	1656	8280	45,780.00
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	3	8386	25158	2132	6396	31,554.00
					Sub - Total		189,712.00

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

LOWER WEST AKIM

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	348	90	31320	18	6264	37,584.00
50 4-Wire, 0 - 20 degree angle	no.	65	96	6240	18	1170	7,410.00
51 4-Wire, 20 - 60 degree angle	no.	20	175	3500	40	800	4,300.00
52 4-Wire, 60 - 90 heavy angle	no.	73	223	16279	40	2920	19,199.00
53 4-Wire, Terminal Pole	no.	210	86	18060	25	5250	23,310.00
54 4-Wire, Tee-Off	no.	138	125	17250	35	4830	22,080.00
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,400	21	29400	15	21000	50,400.00
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	35	45	1575	21	735	2,310.00
57 LV Stay arrangement		564		0		0	-
normal ground	no.	275	110	30250	41	11275	41,525.00
laterite ground	no.	131	110	14410	65	8515	22,925.00
rock ground	no.	158	110	17380	78	12324	29,704.00
58 50sqmm Al Conductor	km	155	951	147804.42	450	69939	217,743.42
59 8m LV poles		721		0		0	-
normal ground	no.	358	226	80908	76	27208	108,116.00
laterite ground	no.	174	226	39324	84	14616	53,940.00
rock ground	no.	189	226	42714	93	17577	60,291.00
60 9m LV poles		138		0		0	-
normal ground	no.	65	261	16965	76	4940	21,905.00
laterite ground	no.	26	261	6786	84	2184	8,970.00
rock ground	no.	47	261	12267	93	4371	16,638.00
61 LV Earthing, neutral conductor PME	no.	283	55	15565	19	5377	20,942.00
62 Survey & Preparation of Town Layout	km	39	0	0	500	19427.5	19,427.50
63 Preparation of LV Designs	km	39	0	0	400	15542	15,542.00
64 Preparation of As-Built Drawings	km	39	0	0	450	17484.75	17,484.75
Sub - Total							821,746.67

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Price Schedules (Bill of Quantities)

Name of Region

EASTERN REGION

Name of District

LOWER WEST AKIM

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	1,400	204	285600	66	92400	378,000.00
66 3-Phase Electronic meter	no.	35	516	18060	93	3255	21,315.00
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	565	176	99440	64	36160	135,600.00
68 7m service pole normal ground	no.	565		0		0	-
laterite ground	no.	280	195	54600	65	18200	72,800.00
rock ground	no.	140	195	27300	86	12040	39,340.00
69 fiber glass meter box for outside use and complete with fixings	no.	145	195	28275	95	13775	42,050.00
		565	97	54805	35	19775	74,580.00

Sub - Total 763,685.00

TOTAL

Summary

33kV, 3-Phase Network	-
11kV, 3-Phase Network	1,040,453.89
Pole Mounted Transformer Substations	189,712.00
Low Voltage (LV) Networks	821,746.67
Service Connections	763,685.00

TOTAL 2,815,597.56

TOTAL AMOUNT OF SELF-HELP ELECTRIFICATION PROGRAMME IN FIVE REGIONS-PHASE 2

Name of Region VOLTA REGION

Name of District Total(Sub-total+3.5% of Contingency+2.5% Implementation)

Summary

<u>33kV, 3-Phase Network</u>	<u>US\$ 4,837,986</u>
<u>11kV, 3-Phase Network</u>	<u>US\$ 25,512</u>
<u>Pole Mounted Transformer Substations</u>	<u>US\$ 791,096</u>
<u>Low Voltage (LV) Networks</u>	<u>US\$ 3,052,226</u>
<u>Service Connections</u>	<u>US\$ 2,571,533</u>
<u>Sub-total</u>	<u>US\$ 11,278,353</u>
<u>Contingency (3.5%) =</u>	<u>US\$ 394,742</u>
<u>Implementation Unit (2.5%) =</u>	<u>US\$ 281,959</u>
<u>Total Amount</u>	<u>US\$ 11,955,054</u>

Price Schedules (Bill of Quantities)

Name of Region

VOLTA

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	1,301	250	325,250	60	78,060	403,310
2 0 - 20 degree Intermediate	no.	296	250	74,000	60	17,760	91,760
3 20 - 60 degree angle H Pole (MV)	no.	155	830	128,650	192	29,760	158,410
4 60 - 90 degree angle H Pole (HV)	no.	50	620	31,000	180	9,000	40,000
5 Section Pole with Drop-Out Fuses	no.	6	1,350	8,100	337	2,022	10,122
6 Section Pole for Mounting Load Isolator	no.	10	790	7,900	247	2,470	10,370
7 Fused Tee off	no.	33	1,629	53,757	398	13,134	66,891
8 H-Pole for Transformer (Terminal & Intermediate)	no.	67	1,506	100,902	354	23,718	124,620
9 Section Pole	no.	93	760	70,680	195	18,135	88,815
10 33kV, single stay equipment		1,461					
normal ground	no.	722	125	90,250	45	32,490	122,740
laterite ground	no.	343	125	42,875	65	22,295	65,170
rock ground	no.	394	125	49,250	85	33,490	82,740
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	497	2,350	1,168,179	583	289,808	1,457,987
13 3-Phase, 33kV Load Isolator	no.	10	3,980	39,800	950	9,500	49,300
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		793					
normal ground	no.	384	378	145,152	90	34,560	179,712
laterite ground	no.	182	378	68,796	96	17,472	86,268
rock ground	no.	227	378	85,806	109	24,743	110,549
17 HV Wooden Poles for 33kV Lines (11m)		712					
normal ground	no.	343	439	150,577	90	30,870	181,447
laterite ground	no.	161	439	70,679	96	15,456	86,135
rock ground	no.	208	439	91,312	109	22,672	113,984
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		

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Price Schedules (Bill of Quantities)

Name of Region		VOLTA						
Name of District		Sub-Total						
Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local	Local		
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)		
19 HV Steel Poles for 33kV Lines (11m)		822						
normal ground	no.	402	1,250	502,500	90	36,180	538,680	
laterite ground	no.	191	1,250	238,750	96	18,336	257,086	
rock ground	no.	229	1,250	286,250	109	24,961	311,211	
20 Line route survey	km	162			672	108,843	108,843	
21 Bush Clearing	km	162			567	91,836	91,836	
Sub-Total							4,837,986	
11kV, 3-Phase Network								
22 Intermediate Pole	no.	7	145	1,015	38	266	1,281	
23 0 - 20 degree Intermediate	no.	6	210	1,260	38	228	1,488	
24 20 - 60 degree angle H Pole (MV)	no.	1	620	620	158	158	778	
25 60 - 90 degree angle H Pole (HV)	no.	2	590	1,180	153	306	1,486	
26 Section Pole with Drop-Out Fuses	no.		980		248			
27 Section Pole for Mounting Load Isolator	no.		720		198			
28 Fused Tee off	no.	2	1,169	2,338	279	558	2,896	
29 H-Pole for Transformer (Terminal & Intermediate)	no.	2	1,350	2,700	350	700	3,400	
30 Section Pole	no.		580		155			
31 11kV, single stay equipment		26						
normal ground	no.		115		45			
laterite ground	no.		115		65			
rock ground	no.		115		85			
32 11kV, flying stay equipment	no.							
33 120sqmm Al Conductor	km		2,350		583			
34 3-Phase, 11kV Load Isolator	no.		3,100		650			
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980			
36 11kV Shunt Capacitor	kVAR		6		3			
37 HV Wooden Poles for 11kV Lines (10m)		27						
normal ground	no.	13	378	4,914	90	1,170	6,084	
laterite ground	no.	6	378	2,268	96	576	2,844	
rock ground	no.	7	378	2,646	109	763	3,409	
38 HV Wooden Poles for 11kV Lines (11m)								

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
normal ground	no.		439		90			
laterite ground	no.		439		96			
rock ground	no.		439		109			
39 HV Steel Poles for 11kV Lines (10m)								
normal ground	no.		1,100		90			
laterite ground	no.		1,100		96			
rock ground	no.		1,100		109			
40 HV Steel Poles for 11kV Lines (11m)								
normal ground	no.		1,250		90			
laterite ground	no.		1,250		96			
rock ground	no.		1,250		109			
41 Line route survey	km	1			672	1,001	1,001	
42 Bush Clearing		1			567	845	845	
Sub-Total								25,512
Pole Mounted Transformer Substations								
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	33	8,220	271,260	1,719	56,727	327,987	
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	30	9,870	296,100	2,145	64,350	360,450	
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	6	11,230	67,380	2,789	16,734	84,114	
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	1	6,459	6,459	1,568	1,568	8,027	
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656			
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	1	8,386	8,386	2,132	2,132	10,518	
Sub-Total								791,096

Sum
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Price Schedules (Bill of Quantities)

Name of Region

VOLTA

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost		Total Cost Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	1,587	90	142,830	18	28,566	171,396
50 4-Wire, 0 - 20 degree angle	no.	190	96	18,240	18	3,420	21,660
51 4-Wire, 20 - 60 degree angle	no.	42	175	7,350	40	1,680	9,030
52 4-Wire, 60 - 90 heavy angle	no.	257	223	57,311	40	10,280	67,591
53 4-Wire, Terminal Pole	no.	906	86	77,916	25	22,650	100,566
54 4-Wire, Tee-Off	no.	541	125	67,625	35	18,935	86,560
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	4,720	21	99,120	15	70,800	169,920
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	115	45	5,175	21	2,415	7,590
57 LV Stay arrangement		1,894					
normal ground	no.	913	110	100,430	41	37,433	137,863
laterite ground	no.	441	110	48,510	65	28,665	77,175
rock ground	no.	509	110	55,990	78	39,702	95,692
58 50sqmm Al Conductor	km	567	951	539,616	450	255,339	794,955
59 8m LV poles		2,254					
normal ground	no.	1,098	226	248,148	76	83,448	331,596
laterite ground	no.	535	226	120,910	84	44,940	165,850
rock ground	no.	586	226	132,436	93	54,498	186,934
60 9m LV poles		1,037					
normal ground	no.	495	261	129,195	76	37,620	166,815
laterite ground	no.	233	261	60,813	84	19,572	80,385
rock ground	no.	286	261	74,646	93	26,598	101,244
61 LV Earthing, neutral conductor PME	no.	1,137	55	62,535	19	21,603	84,138
62 Survey & Preparation of Town Layout	km	145			500	72,321	72,321
63 Preparation of LV Designs	km	145			400	57,856	57,856
64 Preparation of As-Built Drawings	km	145			450	65,088	65,088
						Sub-Total	3,052,226

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	4,720	204	962,880	66	311,520	1,274,400
66 3-Phase Electronic meter	no.	115	516	59,340	93	10,695	70,035
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	1,903	176	334,928	64	121,792	456,720
68 7m service pole		1,903					
normal ground	no.	948	195	184,860	65	61,620	246,480
laterite ground	no.	472	195	92,040	86	40,592	132,632
rock ground	no.	483	195	94,185	95	45,885	140,070
69 fiber glass meter box for outside use and complete with fixings	no.	1,903	97	184,591	35	66,605	251,196
						Sub - Total	2,571,533

TOTAL

Summary

33kV, 3-Phase Network	4,837,986
11kV, 3-Phase Network	25,512
Pole Mounted Transformer Substations	791,096
Low Voltage (LV) Networks	3,052,226
Service Connections	2,571,533
Total	11,278,353

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

KRACHI EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	439	250	109750	60	26340	136,090.00
2 0 - 20 degree Intermediate	no.	83	250	20750	60	4980	25,730.00
3 20 - 60 degree angle H Pole (MV)	no.	85	830	70550	192	16320	86,870.00
4 60 - 90 degree angle H Pole (HV)	no.	16	620	9920	180	2880	12,800.00
5 Section Pole with Drop-Out Fuses	no.	1	1350	1350	337	337	1,687.00
6 Section Pole for Mounting Load Isolator	no.	5	790	3950	247	1235	5,185.00
7 Fused Tee off	no.	11	1629	17919	398	4378	22,297.00
8 H-Pole for Transformer (Terminal & Intermediate)	no.	19	1506	28614	354	6726	35,340.00
9 Section Pole	no.	14	760	10640	195	2730	13,370.00
10 33kV, single stay equipment		569					-
normal ground	no.	283	125	35375	45	12735	48,110.00
laterite ground	no.	135	125	16875	65	8775	25,650.00
rock ground	no.	151	125	18875	85	12835	31,710.00
11 33kV, flying stay equipment	no.						-
12 120sqmm Al Conductor	km	177	2350	416944.332	583	103437.679	520,382.01
13 3-Phase, 33kV Load Isolator	no.	5	3980	19900	950	4750	24,650.00
14 3-Phase, 33kV Auto Recloser	no.		21887		3880		-
15 33kV Shunt Capacitor	kVAR		7		3		-
16 HV Wooden Poles for 33kV Lines (10m)		283					-
normal ground	no.	137	378	51786	90	12330	64,116.00
laterite ground	no.	64	378	24192	96	6144	30,336.00
rock ground	no.	82	378	30996	109	8938	39,934.00
17 HV Wooden Poles for 33kV Lines (11m)		218					-
normal ground	no.	106	439	46534	90	9540	56,074.00
laterite ground	no.	49	439	21511	96	4704	26,215.00
rock ground	no.	63	439	27657	109	6867	34,524.00
18 HV Steel Poles for 33kV Lines (10m)							-
normal ground	no.		1100		90		-
laterite ground	no.		1100		96		-
rock ground	no.		1100		109		-
19 HV Steel Poles for 33kV Lines (11m)		281					-

Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

KRACHI EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.	137	1250	171250	90	12330	183,580.00
laterite ground	no.	65	1250	81250	96	6240	87,490.00
rock ground	no.	79	1250	98750	109	8611	107,361.00
20 Line route survey	km	55			672	37142.784	37,142.78
21 Bush Clearing	km	55			567	31339.224	31,339.22
Sub - Total							1,687,983.02
11kV, 3-Phase Network							
22 Intermediate Pole	no.		145		38		-
23 0 - 20 degree Intermediate	no.		210		38		-
24 20 - 60 degree angle H Pole (MV)	no.		620		158		-
25 60 - 90 degree angle H Pole (HV)	no.		590		153		-
26 Section Pole with Drop-Out Fuses	no.		980		248		-
27 Section Pole for Mounting Load Isolator	no.		720		198		-
28 Fused Tee off	no.		1169		279		-
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1350		350		-
30 Section Pole	no.		580		155		-
31 11kV, single stay equipment							-
normal ground	no.		115		45		-
laterite ground	no.		115		65		-
rock ground	no.		115		85		-
32 11kV, flying stay equipment	no.						-
33 120sqmm Al Conductor	km		2350		583		-
34 3-Phase, 11kV Load Isolator	no.		3100		650		-
35 3-Phase, 11kV Auto Recloser	no.		19950		3980		-
36 11kV Shunt Capacitor	kVAR		6		3		-
37 HV Wooden Poles for 11kV Lines (10m)							-
normal ground	no.		378		90		-
laterite ground	no.		378		96		-
rock ground	no.		378		109		-
38 HV Wooden Poles for 11kV Lines (11m)							-
normal ground	no.		439		90		-
laterite ground	no.		439		96		-

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

KRACHI EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		-
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1100		90		-
laterite ground	no.		1100		96		-
rock ground	no.		1100		109		-
40 HV Steel Poles for 11kV Lines (11m)							
normal ground	no.		1250		90		-
laterite ground	no.		1250		96		-
rock ground	no.		1250		109		-
41 Line route survey	km				672		-
42 Bush Clearing					567		-
Sub - Total							-
Pole Mounted Transformer Substations							
43 33kV, 50kVA 3-Ph Transformers & Substation Equipment	no.	14	8220	115080	1719	24066	139,146.00
44 33kV, 100VA 3-Ph Transformers & Substation Equipment	no.	5	9870	49350	2145	10725	60,075.00
45 33kV, 200VA 3-Ph Transformers & Substation Equipment	no.		11230		2789		-
46 11kV, 50kVA 3-Ph Transformers & Substation Equipment	no.		6459		1568		-
47 11kV, 100VA 3-Ph Transformers & Substation Equipment	no.		7500		1656		-
48 11kV, 200VA 3-Ph Transformers & Substation Equipment	no.		8386		2132		-
Sub - Total							199,221.00

Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

KRACHI EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	263	90	23670	18	4734	28,404.00
50 4-Wire, 0 - 20 degree angle	no.	72	96	6912	18	1296	8,208.00
51 4-Wire, 20 - 60 degree angle	no.	8	175	1400	40	320	1,720.00
52 4-Wire, 60 - 90 heavy angle	no.	62	223	13826	40	2480	16,306.00
53 4-Wire, Terminal Pole	no.	153	86	13158	25	3825	16,983.00
54 4-Wire, Tee-Off	no.	112	125	14000	35	3920	17,920.00
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,100	21	23100	15	16500	39,600.00
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	24	45	1080	21	504	1,584.00
57 LV Stay arrangement		481					-
normal ground	no.	234	110	25740	41	9594	35,334.00
laterite ground	no.	112	110	12320	65	7280	19,600.00
rock ground	no.	135	110	14850	78	10530	25,380.00
58 50sqmm Al Conductor	km	114	951	108585.18	450	51381	159,966.18
59 8m LV poles		510					-
normal ground	no.	250	226	56500	76	19000	75,500.00
laterite ground	no.	121	226	27346	84	10164	37,510.00
rock ground	no.	139	226	31414	93	12927	44,341.00
60 9m LV poles		114					-
normal ground	no.	53	261	13833	76	4028	17,861.00
laterite ground	no.	23	261	6003	84	1932	7,935.00
rock ground	no.	38	261	9918	93	3534	13,452.00
61 LV Earthing, neutral conductor PME	no.	219	55	12045	19	4161	16,206.00
62 Survey & Preparation of Town Layout	km	29			500	14272.5	14,272.50
63 Preparation of LV Designs	km	29			400	11418	11,418.00
64 Preparation of As-Built Drawings	km	29			450	12845.25	12,845.25
					Sub - Total		622,345.93

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

KRACHI EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	1,100	204	224400	66	72600	297,000.00
66 3-Phase Electronic meter	no.	24	516	12384	93	2232	14,616.00
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	440	176	77440	64	28160	105,600.00
68 7m service pole normal ground	no.	440					-
laterite ground	no.	220	195	42900	65	14300	57,200.00
rock ground	no.	110	195	21450	86	9460	30,910.00
69 fiber glass meter box for outside use and complete with fixings	no.	110	195	21450	95	10450	31,900.00
	no.	440	97	42680	35	15400	58,080.00
						Sub - Total	595,306.00

TOTAL

Summary

33kV, 3-Phase Network
 11kV, 3-Phase Network
 Pole Mounted Transformer Substations
 Low Voltage (LV) Networks
 Service Connections

1,687,983.02
 -
 199,221.00
 622,345.93
 595,306.00

TOTAL 3,104,855.95

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

KRACHI WEST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	514	250	128500	60	30840	159,340.00
2 0 - 20 degree Intermediate	no.	40	250	10000	60	2400	12,400.00
3 20 - 60 degree angle H Pole (MV)	no.	34	830	28220	192	6528	34,748.00
4 60 - 90 degree angle H Pole (HV)	no.	15	620	9300	180	2700	12,000.00
5 Section Pole with Drop-Out Fuses	no.	3	1350	4050	337	1011	5,061.00
6 Section Pole for Mounting Load Isolator	no.	4	790	3160	247	988	4,148.00
7 Fused Tee off	no.	10	1629	16290	398	3980	20,270.00
8 H-Pole for Transformer (Terminal & Intermediate)	no.	16	1506	24096	354	5664	29,760.00
9 Section Pole	no.	46	760	34960	195	8970	43,930.00
10 33kV, single stay equipment		339					-
normal ground	no.	169	125	21125	45	7605	28,730.00
laterite ground	no.	83	125	10375	65	5395	15,770.00
rock ground	no.	87	125	10875	85	7395	18,270.00
11 33kV, flying stay equipment	no.						-
12 120sqmm Al Conductor	km	168	2350	395581.14	583	98137.7892	493,718.93
13 3-Phase, 33kV Load Isolator	no.	4	3980	15920	950	3800	19,720.00
14 3-Phase, 33kV Auto Recloser	no.		21887		3880		-
15 33kV Shunt Capacitor	KVAR		7		3		-
16 HV Wooden Poles for 33kV Lines (10m)		285					-
normal ground	no.	140	378	52920	90	12600	65,520.00
laterite ground	no.	68	378	25704	96	6528	32,232.00
rock ground	no.	77	378	29106	109	8393	37,499.00
17 HV Wooden Poles for 33kV Lines (11m)		246					-
normal ground	no.	120	439	52680	90	10800	63,480.00
laterite ground	no.	57	439	25023	96	5472	30,495.00
rock ground	no.	69	439	30291	109	7521	37,812.00
18 HV Steel Poles for 33kV Lines (10m)							-
normal ground	no.		1100		90		-
laterite ground	no.		1100		96		-
rock ground	no.		1100		109		-
19 HV Steel Poles for 33kV Lines (11m)		235					-

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

KRACHI WEST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
normal ground	no.	115	1250	143750	90	10350	154,100.00
laterite ground	no.	55	1250	68750	96	5280	74,030.00
rock ground	no.	65	1250	81250	109	7085	88,335.00
20 Line route survey	km	53			672	35616	35,616.00
21 Bush Clearing	km	53			567	30051	30,051.00
11kV, 3-Phase Network					Sub - Total		1,547,035.93
22 Intermediate Pole	no.		145		38		-
23 0 - 20 degree Intermediate	no.		210		38		-
24 20 - 60 degree angle H Pole (MV)	no.		620		158		-
25 60 - 90 degree angle H Pole (HV)	no.		590		153		-
26 Section Pole with Drop-Out Fuses	no.		980		248		-
27 Section Pole for Mounting Load Isolator	no.		720		198		-
28 Fused Tee off	no.		1169		279		-
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1350		350		-
30 Section Pole	no.		580		155		-
31 11kV, single stay equipment							-
normal ground	no.		115		45		-
laterite ground	no.		115		65		-
rock ground	no.		115		85		-
32 11kV, flying stay equipment	no.						-
33 120sqmm Al Conductor	km		2350		583		-
34 3-Phase, 11kV Load Isolator	no.		3100		650		-
35 3-Phase, 11kV Auto Recloser	no.		19950		3980		-
36 11kV Shunt Capacitor	kVAR		6		3		-
37 HV Wooden Poles for 11kV Lines (10m)							-
normal ground	no.		378		90		-
laterite ground	no.		378		96		-
rock ground	no.		378		109		-
38 HV Wooden Poles for 11kV Lines (11m)							-
normal ground	no.		439		90		-
laterite ground	no.		439		96		-

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

KRACHI WEST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		-
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1100		90		-
laterite ground	no.		1100		96		-
rock ground	no.		1100		109		-
40 HV Steel Poles for 11kV Lines (11m)							
normal ground	no.		1250		90		-
laterite ground	no.		1250		96		-
rock ground	no.		1250		109		-
41 Line route survey	km				672		-
42 Bush Clearing					567		-
					Sub - Total		-
Pole Mounted Transformer Substations							
43 33kV, 50kVA 3-Ph Transformers & Substation Equipment	no.	6	8220	49320	1719	10314	59,634.00
44 33kV, 100VA 3-Ph Transformers & Substation Equipment	no.	7	9870	69090	2145	15015	84,105.00
45 33kV, 200VA 3-Ph Transformers & Substation Equipment	no.	3	11230	33690	2789	8367	42,057.00
46 11kV, 50kVA 3-Ph Transformers & Substation Equipment	no.		6459		1568		-
47 11kV, 100VA 3-Ph Transformers & Substation Equipment	no.		7500		1656		-
48 11kV, 200VA 3-Ph Transformers & Substation Equipment	no.		8386		2132		-
					Sub - Total		185,796.00

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

KRACHI WEST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	341	90	30690	18	6138	36,828.00
50 4-Wire, 0 - 20 degree angle	no.	29	96	2784	18	522	3,306.00
51 4-Wire, 20 - 60 degree angle	no.	20	175	3500	40	800	4,300.00
52 4-Wire, 60 - 90 heavy angle	no.	98	223	21854	40	3920	25,774.00
53 4-Wire, Terminal Pole	no.	254	86	21844	25	6350	28,194.00
54 4-Wire, Tee-Off	no.	124	125	15500	35	4340	19,840.00
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,160	21	24360	15	17400	41,760.00
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	30	45	1350	21	630	1,980.00
57 LV Stay arrangement		502					-
normal ground	no.	249	110	27390	41	10209	37,599.00
laterite ground	no.	121	110	13310	65	7865	21,175.00
rock ground	no.	132	110	14520	78	10296	24,816.00
58 50sqmm Al Conductor	km	136	951	128917.56	450	61002	189,919.56
59 8m LV poles		606					-
normal ground	no.	302	226	68252	76	22952	91,204.00
laterite ground	no.	148	226	33448	84	12432	45,880.00
rock ground	no.	156	226	35256	93	14508	49,764.00
60 9m LV poles		208					-
normal ground	no.	103	261	26883	76	7828	34,711.00
laterite ground	no.	48	261	12528	84	4032	16,560.00
rock ground	no.	57	261	14877	93	5301	20,178.00
61 LV Earthing, neutral conductor PME	no.	306	55	16830	19	5814	22,644.00
62 Survey & Preparation of Town Layout	km	34			500	16945	16,945.00
63 Preparation of LV Designs	km	34			400	13556	13,556.00
64 Preparation of As-Built Drawings	km	34			450	15250.5	15,250.50
Sub - Total							762,184.06

Sum

Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

KRACHI WEST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	1,160	204	236640	66	76560	313,200.00
66 3-Phase Electronic meter	no.	30	516	15480	93	2790	18,270.00
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	472	176	83072	64	30208	113,280.00
68 7m service pole normal ground	no.	472	234	45630	65	15210	-
laterite ground	no.	116	195	22620	86	9976	60,840.00
rock ground	no.	122	195	23790	95	11590	32,596.00
69 fiber glass meter box for outside use and complete with fixings	no.	472	97	45784	35	16520	35,380.00
						Sub - Total	635,870.00

TOTAL

Summary

33kV, 3-Phase Network	1,547,035.93
11kV, 3-Phase Network	-
Pole Mounted Transformer Substations	185,796.00
Low Voltage (LV) Networks	762,184.06
Service Connections	635,870.00
TOTAL	3,130,885.99

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

NKWANTA SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	164	250	41000	60	9840	50,840.00
2 0 - 20 degree Intermediate	no.	16	250	4000	60	960	4,960.00
3 20 - 60 degree angle H Pole (MV)	no.	22	830	18260	192	4224	22,484.00
4 60 - 90 degree angle H Pole (HV)	no.	4	620	2480	180	720	3,200.00
5 Section Pole with Drop-Out Fuses	no.	2	1350	2700	337	674	3,374.00
6 Section Pole for Mounting Load Isolator	no.	1	790	790	247	247	1,037.00
7 Fused Tee off	no.	3	1629	4887	398	1194	6,081.00
8 H-Pole for Transformer (Terminal & Intermediate)	no.	14	1506	21084	354	4956	26,040.00
9 Section Pole	no.	13	760	9880	195	2535	12,415.00
10 33kV, single stay equipment		185					-
normal ground	no.	91	125	11375	45	4095	15,470.00
laterite ground	no.	41	125	5125	65	2665	7,790.00
rock ground	no.	53	125	6625	85	4505	11,130.00
11 33kV, flying stay equipment	no.						-
12 120sqmm Al Conductor	km	63	2350	148984.125	583	36960.7425	185,944.87
13 3-Phase, 33kV Load Isolator	no.	1	3980	3980	950	950	4,930.00
14 3-Phase, 33kV Auto Recloser	no.		21887		3880		-
15 33kV Shunt Capacitor	kVAR		7		3		-
16 HV Wooden Poles for 33kV Lines (10m)		93					-
normal ground	no.	43	378	16254	90	3870	20,124.00
laterite ground	no.	21	378	7938	96	2016	9,954.00
rock ground	no.	29	378	10962	109	3161	14,123.00
17 HV Wooden Poles for 33kV Lines (11m)		93					-
normal ground	no.	43	439	18877	90	3870	22,747.00
laterite ground	no.	21	439	9219	96	2016	11,235.00
rock ground	no.	29	439	12731	109	3161	15,892.00
18 HV Steel Poles for 33kV Lines (10m)							-
normal ground	no.		1100		90		-
laterite ground	no.		1100		96		-
rock ground	no.		1100		109		-
19 HV Steel Poles for 33kV Lines (11m)		110					-

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PARLIAMENT OF GHANA LIBRARY

Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

NKWANTA SOUTH

Description	Unit	Quantity	Unit Cost (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
normal ground	no.	54	1250	67500	90	4860	72,360.00
laterite ground	no.	27	1250	33750	96	2592	36,342.00
rock ground	no.	29	1250	36250	109	3161	39,411.00
20 Line route survey	km	20			672	13272	13,272.00
21 Bush Clearing	km	20			567	11198.25	11,198.25
Sub - Total							622,354.12
11kV, 3-Phase Network							
22 Intermediate Pole	no.		145		38		-
23 0 - 20 degree Intermediate	no.		210		38		-
24 20 - 60 degree angle H Pole (MV)	no.		620		158		-
25 60 - 90 degree angle H Pole (HV)	no.		590		153		-
26 Section Pole with Drop-Out Fuses	no.		980		248		-
27 Section Pole for Mounting Load Isolator	no.		720		198		-
28 Fused Tee off	no.		1169		279		-
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1350		350		-
30 Section Pole	no.		580		155		-
31 11kV, single stay equipment							
normal ground	no.		115		45		-
laterite ground	no.		115		65		-
rock ground	no.		115		85		-
32 11kV, flying stay equipment	no.						-
33 120sqmm Al Conductor	km		2350		583		-
34 3-Phase, 11kV Load Isolator	no.		3100		650		-
35 3-Phase, 11kV Auto Recloser	no.		19950		3980		-
36 11kV Shunt Capacitor	KVAR		6		3		-
37 HV Wooden Poles for 11kV Lines (10m)							
normal ground	no.		378		90		-
laterite ground	no.		378		96		-
rock ground	no.		378		109		-
38 HV Wooden Poles for 11kV Lines (11m)							
normal ground	no.		439		90		-
laterite ground	no.		439		96		-

11/18/24

Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

NKWANTA SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		-
39 HV Steel Poles for 11kV Lines (10m)							-
normal ground	no.		1100		90		-
laterite ground	no.		1100		96		-
rock ground	no.		1100		109		-
40 HV Steel Poles for 11kV Lines (11m)							-
normal ground	no.		1250		90		-
laterite ground	no.		1250		96		-
rock ground	no.		1250		109		-
41 Line route survey	km				672		-
42 Bush Clearing					567		-
					Sub - Total		-
Pole Mounted Transformer Substations							
43 33kV, 50kVA 3-Ph Transformers & Substation Equipment	no.	5	8220	41100	1719	8595	49,695.00
44 33kV, 100VA 3-Ph Transformers & Substation Equipment	no.	6	9870	59220	2145	12870	72,090.00
45 33kV, 200VA 3-Ph Transformers & Substation Equipment	no.	3	11230	33690	2789	8367	42,057.00
46 11kV, 50kVA 3-Ph Transformers & Substation Equipment	no.		6459		1568		-
47 11kV, 100VA 3-Ph Transformers & Substation Equipment	no.		7500		1656		-
48 11kV, 200VA 3-Ph Transformers & Substation Equipment	no.		8386		2132		-
					Sub - Total		163,842.00

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

NKWANTA SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	348	90	31320	18	6264	37,584.00
50 4-Wire, 0 - 20 degree angle	no.	13	96	1248	18	234	1,482.00
51 4-Wire, 20 - 60 degree angle	no.	4	175	700	40	160	860.00
52 4-Wire, 60 - 90 heavy angle	no.	59	223	13157	40	2360	15,517.00
53 4-Wire, Terminal Pole	no.	224	86	19264	25	5600	24,864.00
54 4-Wire, Tee-Off	no.	127	125	15875	35	4445	20,320.00
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,030	21	21630	15	15450	37,080.00
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	27	45	1215	21	567	1,782.00
57 LV Stay arrangement		390					-
normal ground	no.	192	110	21120	41	7872	28,992.00
laterite ground	no.	94	110	10340	65	6110	16,450.00
rock ground	no.	104	110	11440	78	8112	19,552.00
58 50sqmm Al Conductor	km	125	951	119331.48	450	56466	175,797.48
59 8m LV poles		575					-
normal ground	no.	286	226	64636	76	21736	86,372.00
laterite ground	no.	141	226	31866	84	11844	43,710.00
rock ground	no.	148	226	33448	93	13764	47,212.00
60 9m LV poles		169					-
normal ground	no.	83	261	21663	76	6308	27,971.00
laterite ground	no.	38	261	9918	84	3192	13,110.00
rock ground	no.	48	261	12528	93	4464	16,992.00
61 LV Earthing, neutral conductor PME	no.	262	55	14410	19	4978	19,388.00
62 Survey & Preparation of Town Layout	km	31			500	15685	15,685.00
63 Preparation of LV Designs	km	31			400	12548	12,548.00
64 Preparation of As-Built Drawings	km	31			450	14116.5	14,116.50
Sub - Total							677,384.98

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

NKWANTA SOUTH

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	1,030	204	210120	66	67980	278,100.00
66 3-Phase Electronic meter	no.	27	516	13932	93	2511	16,443.00
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	418	176	73568	64	26752	100,320.00
68 7m service pole		418					-
normal ground	no.	208	195	40560	65	13520	54,080.00
laterite ground	no.	103	195	20085	86	8858	28,943.00
rock ground	no.	107	195	20865	95	10165	31,030.00
69 fiber glass meter box for outside use and complete with fixings	no.	418	97	40546	35	14630	55,176.00
Sub - Total							564,092.00

TOTAL

Summary

33kV, 3-Phase Network	622,354.12
11kV, 3-Phase Network	-
Pole Mounted Transformer Substations	163,842.00
Low Voltage (LV) Networks	677,384.98
Service Connections	564,092.00
TOTAL	2,027,673.10

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

KRACHI-NCHUMURU

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	87	250	21750	60	5220	26,970.00
2 0 - 20 degree Intermediate	no.	28	250	7000	60	1680	8,680.00
3 20 - 60 degree angle H Pole (MV)	no.	2	830	1660	192	384	2,044.00
4 60 - 90 degree angle H Pole (HV)	no.	3	620	1860	180	540	2,400.00
5 Section Pole with Drop-Out Fuses	no.		1350		337		-
6 Section Pole for Mounting Load Isolator	no.		790		247		-
7 Fused Tee off	no.	3	1629	4887	398	1194	6,081.00
8 H-Pole for Transformer (Terminal & Intermediate)	no.	6	1506	9036	354	2124	11,160.00
9 Section Pole	no.	8	760	6080	195	1560	7,640.00
10 33kV, single stay equipment		82					-
normal ground	no.	40	125	5000	45	1800	6,800.00
laterite ground	no.	19	125	2375	65	1235	3,610.00
rock ground	no.	23	125	2875	85	1955	4,830.00
11 33kV, flying stay equipment	no.						-
12 120sqmm Al Conductor	km	24	2350	55784.1825	583	13839.22485	69,623.41
13 3-Phase, 33kV Load Isolator	no.		3980		950		-
14 3-Phase, 33kV Auto Recloser	no.		21887		3880		-
15 33kV Shunt Capacitor	kVAR		7		3		-
16 HV Wooden Poles for 33kV Lines (10m)		41					-
normal ground	no.	19	378	7182	90	1710	8,992.00
laterite ground	no.	8	378	3024	96	768	3,792.00
rock ground	no.	14	378	5292	109	1526	6,818.00
17 HV Wooden Poles for 33kV Lines (11m)		40					-
normal ground	no.	19	439	8341	90	1710	10,051.00
laterite ground	no.	8	439	3512	96	768	4,280.00
rock ground	no.	13	439	5707	109	1417	7,124.00
18 HV Steel Poles for 33kV Lines (10m)							-
normal ground	no.		1100		90		-
laterite ground	no.		1100		96		-
rock ground	no.		1100		109		-
19 HV Steel Poles for 33kV Lines (11m)		79					-

Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

KRACHI-NCHUMURU

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.	39	1250	48750	90	3510	52,260.00
laterite ground	no.	18	1250	22500	96	1728	24,228.00
rock ground	no.	22	1250	27500	109	2398	29,898.00
20 Line route survey	km	11			672	7593.6	7,593.60
21 Bush Clearing	km	11			567	6407.1	6,407.10
						Sub - Total	311,182.11
11kV, 3-Phase Network							
22 Intermediate Pole	no.		145		38		-
23 0 - 20 degree Intermediate	no.		210		38		-
24 20 - 60 degree angle H Pole (MV)	no.		620		158		-
25 60 - 90 degree angle H Pole (HV)	no.		590		153		-
26 Section Pole with Drop-Out Fuses	no.		980		248		-
27 Section Pole for Mounting Load Isolator	no.		720		198		-
28 Fused Tee off	no.		1169		279		-
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1350		350		-
30 Section Pole	no.		580		155		-
31 11kV, single stay equipment							-
normal ground	no.		115		45		-
laterite ground	no.		115		65		-
rock ground	no.		115		85		-
32 11kV, flying stay equipment	no.						-
33 120sqmm Al Conductor	km		2350		583		-
34 3-Phase, 11kV Load Isolator	no.		3100		650		-
35 3-Phase, 11kV Auto Recloser	no.		19950		3980		-
36 11kV Shunt Capacitor	kVAR		6		3		-
37 HV Wooden Poles for 11kV Lines (10m)							-
normal ground	no.		378		90		-
laterite ground	no.		378		96		-
rock ground	no.		378		109		-
38 HV Wooden Poles for 11kV Lines (11m)							-
normal ground	no.		439		90		-
laterite ground	no.		439		96		-

W. J. Smith

Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

KRACHI-NCHUMURU

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		-
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1100		90		-
laterite ground	no.		1100		96		-
rock ground	no.		1100		109		-
40 HV Steel Poles for 11kV Lines (11m)							
normal ground	no.		1250		90		-
laterite ground	no.		1250		96		-
rock ground	no.		1250		109		-
41 Line route survey	km				672		-
42 Bush Clearing					567		-
					Sub - Total		-
Pole Mounted Transformer Substations							
43 33kV, 50kVA 3-Ph Transformers & Substation Equipment	no.	2	8220	16440	1719	3438	19,878.00
44 33kV, 100VA 3-Ph Transformers & Substation Equipment	no.	4	9870	39480	2145	8580	48,060.00
45 33kV, 200VA 3-Ph Transformers & Substation Equipment	no.		11230		2789		-
46 11kV, 50kVA 3-Ph Transformers & Substation Equipment	no.		6459		1568		-
47 11kV, 100VA 3-Ph Transformers & Substation Equipment	no.		7500		1656		-
48 11kV, 200VA 3-Ph Transformers & Substation Equipment	no.		8386		2132		-
					Sub - Total		67,938.00

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

KRACHI-NCHUMURU

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	118	90	10620	18	2124	12,744.00
50 4-Wire, 0 - 20 degree angle	no.	10	96	960	18	180	1,140.00
51 4-Wire, 20 - 60 degree angle	no.	2	175	350	40	80	430.00
52 4-Wire, 60 - 90 heavy angle	no.	7	223	1561	40	280	1,841.00
53 4-Wire, Terminal Pole	no.	73	86	6278	25	1825	8,103.00
54 4-Wire, Tee-Off	no.	46	125	5750	35	1610	7,360.00
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	420	21	8820	15	6300	15,120.00
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	10	45	450	21	210	660.00
57 LV Stay arrangement		113					-
normal ground	no.	54	110	5940	41	2214	8,154.00
laterite ground	no.	26	110	2860	65	1690	4,550.00
rock ground	no.	33	110	3630	78	2574	6,204.00
58 50sqmm Al Conductor	km	42	951	39782.232	450	18824.4	58,606.63
59 8m LV poles		176					-
normal ground	no.	87	226	19662	76	6612	26,274.00
laterite ground	no.	42	226	9492	84	3528	13,020.00
rock ground	no.	47	226	10622	93	4371	14,993.00
60 9m LV poles		54					-
normal ground	no.	26	261	6786	76	1976	8,762.00
laterite ground	no.	12	261	3132	84	1008	4,140.00
rock ground	no.	16	261	4176	93	1488	5,664.00
61 LV Earthing, neutral conductor PME	no.	88	55	4840	19	1672	6,512.00
62 Survey & Preparation of Town Layout	km	10			500	5229	5,229.00
63 Preparation of LV Designs	km	10			400	4183.2	4,183.20
64 Preparation of As-Built Drawings	km	10			450	4706.1	4,706.10
Sub - Total							218,395.93

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

KRACHI-NCHUMURU

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	420	204	85680	66	27720	113,400.00
66 3-Phase Electronic meter	no.	10	516	5160	93	930	6,090.00
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	168	176	29568	64	10752	40,320.00
68 7m service pole		168					-
normal ground	no.	84	195	16380	65	5460	21,840.00
laterite ground	no.	42	195	8190	86	3612	11,802.00
rock ground	no.	42	195	8190	95	3990	12,180.00
69 fiber glass meter box for outside use and complete with fixings	no.	168	97	16296	35	5880	22,176.00
					Sub - Total		227,808.00

TOTAL

Summary

33kV, 3-Phase Network	311,182.11
11kV, 3-Phase Network	-
Pole Mounted Transformer Substations	67,938.00
Low Voltage (LV) Networks	218,395.93
Service Connections	227,808.00
TOTAL	825,324.04

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

JASIKAN

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	78	250	19500	60	4680	24,180.00
2 0 - 20 degree Intermediate	no.	97	250	24250	60	5820	30,070.00
3 20 - 60 degree angle H Pole (MV)	no.	8	830	6640	192	1536	8,176.00
4 60 - 90 degree angle H Pole (HV)	no.	9	620	5580	180	1620	7,200.00
5 Section Pole with Drop-Out Fuses	no.		1350		337		-
6 Section Pole for Mounting Load Isolator	no.		790		247		-
7 Fused Tee off	no.	3	1629	4887	398	1194	6,081.00
8 H-Pole for Transformer (Terminal & Intermediate)	no.	7	1506	10542	354	2478	13,020.00
9 Section Pole	no.	6	760	4560	195	1170	5,730.00
10 33kV, single stay equipment		198					-
normal ground	no.	97	125	12125	45	4365	16,490.00
laterite ground	no.	47	125	5875	65	3055	8,930.00
rock ground	no.	54	125	6750	85	4590	11,340.00
11 33kV, flying stay equipment	no.						-
12 120sqmm Al Conductor	km	46	2350	108181.3335	583	26838.17763	135,019.51
13 3-Phase, 33kV Load Isolator	no.		3980		950		-
14 3-Phase, 33kV Auto Recloser	no.		21887		3880		-
15 33kV Shunt Capacitor	kVAR		7		3		-
16 HV Wooden Poles for 33kV Lines (10m)							-
normal ground	no.		378		90		-
laterite ground	no.		378		96		-
rock ground	no.		378		109		-
17 HV Wooden Poles for 33kV Lines (11m)		115					-
normal ground	no.	55	439	24145	90	4950	29,095.00
laterite ground	no.	26	439	11414	96	2496	13,910.00
rock ground	no.	34	439	14926	109	3706	18,632.00
18 HV Steel Poles for 33kV Lines (10m)							-
normal ground	no.		1100		90		-
laterite ground	no.		1100		96		-
rock ground	no.		1100		109		-
19 HV Steel Poles for 33kV Lines (11m)		117					-

Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

JASIKAN

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
normal ground	no.	57	1250	71250	90	5130	76,380.00
laterite ground	no.	26	1250	32500	96	2496	34,996.00
rock ground	no.	34	1250	42500	109	3706	46,206.00
20 Line route survey	km	17			672	11414.592	11,414.59
21 Bush Clearing	km	17			567	9631.062	9,631.06
						Sub - Total	506,501.17

11kV, 3-Phase Network

22 Intermediate Pole	no.		145		38		-
23 0 - 20 degree Intermediate	no.		210		38		-
24 20 - 60 degree angle H Pole (MV)	no.		620		158		-
25 60 - 90 degree angle H Pole (HV)	no.		590		153		-
26 Section Pole with Drop-Out Fuses	no.		980		248		-
27 Section Pole for Mounting Load Isolator	no.		720		198		-
28 Fused Tee off	no.		1169		279		-
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1350		350		-
30 Section Pole	no.		580		155		-
31 11kV, single stay equipment							-
normal ground	no.		115		45		-
laterite ground	no.		115		65		-
rock ground	no.		115		85		-
32 11kV, flying stay equipment	no.						-
33 120sqmm Al Conductor	km		2350		583		-
34 3-Phase, 11kV Load Isolator	no.		3100		650		-
35 3-Phase, 11kV Auto Recloser	no.		19950		3980		-
36 11kV Shunt Capacitor	KVAR		6		3		-
37 HV Wooden Poles for 11kV Lines (10m)							-
normal ground	no.		378		90		-
laterite ground	no.		378		96		-
rock ground	no.		378		109		-
38 HV Wooden Poles for 11kV Lines (11m)							-
normal ground	no.		439		90		-
laterite ground	no.		439		96		-

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

JASIKAN

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		-
39 HV Steel Poles for 11kV Lines (10m)							-
normal ground	no.		1100		90		-
laterite ground	no.		1100		96		-
rock ground	no.		1100		109		-
40 HV Steel Poles for 11kV Lines (11m)							-
normal ground	no.		1250		90		-
laterite ground	no.		1250		96		-
rock ground	no.		1250		109		-
41 Line route survey	km				672		-
42 Bush Clearing					567		-
					Sub - Total		-
Pole Mounted Transformer Substations							
43 33kV, 50kVA 3-Ph Transformers & Substation Equipment	no.	2	8220	16440	1719	3438	19,878.00
44 33kV, 100VA 3-Ph Transformers & Substation Equipment	no.	5	9870	49350	2145	10725	60,075.00
45 33kV, 200VA 3-Ph Transformers & Substation Equipment	no.		11230		2789		-
46 11kV, 50kVA 3-Ph Transformers & Substation Equipment	no.		6459		1568		-
47 11kV, 100VA 3-Ph Transformers & Substation Equipment	no.		7500		1656		-
48 11kV, 200VA 3-Ph Transformers & Substation Equipment	no.		8386		2132		-
					Sub - Total		79,953.00

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

JASIKAN

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	201	90	18090	18	3618	21,708.00
50 4-Wire, 0 - 20 degree angle	no.	36	96	3456	18	648	4,104.00
51 4-Wire, 20 - 60 degree angle	no.	5	175	875	40	200	1,075.00
52 4-Wire, 60 - 90 heavy angle	no.	11	223	2453	40	440	2,893.00
53 4-Wire, Terminal Pole	no.	69	86	5934	25	1725	7,659.00
54 4-Wire, Tee-Off	no.	41	125	5125	35	1435	6,560.00
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	500	21	10500	15	7500	18,000.00
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	12	45	540	21	252	792.00
57 LV Stay arrangement		156					-
normal ground	no.	77	110	8470	41	3157	11,627.00
laterite ground	no.	37	110	4070	65	2405	6,475.00
rock ground	no.	42	110	4620	78	3276	7,896.00
58 50sqmm Al Conductor	km	58	951	54682.5	450	25875	80,557.50
59 8m LV poles		137					-
normal ground	no.	68	226	15368	76	5168	20,536.00
laterite ground	no.	32	226	7232	84	2688	9,920.00
rock ground	no.	37	226	8362	93	3441	11,803.00
60 9m LV poles		184					-
normal ground	no.	90	261	23490	76	6840	30,330.00
laterite ground	no.	44	261	11484	84	3696	15,180.00
rock ground	no.	50	261	13050	93	4650	17,700.00
61 LV Earthing, neutral conductor PME	no.	87	55	4785	19	1653	6,438.00
62 Survey & Preparation of Town Layout	km	14			500	7187.5	7,187.50
63 Preparation of LV Designs	km	14			400	5750	5,750.00
64 Preparation of As-Built Drawings	km	14			450	6468.75	6,468.75
					Sub - Total		300,659.75

W. S. M. C.

Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

JASIKAN

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	500	204	102000	66	33000	135,000.00
66 3-Phase Electronic meter	no.	12	516	6192	93	1116	7,308.00
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	200	176	35200	64	12800	48,000.00
68 7m service pole		200					-
normal ground	no.	100	195	19500	65	6500	26,000.00
laterite ground	no.	50	195	9750	86	4300	14,050.00
rock ground	no.	50	195	9750	95	4750	14,500.00
69 fiber glass meter box for outside use and complete with fixings	no.	200	97	19400	35	7000	26,400.00
						Sub - Total	271,258.00

TOTAL

Summary

33kV, 3-Phase Network	506,501.17
11kV, 3-Phase Network	-
Pole Mounted Transformer Substations	79,953.00
Low Voltage (LV) Networks	300,659.75
Service Connections	271,258.00
TOTAL	1,158,371.92

Sum

Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

HOHOE

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	19	250	4750	60	1140	5,890.00
2 0 - 20 degree Intermediate	no.	32	250	8000	60	1920	9,920.00
3 20 - 60 degree angle H Pole (MV)	no.	4	830	3320	192	768	4,088.00
4 60 - 90 degree angle H Pole (HV)	no.	3	620	1860	180	540	2,400.00
5 Section Pole with Drop-Out Fuses	no.		1350		337		-
6 Section Pole for Mounting Load Isolator	no.		790		247		-
7 Fused Tee off	no.	3	1629	4887	398	1194	6,081.00
8 H-Pole for Transformer (Terminal & Intermediate)	no.	5	1506	7530	354	1770	9,300.00
9 Section Pole	no.	6	760	4560	195	1170	5,730.00
10 33kV, single stay equipment		88					-
normal ground	no.	42	125	5250	45	1890	7,140.00
laterite ground	no.	18	125	2250	65	1170	3,420.00
rock ground	no.	26	125	3250	85	2210	5,460.00
11 33kV, flying stay equipment	no.						-
12 120sqmm Al Conductor	km	18	2350	42703.7535	583	10594.16523	53,297.92
13 3-Phase, 33kV Load Isolator	no.		3980		950		-
14 3-Phase, 33kV Auto Recloser	no.		21887		3880		-
15 33kV Shunt Capacitor	KVAR		7		3		-
16 HV Wooden Poles for 33kV Lines (10m)		91					-
normal ground	no.	45	378	17010	90	4050	21,060.00
laterite ground	no.	21	378	7938	96	2016	9,954.00
rock ground	no.	25	378	9450	109	2725	12,175.00
17 HV Wooden Poles for 33kV Lines (11m)							-
normal ground	no.		439		90		-
laterite ground	no.		439		96		-
rock ground	no.		439		109		-
18 HV Steel Poles for 33kV Lines (10m)							-
normal ground	no.		1100		90		-
laterite ground	no.		1100		96		-
rock ground	no.		1100		109		-
19 HV Steel Poles for 33kV Lines (11m)							-

Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

HOHOE

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.		1250		90		-
laterite ground	no.		1250		96		-
rock ground	no.		1250		109		-
20 Line route survey	km	6			672	3804.192	3,804.19
21 Bush Clearing	km	6			567	3209.787	3,209.79
Sub - Total							162,929.90
11kV, 3-Phase Network							
22 Intermediate Pole	no.	7	145	1015	38	266	1,281.00
23 0 - 20 degree Intermediate	no.	6	210	1260	38	228	1,488.00
24 20 - 60 degree angle H Pole (MV)	no.	1	620	620	158	158	778.00
25 60 - 90 degree angle H Pole (HV)	no.	2	590	1180	153	306	1,486.00
26 Section Pole with Drop-Out Fuses	no.		980		248		-
27 Section Pole for Mounting Load Isolator	no.		720		198		-
28 Fused Tee off	no.	2	1169	2338	279	558	2,896.00
29 H-Pole for Transformer (Terminal & Intermediate)	no.	2	1350	2700	350	700	3,400.00
30 Section Pole	no.		580		155		-
31 11kV, single stay equipment		26					-
normal ground	no.		115		45		-
laterite ground	no.		115		65		-
rock ground	no.		115		85		-
32 11kV, flying stay equipment	no.						-
33 120sqmm Al Conductor	km		2350		583		-
34 3-Phase, 11kV Load Isolator	no.		3100		650		-
35 3-Phase, 11kV Auto Recloser	no.		19950		3980		-
36 11kV Shunt Capacitor	kVAR		6		3		-
37 HV Wooden Poles for 11kV Lines (10m)		27					-
normal ground	no.	13	378	4914	90	1170	6,084.00
laterite ground	no.	6	378	2268	96	576	2,844.00
rock ground	no.	7	378	2646	109	763	3,409.00
38 HV Wooden Poles for 11kV Lines (11m)							-
normal ground	no.		439		90		-
laterite ground	no.		439		96		-

Signature

Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

HOHOE

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		-
39 HV Steel Poles for 11kV Lines (10m)							-
normal ground	no.		1100		90		-
laterite ground	no.		1100		96		-
rock ground	no.		1100		109		-
40 HV Steel Poles for 11kV Lines (11m)							-
normal ground	no.		1250		90		-
laterite ground	no.		1250		96		-
rock ground	no.		1250		109		-
41 Line route survey	km	1			672	1001.28	1,001.28
42 Bush Clearing		1			567	844.83	844.83
Sub - Total							25,512.11

Pole Mounted Transformer Substations

43 33kV, 50kVA 3-Ph Transformers & Substation Equipment	no.	4	8220	32880	1719	6876	39,756.00
44 33kV, 100VA 3-Ph Transformers & Substation Equipment	no.	3	9870	29610	2145	6435	36,045.00
45 33kV, 200VA 3-Ph Transformers & Substation Equipment	no.		11230		2789		-
46 11kV, 50kVA 3-Ph Transformers & Substation Equipment	no.	1	6459	6459	1568	1568	8,027.00
47 11kV, 100VA 3-Ph Transformers & Substation Equipment	no.		7500		1656		-
48 11kV, 200VA 3-Ph Transformers & Substation Equipment	no.	1	8386	8386	2132	2132	10,518.00
Sub - Total							94,346.00

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Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

HOHOE

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	316	90	28440	18	5688	34,128.00
50 4-Wire, 0 - 20 degree angle	no.	30	96	2880	18	540	3,420.00
51 4-Wire, 20 - 60 degree angle	no.	3	175	525	40	120	645.00
52 4-Wire, 60 - 90 heavy angle	no.	20	223	4460	40	800	5,260.00
53 4-Wire, Terminal Pole	no.	133	86	11438	25	3325	14,763.00
54 4-Wire, Tee-Off	no.	91	125	11375	35	3185	14,560.00
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	510	21	10710	15	7650	18,360.00
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	12	45	540	21	252	792.00
57 LV Stay arrangement		252					-
normal ground	no.	107	110	11770	41	4387	16,157.00
laterite ground	no.	51	110	5610	65	3315	8,925.00
rock ground	no.	63	110	6930	78	4914	11,844.00
58 50sqmm Al Conductor	km	93	951	88317.468	450	41790.6	130,108.07
59 8m LV poles		250					-
normal ground	no.	105	226	23730	76	7980	31,710.00
laterite ground	no.	51	226	11526	84	4284	15,810.00
rock ground	no.	59	226	13334	93	5487	18,821.00
60 9m LV poles		308					-
normal ground	no.	140	261	36540	76	10640	47,180.00
laterite ground	no.	68	261	17748	84	5712	23,460.00
rock ground	no.	77	261	20097	93	7161	27,258.00
61 LV Earthing, neutral conductor PME	no.	175	55	9625	19	3325	12,950.00
62 Survey & Preparation of Town Layout	km	26			500	13001.5	13,001.50
63 Preparation of LV Designs	km	26			400	10401.2	10,401.20
64 Preparation of As-Built Drawings	km	26			450	11701.35	11,701.35
						Sub - Total	471,255.12

11/8/2015

Price Schedules (Bill of Quantities)

Name of Region

VOLTA REGION

Name of District

HOHOE

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	510	204	104040	66	33660	137,700.00
66 3-Phase Electronic meter	no.	12	516	6192	93	1116	7,308.00
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	205	176	36080	64	13120	49,200.00
68 7m service pole normal ground	no.	102	195	19890	65	6630	-
laterite ground	no.	51	195	9945	86	4386	26,520.00
rock ground	no.	52	195	10140	95	4940	14,331.00
69 fiber glass meter box for outside use and complete with fixings	no.	205	97	19885	35	7175	15,080.00
							27,060.00

Sub - Total 277,199.00

TOTAL

Summary

33kV, 3-Phase Network	162,929.90
11kV, 3-Phase Network	25,512.11
Pole Mounted Transformer Substations	94,346.00
Low Voltage (LV) Networks	471,255.12
Service Connections	277,199.00

TOTAL 1,031,242.13

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TOTAL AMOUNT OF SELF-HELP ELECTRIFICATION PROGRAMME IN FIVE REGIONS-PHASE 2

Name of Region WESTERN REGION

Name of District Total(Sub-total+3.5% of Contingency+2.5% Implementation)

Summary

<u>33kV, 3-Phase Network</u>	US\$ 3,206,556
<u>11kV, 3-Phase Network</u>	US\$ -
<u>Pole Mounted Transformer Substations</u>	US\$ 576,006
<u>Low Voltage (LV) Networks</u>	US\$ 1,566,237
<u>Service Connections</u>	US\$ 1,775,536
<u>Sub-total</u>	US\$ 7,124,335
<u>Contingency (3.5%) =</u>	US\$ 249,352
<u>Implementation Unit (2.5%) =</u>	US\$ 178,108
<u>Total Amount</u>	US\$ 7,551,795

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost	Total Cost	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
			Materials (US\$,CIF)	Materials (US\$,CIF)	Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	540	250	135,000	60	32,400	167,400
2 0 - 20 degree Intermediate	no.	255	250	63,750	60	15,300	79,050
3 20 - 60 degree angle H Pole (MV)	no.	190	830	157,700	192	36,480	194,180
4 60 - 90 degree angle H Pole (HV)	no.	60	620	37,200	180	10,800	48,000
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	6	790	4,740	247	1,482	6,222
7 Fused Tee off	no.	27	1,629	43,983	398	10,746	54,729
8 H-Pole for Transformer (Terminal & Intermediate)	no.	54	1,506	81,324	354	19,116	100,440
9 Section Pole	no.	35	760	26,600	195	6,825	33,425
10 33kV, single stay equipment		1,553					
normal ground	no.	770	125	96,250	45	34,650	130,900
laterite ground	no.	377	125	47,125	65	24,505	71,630
rock ground	no.	406	125	50,750	85	34,510	85,260
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	322	2,350	757,051	583	187,813	944,864
13 3-Phase, 33kV Load Isolator	no.	6	3,980	23,880	950	5,700	29,580
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	KVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		506					
normal ground	no.	245	378	92,610	90	22,050	114,660
laterite ground	no.	115	378	43,470	96	11,040	54,510
rock ground	no.	146	378	55,188	109	15,914	71,102
17 HV Wooden Poles for 33kV Lines (11m)		486					
normal ground	no.	234	439	102,726	90	21,060	123,786
laterite ground	no.	107	439	46,973	96	10,272	57,245
rock ground	no.	145	439	63,655	109	15,805	79,460
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
19 HV Steel Poles for 33kV Lines (11m)		472					
normal ground	no.	227	1,250	283,750	90	20,430	304,180
laterite ground	no.	105	1,250	131,250	96	10,080	141,330
rock ground	no.	140	1,250	175,000	109	15,260	190,260
20 Line route survey	km	100			672	67,441	67,441
21 Bush Clearing	km	100			567	56,903	56,903
						Sub-Total	3,206,556
11kV, 3-Phase Network							
22 Intermediate Pole	no.		145		38		
23 C - 20 degree Intermediate	no.		210		38		
24 20 - 60 degree angle H Pole (MV)	no.		620		158		
25 60 - 90 degree angle H Pole (HV)	no.		590		153		
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.		720		198		
28 Fused Tee off	no.		1,169		279		
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350		
30 Section Pole	no.		580		155		
31 11kV, single stay equipment							
normal ground	no.		115		45		
laterite ground	no.		115		65		
rock ground	no.		115		85		
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km		2,350		583		
34 3-Phase, 11kV Load Isolator	no.		3,100		650		
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	KVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
38 HV Wooden Poles for 11kV Lines (11m)							

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
normal ground	no.		439		90			
laterite ground	no.		439		96			
rock ground	no.		439		109			
39 HV Steel Poles for 11kV Lines (10m)								
normal ground	no.		1,100		90			
laterite ground	no.		1,100		96			
rock ground	no.		1,100		109			
40 HV Steel Poles for 11kV Lines (11m)								
normal ground	no.		1,250		90			
laterite ground	no.		1,250		96			
rock ground	no.		1,250		109			
41 Line route survey	km				672			
42 Bush Clearing					567			
Sub-Total								
Pole Mounted Transformer Substations								
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	37	8,220	304,140	1,719	63,603	367,743	
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	15	9,870	148,050	2,145	32,175	180,225	
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	2	11,230	22,460	2,789	5,578	28,038	
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568			
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656			
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132			
Sub-Total							576,006	

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Price Schedules (Bill of Quantities)

Name of Region		WESTERN						
Name of District		Sub-Total						
Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
Low Voltage (LV) Networks								
49	4-Wire, Intermediate (Type A)	no.	672	90	60,480	18	12,096	72,576
50	4-Wire, 0 - 20 degree angle	no.	173	96	16,608	18	3,114	19,722
51	4-Wire, 20 - 60 degree angle	no.	19	175	3,325	40	760	4,085
52	4-Wire, 60 - 90 heavy angle	no.	140	223	31,220	40	5,600	36,820
53	4-Wire, Terminal Pole	no.	463	86	39,818	25	11,575	51,393
54	4-Wire, Tee-Off	no.	236	125	29,500	35	8,260	37,760
55	Service Tee-Off, 1-Phase (excluding pole structure)	no.	3,250	21	68,250	15	48,750	117,000
56	Service Tee-Off, 3-Phase (excluding pole structure)	no.	81	45	3,645	21	1,701	5,346
57	LV Stay arrangement		1,032					
	normal ground	no.	506	110	55,660	41	20,746	76,406
	laterite ground	no.	242	110	26,620	65	15,730	42,350
	rock ground	no.	284	110	31,240	78	22,152	53,392
58	50sqmm Al Conductor	km	287	951	272,678	450	129,028	401,706
59	8m LV poles		847					
	normal ground	no.	415	226	93,790	76	31,540	125,330
	laterite ground	no.	198	226	44,748	84	16,632	61,380
	rock ground	no.	234	226	52,884	93	21,762	74,646
60	9m LV poles		758					
	normal ground	no.	373	261	97,353	76	28,348	125,701
	laterite ground	no.	177	261	46,197	84	14,868	61,065
	rock ground	no.	208	261	54,288	93	19,344	73,632
61	LV Earthing, neutral conductor PME	no.	394	55	21,670	19	7,486	29,156
62	Survey & Preparation of Town Layout	km	72			500	35,841	35,841
63	Preparation of LV Designs	km	72			400	28,673	28,673
64	Preparation of As-Built Drawings	km	72			450	32,257	32,257
							Sub-Total	1,566,237

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN

Name of District

Sub-Total

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	3,250	204	663,000	66	214,500	877,500
66 3-Phase Electronic meter	no.	81	516	41,796	93	7,533	49,329
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	1,316	176	231,616	64	84,224	315,840
68 7m service pole normal ground	no.	652	195	127,140	65	42,380	169,520
laterite ground	no.	325	195	63,375	86	27,950	91,325
rock ground	no.	339	195	66,105	95	32,205	98,310
69 fiber glass meter box for outside use and complete with fixings	no.	1,316	97	127,652	35	46,060	173,712
						Sub - Total	1,775,536

TOTAL

Summary

33kV, 3-Phase Network	3,206,556
11kV, 3-Phase Network	
Pole Mounted Transformer Substations	576,006
Low Voltage (LV) Networks	1,566,237
Service Connections	1,775,536
Total	7,124,335

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

MPOHOR WASSA EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	175	250	43,750	60	10,500	54,250
2 0 - 20 degree Intermediate	no.	93	250	23,250	60	5,580	28,830
3 20 - 60 degree angle H Pole (MV)	no.	52	830	43,160	192	9,984	53,144
4 60 - 90 degree angle H Pole (HV)	no.	10	620	6,200	180	1,800	8,000
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	2	790	1,580	247	494	2,074
7 Fused Tee off	no.	16	1,629	26,064	398	6,368	32,432
8 H-Pole for Transformer (Terminal & Intermediate)	no.	21	1,506	31,626	354	7,434	39,060
9 Section Pole	no.	20	760	15,200	195	3,900	19,100
10 33kV, single stay equipment		495					
normal ground	no.	244	125	30,500	45	10,980	41,480
laterite ground	no.	119	125	14,875	65	7,735	22,610
rock ground	no.	132	125	16,500	85	11,220	27,720
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	105	2,350	246,680	583	61,198	307,878
13 3-Phase, 33kV Load Isolator	no.	2	3,980	7,960	950	1,900	9,860
14 3-Phase, 33kV Auto Redcloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		186					
normal ground	no.	89	378	33,642	90	8,010	41,652
laterite ground	no.	41	378	15,498	96	3,936	19,434
rock ground	no.	56	378	21,168	109	6,104	27,272
17 HV Wooden Poles for 33kV Lines (11m)		160					
normal ground	no.	76	439	33,364	90	6,840	40,204
laterite ground	no.	36	439	15,804	96	3,456	19,260
rock ground	no.	48	439	21,072	109	5,232	26,304
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		136					

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

MPOHOR WASSA EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.	65	1,250	81,250	90	5,850	87,100
laterite ground	no.	29	1,250	36,250	96	2,784	39,034
rock ground	no.	42	1,250	52,500	109	4,578	57,078
20 Line route survey	km	33			672	21,975	21,975
21 Bush Clearing	km	33			567	18,541	18,541
Sub - Total							1,044,292
11kV, 3-Phase Network							
22 Intermediate Pole	no.		145		38		
23 0 - 20 degree Intermediate	no.		210		38		
24 20 - 60 degree angle H Pole (MV)	no.		620		158		
25 60 - 90 degree angle H Pole (HV)	no.		590		153		
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.		720		198		
28 Fused Tee off	no.		1,169		279		
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350		
30 Section Pole	no.		580		155		
31 11kV, single stay equipment							
normal ground	no.		115		45		
laterite ground	no.		115		65		
rock ground	no.		115		85		
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km		2,350		583		
34 3-Phase, 11kV Load Isolator	no.		3,100		650		
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	KVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
38 HV Wooden Poles for 11kV Lines (11m)							
normal ground	no.		439		90		
laterite ground	no.		439		96		

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

MPOHOR WASSA EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		
39 HV Steel Poles for 11KV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11KV Lines (11m)							
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
41 Line route survey	km				672		
42 Bush Clearing					567		
					Sub - Total		
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	17	8,220	139,740	1,719	29,223	168,963
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	4	9,870	39,480	2,145	8,560	48,060
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		11,230		2,789		
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568		
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656		
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		
					Sub - Total		217,023

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

MPOHOR WASSA EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	249	90	22,410	18	4,482	26,892
50 4-Wire, 0 - 20 degree angle	no.	54	96	5,184	18	972	6,156
51 4-Wire, 20 - 60 degree angle	no.	10	175	1,750	40	400	2,150
52 4-Wire, 60 - 90 heavy angle	no.	58	223	12,934	40	2,320	15,254
53 4-Wire, Terminal Pole	no.	192	86	16,512	25	4,800	21,312
54 4-Wire, Tee-Off	no.	92	125	11,500	35	3,220	14,720
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	1,170	21	24,570	15	17,550	42,120
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	28	45	1,260	21	588	1,848
57 LV Stay arrangement		423					
normal ground	no.	208	110	22,880	41	8,528	31,408
laterite ground	no.	100	110	11,000	65	6,500	17,500
rock ground	no.	115	110	12,650	78	8,970	21,620
58 50sqmm Al Conductor	km	107	951	101,852	450	48,195	150,047
59 8m LV poles		302					
normal ground	no.	147	226	33,222	76	11,172	44,394
laterite ground	no.	69	226	15,594	84	5,796	21,390
rock ground	no.	86	226	19,436	93	7,998	27,434
60 9m LV poles		305					
normal ground	no.	150	261	39,150	76	11,400	50,550
laterite ground	no.	71	261	18,531	84	5,964	24,495
rock ground	no.	84	261	21,924	93	7,812	29,736
61 LV Earthing, neutral conductor PME	no.	150	55	8,250	19	2,850	11,100
62 Survey & Preparation of Town Layout	km	27			500	13,388	13,388
63 Preparation of LV Designs	km	27			400	10,710	10,710
64 Preparation of As-Built Drawings	km	27			450	12,049	12,049
Sub - Total							596,272

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

MPOHOR WASSA EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	1,170	204	238,680	66	77,220	315,900
66 3-Phase Electronic meter	no.	28	516	14,448	93	2,604	17,052
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	473	176	83,248	64	30,272	113,520
68 7m service pole normal ground	no.	473	195	45,825	65	15,275	61,100
laterite ground	no.	235	195	22,815	86	10,062	32,877
rock ground	no.	117	195	23,595	95	11,495	35,090
69 fiber glass meter box for outside use and complete with fixings	no.	121	195	23,595	95	11,495	35,090
		473	97	45,881	35	16,555	62,436
						Sub - Total	637,975

TOTAL

Summary

33kV, 3-Phase Network	1,044,292
11kV, 3-Phase Network	
Pole Mounted Transformer Substations	217,023
Low Voltage (LV) Networks	596,272
Service Connections	637,975
TOTAL	2,495,563

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Price Schedules (Bill of Quantities)

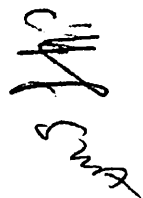
Name of Region

WESTERN REGION

Name of District

AMENFI EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	123	250	30,750	60	7,380	38,130
2 0 - 20 degree Intermediate	no.	82	250	20,500	60	4,920	25,420
3 20 - 60 degree angle H Pole (MV)	no.	49	830	40,670	192	9,408	50,078
4 60 - 90 degree angle H Pole (HV)	no.	4	620	2,480	180	720	3,200
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	1	790	790	247	247	1,037
7 Fused Tee off	no.	2	1,629	3,258	398	796	4,054
8 H-Pole for Transformer (Terminal & Intermediate)	no.	11	1,506	16,566	354	3,894	20,460
9 Section Pole	no.	11	760	8,360	195	2,145	10,505
10 33kV, single stay equipment		364					
normal ground	no.	180	125	22,500	45	8,100	30,600
laterite ground	no.	88	125	11,000	65	5,720	16,720
rock ground	no.	96	125	12,000	85	8,160	20,160
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	73	2,350	170,989	583	42,420	213,408
13 3-Phase, 33kV Load Isolator	no.	1	3,980	3,980	950	950	4,930
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		136					
normal ground	no.	67	378	25,326	90	6,030	31,356
laterite ground	no.	31	378	11,718	96	2,976	14,694
rock ground	no.	38	378	14,364	109	4,142	18,506
17 HV Wooden Poles for 33kV Lines (11m)		111					
normal ground	no.	53	439	23,267	90	4,770	28,037
laterite ground	no.	24	439	10,536	96	2,304	12,840
rock ground	no.	34	439	14,926	109	3,706	18,632
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		99					



Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

AMENFI EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.	47	1,250	58,750	90	4,230	62,980
laterite ground	no.	22	1,250	27,500	96	2,112	29,612
rock ground	no.	30	1,250	37,500	109	3,270	40,770
20 Line route survey	km	23			672	15,232	15,232
21 Bush Clearing	km	23			567	12,852	12,852
						Sub - Total	724,214
11kV, 3-Phase Network							
22 Intermediate Pole	no.		145		38		
23 0 - 20 degree Intermediate	no.		210		38		
24 20 - 60 degree angle H Pole (MV)	no.		620		158		
25 60 - 90 degree angle H Pole (HV)	no.		590		153		
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.		720		198		
28 Fused Tee off	no.		1,169		279		
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350		
30 Section Pole	no.		580		155		
31 11kV, single stay equipment							
normal ground	no.		115		45		
laterite ground	no.		115		65		
rock ground	no.		115		85		
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km		2,350		583		
34 3-Phase, 11kV Load Isolator	no.		3,100		650		
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	KVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
38 HV Wooden Poles for 11kV Lines (11m)							
normal ground	no.		439		90		
laterite ground	no.		439		96		

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

AMENFI EAST

Description	Unit	Quantity	Unit Cost (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)	
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)		
rock ground	no.		439		109			
39 HV Steel Poles for 11kV Lines (10m)								
normal ground	no.		1,100		90			
laterite ground	no.		1,100		96			
rock ground	no.		1,100		109			
40 HV Steel Poles for 11kV Lines (11m)								
normal ground	no.		1,250		90			
laterite ground	no.		1,250		96			
rock ground	no.		1,250		109			
41 Line route survey	km				672			
42 Bush Clearing					567			
Sub - Total								
Pole Mounted Transformer Substations								
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	6	8,220	49,320	1,719	10,314	59,634	
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	5	9,870	49,350	2,145	10,725	60,075	
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		11,230		2,789			
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568			
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656			
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132			
Sub - Total							119,709	

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

AMENFI EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	124	90	11,160	18	2,232	13,392
50 4-Wire, 0 - 20 degree angle	no.	54	96	5,184	18	972	6,156
51 4-Wire, 20 - 60 degree angle	no.		175		40		
52 4-Wire, 60 - 90 heavy angle	no.	13	223	2,899	40	520	3,419
53 4-Wire, Terminal Pole	no.	55	86	4,730	25	1,375	6,105
54 4-Wire, Tee-Off	no.	31	125	3,875	35	1,085	4,960
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	700	21	14,700	15	10,500	25,200
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	17	45	765	21	357	1,122
57 LV Stay arrangement		160					
normal ground	no.	77	110	8,470	41	3,157	11,627
laterite ground	no.	35	110	3,850	65	2,275	6,125
rock ground	no.	48	110	5,280	78	3,744	9,024
58 50sqmm Al Conductor	km	51	951	48,539	450	22,968	71,507
59 8m LV poles		70					
normal ground	no.	34	226	7,684	76	2,584	10,268
laterite ground	no.	14	226	3,164	84	1,176	4,340
rock ground	no.	22	226	4,972	93	2,046	7,018
60 9m LV poles		207					
normal ground	no.	102	261	26,622	76	7,752	34,374
laterite ground	no.	49	261	12,789	84	4,116	16,905
rock ground	no.	56	261	14,616	93	5,208	19,824
61 LV Earthing, neutral conductor PME	no.	59	55	3,245	19	1,121	4,366
62 Survey & Preparation of Town Layout	km	13			500	6,380	6,380
63 Preparation of LV Designs	km	13			400	5,104	5,104
64 Preparation of As-Built Drawings	km	13			450	5,742	5,742
					Sub - Total		272,958

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

AMENFI EAST

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	700	204	142,800	66	46,200	189,000
66 3-Phase Electronic meter	no.	17	516	8,772	93	1,581	10,353
67 7m service pole top structure including cable from 8m pole to 7m pole	no.	283	176	49,808	64	18,112	67,920
68 7m service pole		283					
normal ground	no.	140	195	27,300	65	9,100	36,400
laterite ground	no.	70	195	13,650	86	6,020	19,670
rock ground	no.	73	195	14,235	95	6,935	21,170
69 fiber glass meter box for outside use and complete with fixings	no.	283	97	27,451	35	9,905	37,356
						Sub - Total	381,869

TOTAL

Summary

33kV, 3-Phase Network	724,214
11kV, 3-Phase Network	
Pole Mounted Transformer Substations	119,709
Low Voltage (LV) Networks	272,958
Service Connections	381,869
TOTAL	1,498,750

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

JOMORO

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	80	250	20,000	60	4,800	24,800
2 0 - 20 degree Intermediate	no.	53	250	13,250	60	3,180	16,430
3 20 - 60 degree angle H Pole (MV)	no.	37	830	30,710	192	7,104	37,814
4 60 - 90 degree angle H Pole (HV)	no.	15	620	9,300	180	2,700	12,000
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	1	790	790	247	247	1,037
7 Fused Tee off	no.	2	1,629	3,258	398	796	4,054
8 H-Pole for Transformer (Terminal & Intermediate)	no.	10	1,506	15,060	354	3,540	18,600
9 Section Pole	no.	1	760	760	195	195	955
10 33kV, single stay equipment		285					
normal ground	no.	142	125	17,750	45	6,390	24,140
laterite ground	no.	69	125	8,625	65	4,485	13,110
rock ground	no.	74	125	9,250	85	6,290	15,540
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	58	2,350	136,024	583	33,746	169,770
13 3-Phase, 33kV Load Isolator	no.	1	3,980	3,980	950	950	4,930
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		31					
normal ground	no.	15	378	5,670	90	1,350	7,020
laterite ground	no.	7	378	2,646	96	672	3,318
rock ground	no.	9	378	3,402	109	981	4,383
17 HV Wooden Poles for 33kV Lines (11m)		87					
normal ground	no.	43	439	18,877	90	3,870	22,747
laterite ground	no.	19	439	8,341	96	1,824	10,165
rock ground	no.	25	439	10,975	109	2,725	13,700
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		123					

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

JOMORO

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost		Total Cost	
					Installation & Commissioning (US\$)	Transportation	Installation & Commissioning (US\$)	Transportation
								Total Cost of Mat. & Install (US\$)
normal ground	no.	60	1,250	75,000	90		5,400	80,400
laterite ground	no.	29	1,250	36,250	96		2,784	39,034
rock ground	no.	34	1,250	42,500	109		3,706	46,206
20 Line route survey	km	18			672		12,118	12,118
21 Bush Clearing	km	18			567		10,224	10,224
							Sub - Total	592,495
11kV, 3-Phase Network								
22 Intermediate Pole	no.		145		38			
23 0 - 20 degree Intermediate	no.		210		38			
24 20 - 60 degree angle H Pole (MV)	no.		620		158			
25 60 - 90 degree angle H Pole (HV)	no.		590		153			
26 Section Pole with Drop-Out Fuses	no.		980		248			
27 Section Pole for Mounting Load Isolator	no.		720		198			
28 Fused Tee off	no.		1,169		279			
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350			
30 Section Pole	no.		580		155			
31 11kV, single stay equipment								
normal ground	no.		115		45			
laterite ground	no.		115		65			
rock ground	no.		115		85			
32 11kV, flying stay equipment	no.							
33 120sqmm Al Conductor	km		2,350		583			
34 3-Phase, 11kV Load Isolator	no.		3,100		650			
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980			
36 11kV Shunt Capacitor	kVAR		6		3			
37 HV Wooden Poles for 11kV Lines (10m)								
normal ground	no.		378		90			
laterite ground	no.		378		96			
rock ground	no.		378		109			
38 HV Wooden Poles for 11kV Lines (11m)								
normal ground	no.		439		90			
laterite ground	no.		439		96			

Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

JOMORO

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)							
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
41 Line route survey	km				672		
42 Bush Clearing					567		
					Sub - Total		
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	6	8,220	49,320	1,719	10,314	59,634
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	2	9,870	19,740	2,145	4,290	24,030
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.	2	11,230	22,460	2,789	5,578	28,038
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568		
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656		
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		
					Sub - Total		111,702

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

JOMORO

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	191	90	17,190	18	3,438	20,628
50 4-Wire, 0 - 20 degree angle	no.	38	96	3,648	18	684	4,332
51 4-Wire, 20 - 60 degree angle	no.	9	175	1,575	40	360	1,935
52 4-Wire, 60 - 90 heavy angle	no.	18	223	4,014	40	720	4,734
53 4-Wire, Terminal Pole	no.	101	86	8,686	25	2,525	11,211
54 4-Wire, Tee-Off	no.	54	125	6,750	35	1,890	8,640
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	660	21	13,860	15	9,900	23,760
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	18	45	810	21	378	1,188
57 LV Stay arrangement		222					
normal ground	no.	109	110	11,990	41	4,469	16,459
laterite ground	no.	53	110	5,830	65	3,445	9,275
rock ground	no.	60	110	6,600	78	4,680	11,280
58 50sqmm Al Conductor	km	70	951	66,692	450	31,558	98,249
59 8m LV poles		194					
normal ground	no.	96	226	21,696	76	7,296	28,992
laterite ground	no.	47	226	10,622	84	3,948	14,570
rock ground	no.	51	226	11,526	93	4,743	16,269
60 9m LV poles		198					
normal ground	no.	98	261	25,578	76	7,448	33,026
laterite ground	no.	48	261	12,528	84	4,032	16,560
rock ground	no.	52	261	13,572	93	4,836	18,408
61 LV Earthing, neutral conductor PME	no.	89	55	4,895	19	1,691	6,586
62 Survey & Preparation of Town Layout	km	18			500	8,766	8,766
63 Preparation of LV Designs	km	18			400	7,013	7,013
64 Preparation of As-Built Drawings	km	18			450	7,889	7,889
Sub - Total							369,771

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

JOMORO

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	660	204	134,640	66	43,560	178,200
66 3-Phase Electronic meter	no.	18	516	9,288	93	1,674	10,962
67 7m service pole top structure including cable from om pole to 7m pole	no.	269	176	47,344	64	17,216	64,560
68 7m service pole		269					
normal ground	no.	132	195	25,740	65	8,580	34,320
laterite ground	no.	66	195	12,870	86	5,676	18,546
rock ground	no.	71	195	13,845	95	6,745	20,590
69 11kv glass meter box for outside use and complete with fuses	no.	269	97	26,093	35	9,415	35,508
					Sub - Total		362,686

TOTAL

Summary

33kV, 3-Phase Network

592,495

11kV, 3-Phase Network

Pole Mounted Transformer Substations

111,702

Low Voltage (LV) Networks

369,771

Service Connections

362,686

TOTAL

1,436,653

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

PRESTEA

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local	Local	
					Transportation Installation & Commissioning (US\$)	Transportation Installation & Commissioning (US\$)	
33kV, 3-Phase Network							
1 Intermediate Pole	no.	162	250	40,500	60	9,720	50,220
2 0 - 20 degree Intermediate	no.	27	250	6,750	60	1,620	8,370
3 20 - 60 degree angle H Pole (MV)	no.	52	830	43,160	192	9,984	53,144
4 60 - 90 degree angle H Pole (HV)	no.	31	620	19,220	180	5,580	24,800
5 Section Pole with Drop-Out Fuses	no.		1,350		337		
6 Section Pole for Mounting Load Isolator	no.	2	790	1,580	247	494	2,074
7 Fused Tee off	no.	7	1,629	11,403	398	2,786	14,189
8 H-Pole for Transformer (Terminal & Intermediate)	no.	12	1,506	18,072	354	4,248	22,320
9 Section Pole	no.	3	760	2,280	195	585	2,865
10 33kV, single stay equipment		409					
normal ground	no.	204	125	25,500	45	9,180	34,680
laterite ground	no.	101	125	12,625	65	6,565	19,190
rock ground	no.	104	125	13,000	85	8,840	21,840
11 33kV, flying stay equipment	no.						
12 120sqmm Al Conductor	km	87	2,350	203,358	583	50,450	253,808
13 3-Phase, 33kV Load Isolator	no.	2	3,980	7,960	950	1,900	9,860
14 3-Phase, 33kV Auto Recloser	no.		21,887		3,880		
15 33kV Shunt Capacitor	kVAR		7		3		
16 HV Wooden Poles for 33kV Lines (10m)		153					
normal ground	no.	74	378	27,972	90	6,660	34,632
laterite ground	no.	36	378	13,608	96	3,456	17,064
rock ground	no.	43	378	16,254	109	4,687	20,941
17 HV Wooden Poles for 33kV Lines (11m)		128					
normal ground	no.	62	439	27,218	90	5,580	32,798
laterite ground	no.	28	439	12,292	96	2,688	14,980
rock ground	no.	38	439	16,682	109	4,142	20,824
18 HV Steel Poles for 33kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
19 HV Steel Poles for 33kV Lines (11m)		114					

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

PRESTEA

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
normal ground	no.	55	1,250	68,750	90	4,950	73,700
laterite ground	no.	25	1,250	31,250	96	2,400	33,650
rock ground	no.	34	1,250	42,500	109	3,706	46,206
20 Line route survey	km	27			672	18,116	18,116
21 Bush Clearing	km	27			567	15,285	15,285
						Sub - Total	845,556
11kV, 3-Phase Network							
22 Intermediate Pole	no.		145		38		
23 0 - 20 degree Intermediate	no.		210		38		
24 20 - 60 degree angle H Pole (MV)	no.		620		158		
25 60 - 90 degree angle H Pole (HV)	no.		590		153		
26 Section Pole with Drop-Out Fuses	no.		980		248		
27 Section Pole for Mounting Load Isolator	no.		720		198		
28 Fused Tee off	no.		1,169		279		
29 H-Pole for Transformer (Terminal & Intermediate)	no.		1,350		350		
30 Section Pole	no.		580		155		
31 11kV, single stay equipment							
normal ground	no.		115		45		
laterite ground	no.		115		65		
rock ground	no.		115		85		
32 11kV, flying stay equipment	no.						
33 120sqmm Al Conductor	km		2,350		583		
34 3-Phase, 11kV Load Isolator	no.		3,100		650		
35 3-Phase, 11kV Auto Recloser	no.		19,950		3,980		
36 11kV Shunt Capacitor	kVAR		6		3		
37 HV Wooden Poles for 11kV Lines (10m)							
normal ground	no.		378		90		
laterite ground	no.		378		96		
rock ground	no.		378		109		
38 HV Wooden Poles for 11kV Lines (11m)							
normal ground	no.		439		90		
laterite ground	no.		439		96		

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

PRESTEA

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
rock ground	no.		439		109		
39 HV Steel Poles for 11kV Lines (10m)							
normal ground	no.		1,100		90		
laterite ground	no.		1,100		96		
rock ground	no.		1,100		109		
40 HV Steel Poles for 11kV Lines (11m)							
normal ground	no.		1,250		90		
laterite ground	no.		1,250		96		
rock ground	no.		1,250		109		
41 Line route survey	km				672		
42 Bush Clearing					567		
Sub - Total							
Pole Mounted Transformer Substations							
43 33KV, 50KVA 3-Ph Transformers & Substation Equipment	no.	8	8,220	65,760	1,719	13,752	79,512
44 33KV, 100KVA 3-Ph Transformers & Substation Equipment	no.	4	9,870	39,480	2,145	8,580	48,060
45 33KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		11,230		2,789		
46 11KV, 50KVA 3-Ph Transformers & Substation Equipment	no.		6,459		1,568		
47 11KV, 100KVA 3-Ph Transformers & Substation Equipment	no.		7,500		1,656		
48 11KV, 200KVA 3-Ph Transformers & Substation Equipment	no.		8,386		2,132		
Sub - Total							127,572

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

PRESTEA

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (USS)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Low Voltage (LV) Networks							
49 4-Wire, Intermediate (Type A)	no.	108	90	9,720	18	1,944	11,664
50 4-Wire, 0 - 20 degree angle	no.	27	96	2,592	18	486	3,078
51 4-Wire, 20 - 60 degree angle	no.		175		40		
52 4-Wire, 60 - 90 heavy angle	no.	51	223	11,373	40	2,040	13,413
53 4-Wire, Terminal Pole	no.	115	86	9,890	25	2,875	12,765
54 4-Wire, Tee-Off	no.	59	125	7,375	35	2,065	9,440
55 Service Tee-Off, 1-Phase (excluding pole structure)	no.	720	21	15,120	15	10,800	25,920
56 Service Tee-Off, 3-Phase (excluding pole structure)	no.	18	45	810	21	378	1,188
57 LV Stay arrangement		227					
normal ground	no.	112	110	12,320	41	4,592	16,912
laterite ground	no.	54	110	5,940	65	3,510	9,450
rock ground	no.	61	110	6,710	78	4,758	11,468
58 50sqmm Al Conductor	km	58	951	55,595	450	26,307	81,902
59 8m LV poles		281					
normal ground	no.	138	226	31,188	76	10,488	41,676
laterite ground	no.	68	226	15,368	84	5,712	21,080
rock ground	no.	75	226	16,950	93	6,975	23,925
60 9m LV poles		48					
normal ground	no.	23	261	6,003	76	1,748	7,751
laterite ground	no.	9	261	2,349	84	756	3,105
rock ground	no.	16	261	4,176	93	1,488	5,664
61 LV Earthing, neutral conductor PME	no.	96	55	5,280	19	1,824	7,104
62 Survey & Preparation of Town Layout	km	15			500	7,308	7,308
63 Preparation of LV Designs	km	15			400	5,846	5,846
64 Preparation of As-Built Drawings	km	15			450	6,577	6,577
Sub - Total							327,236

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Price Schedules (Bill of Quantities)

Name of Region

WESTERN REGION

Name of District

PRESTEA

Description	Unit	Quantity	Unit Cost Materials (US\$,CIF)	Total Cost Materials (US\$,CIF)	Unit Cost	Total Cost	Total Cost of Mat. & Install (US\$)
					Local Transportation Installation & Commissioning (US\$)	Local Transportation Installation & Commissioning (US\$)	
Service Connections							
65 1-Phase Electronic meter	no.	720	204	146,880	66	47,520	194,400
66 3-Phase Electronic meter	no.	18	516	9,288	93	1,674	10,962
67 7m service pole top structure including cable from on pole to 7m pole	no.	291	176	51,216	64	18,624	69,840
68 7m service pole		291					
normal ground	no.	145	195	28,275	65	9,425	37,700
laterite ground	no.	72	195	14,040	86	6,192	20,232
rock ground	no.	74	195	14,430	95	7,030	21,460
69 fiber glass meter box for outside use and complete with fittings	no.	291	97	28,227	35	10,185	38,412
Sub - Total							393,006

TOTAL

Summary

33kV, 3-Phase Network	845,556
11kV, 3-Phase Network	
Pole Mounted Transformer Substations	127,572
Low Voltage (LV) Networks	327,236
Service Connections	393,006
TOTAL	1,693,369

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**Provisional List of Beneficiary Communities for the
Self-Help Electrification Programme in Five Regions-
Phase II**


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BENEFITIARY COMMUNITIES OF 5 REGIONS PROJECT-PHASE 2

No.	District	Communities	Remark
Ashanti Region			
1	Ashanti Akim North	33	
2	Bekwai	9	
3	Adansi North	5	
4	Ejura-Sekyedumase	16	
5	Atwima Mponua	39	
6	Offinso South	15	
7	Amansie West	35	
8	New Edubiase	54	
9	Atiwma Kwanwoma	6	
10	Ahafo Ano North	22	
11	Atwima Nwabiagya North	10	
12	Atwima Nwabiagya South	8	
13	Ahafo Ano South West	43	
14	Ahafo Ano South East	19	
15	Offinso North	13	
16	Sekyere Central	16	
Regional Total		343	
Brong Ahafo Region			
1	Wenchi	14	
2	Jaman North	6	
3	Tano South	8	
4	Berkum East	10	
5	Techiman North	17	
6	Nkoranza North	17	
7	Dormaa Central	10	
Regional Total		82	

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Eastern Region			
1	Akuapim South	7	
2	Denkyembour	18	
3	Birim North	7	
4	Kwaebirirem	2	
5	Lower West Akim	20	
Regional Total		54	
Volta Region			
1	Krachi East	24	
2	Krachi West	10	
3	Nkwanta South	10	
4	Hohoe	9	
5	Jasikan	6	
6	Krachi-Nchumuru	6	
Regional Total		65	
Western Region			
1	Mpohor Wassa East	15	
2	Amenfi East	8	
3	Jomoro	6	
4	Prestea	9	
Regional Total		38	
Total Regions		5	
Total Districts		38	
Total Communities		582	


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Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
Ashanti Region													
1	ASHANTI AKIM NORTH Total	192.071	0	23	8	2	0	0	0	47.497	2035	1990	45
2	BEKWAI Total	26.331	0	8	1	0	0	0	0	8.455	490	480	10
3	ADANSI NORTH Total	18.644	0	2	3	0	0	0	0	9.336	348	340	8
4	EJURA-SEKYEDUMASE Total	52.22	0	11	5	1	0	0	0	21.6	1074	1050	24
5	ATWIMA MPONUA Total	90.383	0	26	14	0	0	0	0	51.462	2475	2420	55
6	OFFINSO SOUTH Total	26.275	36.462	2	1	1	8	3	0	21.062	941	920	21
7	AMANSIE WEST Total	85.239	0	20	15	2	0	0	0	59.215	2456	2400	56
8	NEW EDUBIASE Total	0	66.374	0	0	0	53	12	4	84.31	4106	4010	96
9	ATIWMA KWANWOMA Total	2.041	9.77	1	0	0	5	0	0	5.5	306	300	6
10	Ahafo Ano North Total	61.595	0	8	17	1	0	0	0	52.779	1905	1860	45
11	ATWIMA NWABIAGYA NORTH Total	0	29.282	0	0	0	4	6	0	23.895	696	680	16
12	ATWIMA NWABIAGYA SOUTH Total	0	14.29	0	0	0	5	3	0	13.32	501	490	11
13	Ahafo Ano South West Total	91.376	0	30	15	0	0	0	0	66.903	2761	2700	61
14	Ahafo Ano South East Total	42.3	0	4	11	3	0	0	0	41.2	1353	1320	33
15	Offinso North Total	33.45	0	10	2	0	0	0	0	17.471	674	660	14
16	Sekyere Central Total	50.008	0	6	8	2	0	0	0	38.656	1168	1140	28
	Ashanti Total	771.933	156.178	151	100	12	75	24	4	562.661	23289	22760	529
Brong Ahafo Region													
1	WENCHI Total	19.848	16.55	5	4	1	4	2	4	38.73	1466	1430	36
2	JAMAN NORTH Total	20.29	0	4	7	3	0	0	0	33.31	1089	1060	29
3	TANO SOUTH Total	22.69	0	2	6	0	0	0	0	16.19	594	580	14
4	BEREKUM EAST Total	14.54	12.15	2	6	4	1	2	3	52.93	1532	1490	42
5	TECHIMAN NORTH Total	11.37	31.5	2	9	5	9	7	3	92.557	2701	2630	71

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
6	NKORANZA NORTH Total	68.88	0	12	9	5	0	0	0	61.79	1869	1820	49
7	DORMAA CENTRAL Total	35.02	0	6	3	1	0	0	0	17.2	655	640	15
	Brong Ahafo Total	192.638	60.2	33	44	19	14	11	10	312.707	9906	9650	256
Eastern Region													
1	AKUAPIM SOUTH Total	17.1	0	4	2	1	0	0	0	12.582	471	460	11
2	DENKYEMBOUR Total	21.36	0	16	3	0	0	0	0	18.3256	1062	1040	22
3	BIRIM NORTH Total	17.794	0	7	0	0	0	0	0	3.809	357	350	7
4	KWAEBIRIREM Total	2.298	0	2	0	0	0	0	0	1.495	102	100	2
5	LOWER WEST AKIM Total	0	35.141	0	0	0	14	5	3	38.855	1435	1400	35
	Eastern Total	58.552	35.141	29	5	1	14	5	3	75.0666	3427	3350	77
Volta Region													
1	KRACHI EAST Total	69.002	0	20	5	0	0	0	0	34.345	1431	1400	31
2	KRACHI WEST	53	0	6	7	3	0	0	0	33.89	1190	1160	30
3	NKWANTA SOUTH	19.75	0	5	6	3	0	0	0	31.37	1057	1030	27
4	KRACHI-NCHUMURU	11.3	0	2	4	0	0	0	0	10.458	430	420	10
5	JASIKAN	16.986	0	2	5	0	0	0	0	14.375	512	500	12
6	HOHOE	5.661	1.49	4	3	0	1	0	1	26.003	522	510	12
	Volta Total	175.699	1.49	39	30	6	1	0	1	150.441	5142	5020	122
Western Region													
1	MPOHOR WASSA EAST TOTAL	32.701	0	17	4	0	0	0	0	26.775	1198	1170	28
2	AMENFI EAST Total	22.667	0	6	5	0	0	0	0	12.76	717	700	17
3	JOMORO Total	18.032	0	6	2	2	0	0	0	17.532	678	660	18
4	PRESTEA Total	26.958	0	8	4	0	0	0	0	14.615	738	720	18
	Western Total	100.358	0	37	15	2	0	0	0	71.682	3331	3250	81
	Grand Total	1299.18	253.009	289	194	40	104	40	18	1172.5576	45095	44030	1065

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
Ashanti Region													
ASHANTI AKIM NORTH													
1	ATWIRISO	2.945		1						0.36	51	50	1
2	ASENKYEM	4.085		1						0.765	51	50	1
3	ADINKRAKROM	6.84		1						1.125	51	50	1
4	ANNANIE	0.134		1						0.945	51	50	1
5	ABEREWAPONG	17.153			1					1.8	82	80	2
6	AFIRISERE	3.681			1					2.16	82	80	2
7	BAAHWIREDU	1.52		1						0.63	51	50	1
8	BEBUSO No1	4.939		1						1.17	51	50	1
9	BEBUSO No2	1.719		1						0.315	51	50	1
10	BABDUASO	13.23		1						1.485	51	50	1
11	DUKUSEN	0.315			1					2.25	82	80	2
12	KWAME BUOKROM	4		1						1.035	51	50	1
13	KWAME EDUKROM	0.76		1						1.035	51	50	1
14	KONKOMBA JUNCTION	28.16		1						0.405	51	50	1
15	KOWIRESO	6.427			1					1.755	82	80	2
16	KWAME ADUKROM	7.696		1						1.26	51	50	1
17	MENAM	5.51			1					2.835	82	80	2
18	MAGEDA	1.7		1						1.44	51	50	1
19	NYANEWASE/SAMPAH	5.13		1						1.484	51	50	1
20	NSONNYAMEYE	5.373		1						1.26	51	50	1
21	NHYIASO	4.042				1				3.375	103	100	3
22	OTIKROM	5.7		1						0.45	51	50	1
23	SUBUNESU	6.175		1						0.63	51	50	1
24	SEREBUOSO	4.669		1						2.43	51	50	1
25	TINKON	2.375		1						0.675	51	50	1

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
26	YEJI	6		1						0.495	51	50	1
27	MPESEMPESE	11.386			1					2.43	82	80	2
28	KANSANSO	11.193				1				3.87	103	100	3
29	PATABAN	6.1			1					1.845	82	80	2
30	ONYEMSO	3.9			1					2.97	82	80	2
31	OSIEKROM	3.99		1						1.244	51	50	1
32	TEMA BONSU	4.694		1						0.733	51	50	1
33	MANKALA	0.53		1						0.836	51	50	1
	ASHANTI AKIM NORTH Total	192.071	0	23	8	2	0	0	0	47.497	2035	1990	45
	BEKWAI												
1	ABUSEBE	3.945		1						0.225	51	50	1
2	ACHUCHUSO	3.642		1						0.72	51	50	1
3	BROSANKO	3.722		1						1.53	51	50	1
4	DWUMAKRO	2.059		1						0.27	51	50	1
5	ESSUNEJA- KVEKVEWERE	2.68			1					2.43	82	80	2
6	MARFOKURO	0.997		1						0.67	51	50	1
7	NEREBEHI	3.056		1						0.45	51	50	1
8	WIOSO	0.428		1						0.9	51	50	1
9	WAWASE	5.802		1						1.26	51	50	1
	BEKWAI Total	26.331	0	8	1	0	0	0	0	8.455	490	480	10
	ADANSI												
1	BURA	2.469		1						0.63	51	50	1
2	BENA	2.859			1					1.71	82	80	2
3	KWAKUKROM	3.543		1						1.53	51	50	1
4	DENKYEI	5.25			1					2.2	82	80	2
5	ANYINABERAMU	4.523			1					3.266	82	80	2

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
	ADANSI NORTH Total	18.644	0	2	3	0	0	0	0	9.336	348	340	8
	EJURA-SEKYEDUMASE												
1	FANTI DANGOMBA	3.07			1					0.405		80	2
2	NKYENSIE	9.88		1	1					2.745		130	3
3	MAYEDEN	1.1			1					1.845		80	2
4	AMINAMUM	4.67		1						1.62		50	1
5	AWABRE	3.34			1					2.205		80	2
6	BARAWE	5.99				1				4.05		100	3
7	DANYAME	2.35		1						0.72		50	1
8	ESSUMBANTA	6.17		1						0.72		50	1
9	APAASO	5.24		1						0.72		50	1
10	DUKUKROM	4.51			1					2.025		80	2
11	MEPEASEM	1.67		1						0.405		50	1
12	MOSHIEKURA	2.67		1						0.63		50	1
13	GYATOKURA	1.56		1						1.215		50	1
14	SINGLEEKURA			1						0.585		50	1
15	KABIRIKURA			1						0.99		50	1
16	KURADADA			1						0.72		50	1
	EJURA-SEKYEDUMASE Total	52.22	0	11	5	1	0	0	0	21.6		1050	24
	ATWIMA MPONUA												
1	KALONGO	3.438		1						0.843		50	1
2	BOBIEKROM	0.637		1						0.27		50	1
3	BEPOSO	2.488		1						0.54		50	1
4	BAYEREBON NO2	2.184		1						1.065		50	1
5	BAYEREBON NO1	3.524		1						0.9		50	1
6	BAAKONIABA	0.876		1						0.72		50	1

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
7	ATASO	2.622			1					1.71		80	2
8	APPIAHKROM	1.617		1						0.765		50	1
9	NWIREM	1.807		1						0.765		50	1
10	NKYEMKYEMSO	2.997			1					2.52		80	2
11	MPADNWE	1.653		1						0.81		50	1
12	KOJOFOJOURKROM	1.363		1						0.948		50	1
13	SERSEKROM	2.623		1						0.405		50	1
14	NYAMEBEKYERE	1.375		1						0.405		50	1
15	AKANTANSO	3.398			1					2.508		80	2
16	ABOABO	0.897		1						0.45		50	1
17	APENKROM	3.636		1						1.274		50	1
18	ANYINASO	0.821			1					1.89		80	2
19	AFIPAYE	6.852			1					1.97		80	2
20	ACHIASE ADOPRI	1.347		1						0.42		50	1
21	KOFINYAMEKROM	3.64			1					1.665		80	2
22	DESEREAGUA	1.736			1					1.62		80	2
23	DABOKROM	5.193		2						3.735		100	3
24	KWAKUADAI	1.08		1						0.295		50	1
25	KWABENAKWA	3.567		1						2.07		50	1
26	KWABENA OFIRI	1.093		1						0.7		50	1
27	KOKOBIROKO	0.446		1						1.344		50	1
28	MANTUKWA	1.238		1						0.54		50	1
29	KYIRIBAA	2.011		1						0.76		50	1
30	OBUASIKROM	3.736			1					1.98		80	2
31	NYAMEYADOM	2.692			1					2.25		80	2
32	NKRANKROM	0.211			1					1.98		80	2
33	NAGOOLE OWUKROM	1.39			1					1.92		80	2

Signature

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
34	YAWKUSIKROM	2.642		1						1.395		50	1
35	OWUSUKROM	3.38			1					1.8		80	2
36	DODOWA	2.314			1					1.755		80	2
37	OFORIKROM NAGOOLE	1.379		1						1.4		50	1
38	OSEIKROM	3.683		1						1.215		50	1
39	KAKTIRE NYAMEBEKYERE	2.797			1					1.86		80	2
	ATWIMA MPONUA Total	90.383	0	26	14	0	0	0	0	51.462		2420	55
	OFFINSO SOUTH												
1	AMANKWAA TIAKROM		7.03				1			0.81		50	1
2	ASUOABENA	3.4		1						0.63		50	1
3	GAMBIAKROM		2.945				1			0.45		50	1
4	GAMBIA NKWANTA		0.1					1		1.935		80	2
5	KANSRE		5.79					1		1.8		80	2
6	KWABENA NSIAKROM		3.04					1		2.025		80	2
7	KONTEMA ODUMASE	7.4		1						0.767		50	1
8	KWAPAHIM ASUOBOE	11.875				1				6.12		100	3
9	KOFORIDUA DOBIHWE		6.08				1			0.495		50	1
10	NYANKYEREKROM LOBIGAW		1.71				1			1.26		50	1
11	OBOFOUR CAMP 31		1				1			0.765		50	1
12	ANITIE		2.85				1			0.43		50	1
13	KYEKYEMOLE ACHIAA BADUKROM		4				1			0.56		50	1
14	ABAFOUR BREKUM	3.6			1					2.565		80	2
15	FAAMENG		1.917				1			0.45		50	1
	OFFINSO SOUTH Total	26.275	36.462	2	1	1	8	3	0	21.062		920	21
	AMANSIE WEST												

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
1	AKYEREKWKROM	3.106				2				5.22		160	4
2	ADDGYA	5.186		1						1.485		50	1
3	APOMASUKROM	4.955		1						1.035		50	1
4	AYIEM	3.163			1					2.25		80	2
5	ASUMINYA	2.365		1						1.08		50	1
6	ABOM	2.526				1				3.375		100	3
7	ALHAJKROM	2.164		1						0.585		50	1
8	BRITCHERKROM	0.233		1						0.855		50	1
9	CAMP	3.763			1					2.295		80	2
10	DUNWURA	1.799		1						1.35		50	1
11	DOME NYAMEBEKYERE	5.746			1					1.62		80	2
12	DOMEABRA	2.124		1						1.26		50	1
13	EDWENASE	5.214			1					2.835		80	2
14	FANTIKROM	1.26		1						1.305		50	1
15	GROOSO	1.024			1					2.169		80	2
16	GYEDUAKO DOMEABRA KOBEDA	0.58		1						0.405		50	1
17	HIAMANKWA	1.119		1						0.81		50	1
18	HIAMPENIKA	1.12		1						0.63		50	1
19	JUMAKO	2.065		1						1.125		50	1
20	KOJOSIAHKROM	1.078		1						0.54		50	1
21	KAIMEBRE KOBEDA	2.629		1						1.485		50	1
22	KODADWEN KOBEDA	0.494		1						1.125		50	1
23	KOJO PROJOURKROM	1.04		1						1.035		50	1
24	MMEGYEYEME	1.75		1						0.855		50	1
25	MANUKROM	1.499			1					2.25		80	2
26	NIPANKYEREMA	2.121		1	1					3.965		130	3

Sum

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
27	NENHIM	2.317				1				3.01		100	3
28	NYAMEBEKYERE	7.127			1					2.475		80	2
29	NKRUMRAHKROM	2.175		1						0.765		50	1
30	PAKYI 6	2.35		1						0.99		50	1
31	PAKIY 7	1.715			1					1.845		80	2
32	PAKYI BANKO	3.03			1					2.146		80	2
33	SEMANHYIAKROM	0.592			1					1.26		80	2
34	TWEAPEASE	2.87			1					1.8		80	2
35	YAWKASAKROM	2.94			1					1.98		80	2
	AMANSIE WEST Total	85.239	0	20	15	2	0	0	0	59.215		2400	56
	NEW EDUBIASE												
1	AHUNADZI		0.2				1			0.4		50	1
2	ARTHURKROM		0.7				1			0.225		50	1
3	ACHEAMPONG						1			0.99		50	1
4	ADAIKROM		0.8				1			0.5		50	1
5	ASONKORE		2.152				1			1.98		50	1
6	ANIAPAM		0.2				1			0.5		50	1
7	DOMEABRA		1.821				2	0	0	1.07		100	3
8	DOMPOASE		0.3				1			0.5		50	1
9	ESONKROM		3.2				1			1.21		50	1
10	FETEFO						1			0.6		50	1
11	FREM		1.4				1			0.8		50	1
12	KROBOLINE		2.366				1	1	0	2.6		130	3
13	KWAME KYERE		0.8				1			0.2		50	1
14	KWAME TUTU						1			0.6		50	1
15	KWASI KORI						1			0.4		50	1
16	KWABENA ESSON		0.414				1			0.5		50	1

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
17	LAMLEYKYE/ASAREKYE						1			0.8		50	1
18	SONKOYIWA		1.8				1			0.5		50	1
19	OTUTU		0.8				1			0.5		50	1
20	OGUAMONO		0.125				1			0.3		50	1
21	NYAMEBEKYERE NKWANATA		1.041				2	0	0	1.6		100	3
22	PIPE ANO								1	4.1		100	3
23	EGYIRIBA						1			2		50	1
24	BONKRO		0.9				1			1		50	1
25	BROSAMKO		1.039				1			0.22		50	1
26	BREPO		1.99				1			0.2		50	1
27	KOJO DUM		1.1				1			0.4		50	1
28	AHENAKWA						1			0.4		50	1
29	KANSERE		3.53				1	1	0	4.4		130	3
30	OBUOBIKROM		5.2				3	0	0	2.5		150	4
31	KAPRE		1.3				2			1.485		100	3
32	NSATA SUBRISO		0				2	0	0	2.9		100	3
33	KWAKU DOBENG		0.09				1			1		50	1
34	BIRIM ABOE		1.592					1		3.7		80	2
35	KOTOKATA		3.6				0	2	1	8.9		260	7
36	KYEKYEWERE		2.393				1	1	0	2.14		130	3
37	KWAME NKYI		2.525				1	2	0	6.51		210	6
38	KRAMOKROM		4.755				2	1	0	4.91		180	5
39	AGYARKO		0.181				1			0.22		50	1
40	ABOABO # 3		5.5						1	4.4		100	3
41	KAWOTRIHWE		1.211						1	3.24		100	3
42	AKWAAKU		0				1			1.08		50	1
43	NSATA MANGOASE		1.11				1			1.25		50	1

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Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
44	APPIAH/KWAKU BAAH		1.4				1			0.82		50	1
45	KOFI JEJE		0.27				1			0.44		50	1
46	OWUSUKROM		0.55				1			0.63		50	1
47	DZOBOKROM/DARKODZI		0.721					1		1.62		80	2
48	AMENASO		3.585				1			0.54		50	1
49	CONGO		1.932					1		1.85		80	2
50	KWARF		1.1				1			0.45		50	1
51	NYAMEBEKYERE		0.1					1		1.8		80	2
52	SAMANKROM		0.1				1			1.26		50	1
53	KOFI TUTU		0.299				1			0.675		50	1
54	BRODIKO		0.182				1			0.495		50	1
	NEW EDUBIASE Total	0	66.374	0	0	0	53	12	4	84.31		4010	96
	ATIWMA KWANWOMA												
1	BIRAGOKROM	2.041		1						0.2		50	1
2	NKWANTA		1.7				1			0.54		50	1
3	AMOAFI		0.61				1			1.93		50	1
4	KROFROM		0.206				1			0.4		50	1
5	WINSA		6.427				1			1.35		50	1
6	DENTEIKROM		0.827				1			1.08		50	1
	ATIWMA KWANWOMA Total	2.041	9.77	1	0	0	5	0	0	5.5		300	6
	Ahafo Ano North												
1	ABENA NIMO					1				3.218		80	2
2	DANYAME	4.83				1				3.3		80	2
3	TIMEBAABI	1.6				1				1.96		80	2
4	TREDE	3.499		1						0.798		50	1
5	NYAMEBEKYERE	3.901		1	1	0				2.33		130	3

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	IPE	3PH
6	KRAKOSUA	2.16		1						1.207		50	1
7	ACHAWKROM	1.39			1					2.025		80	2
8	ASAFOASIN	4.68		0	2	0				4.365		160	4
9	PAKYI	1		1						0.54		50	1
10	KWAHU/SIAKROM	1.48		1						0.797		50	1
11	POKUKROM	1.94		1						1.17		50	1
12	SIKAFREBOGYA	2.2		1	1					1.798		80	2
13	NTIAMOAH	2.08		1						1.301		50	1
14	NYAMENEHENE	1.68			1					1.94		80	2
15	KONKORI	3.17			1					2.3		80	2
16	KWAOFOKROM	6.658		0	2	0				6.21		160	4
17	KATAPEI	5.247				1				4.42		100	3
18	KWAODUKROM	5.46		1	1	0				2.89		130	3
19	KOObUOKROM	2.04			1					1.71		80	2
20	BOAGYAA 2	1.54			1					2.3		80	2
21	BETINKO	1.53			1					2.84		80	2
22	BANKO	3.51			1					3.36		80	2
	Ahafo Ano North Total	61.595	0	8	17	1	0	0	0	52.779		1860	45
	ATWIMA NWABIAGYA												
	NORTH												
1	ADAGYA		5.025					1		3.69		80	2
2	ATAMSO		2.64					1		2.385		80	2
3	ATUTUNMA NKWANTA		1.405				1			1.35		50	1
4	AFREKROM		2.908					1		3.195		80	2
5	ATAASE 1		1.607							1.575		50	1
6	ATAASE 2		0.38							1.62		50	1
7	BOAHENKWAA No1		8.701							2.295		50	1

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Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
8	BOAHENKWAA No 2		1.579						1	1.395		80	2
9	SIKAYENA		2.644						1	2.25		80	2
10	WORAMPONG		2.393						1	4.14		80	2
	ATWIMA NWABIAGYA NORTH Total	0	29.282	0	0	0	4	6	0	23.895		680	16
	ATWIMA NWABIAGYA SOUTH												
1	AKWAPIM		1.956						1	2.25		80	2
2	AHWAIAPATAM		1.403						1	2.34		80	2
3	BANKYEASE		1.361						1	2.655		80	2
4	BROSANKRO		2.23				1			1.035		50	1
5	DAAKOAKROM		1.711				1			1.53		50	1
6	NTABANU 1		2.742				1			1.395		50	1
7	NTABANU 2		0.532				1			1.17		50	1
8	NYAMESEM		2.355				1			0.945		50	1
	ATWIMA NWABIAGYA SOUTH Total	0	14.29	0	0	0	5	3	0	13.32		490	11
	Ahafo Ano South West												
1	KWANAANEKROM	0		1						0.758		50	1
2	HIAMANKWA	0			1					2.6		80	2
3	OFORIKROM	6.6		1						1.332		50	1
4	OSEIKROM	0		1						0.99		50	1
5	AWIEKROM	3.7			1					2.656		80	2
6	KASOTIE	2.77			1					2.237		80	2
7	MPASASO NO.2	0.99			3					8.53		240	7
8	OHAHYEDA	1.233		1						1.2		50	1
9	NYAMEBEKYERE	2.39		1						1.342		50	1
10	MEHAME	1.67		1						0.459		50	1

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
11	SUNKWA	1.88		1						0.533		50	1
12	OHLAPEA	1.8		1						2.1		50	1
13	MMROBEN	2.41		1						1.45		50	1
14	NYAMEAHYIRASO	2.66		1						0.56		50	1
15	HWENAEDIOWUKA	4			1					2.395		80	2
16	NYEHWE	0		1						0.825		50	1
17	ADJEIBIKROM	1.1		1						1.283		50	1
18	YAAHENE	2.08		1						0.904		50	1
19	BONKRON	1.4			1					2.3		80	2
20	KWABENAKONTOR	3.2		1						0.78		50	1
21	ASUOGYA	0.7		1						0.61		50	1
22	BESEASE	1.15		1						1.2		50	1
23	KOONSIKROM	2.75		1						0.6		50	1
24	ASEKANTIA	3.1			1					2.8		80	2
25	OSEI TUTUKROM	3.4		1						1.2		50	1
26	ANITEMFE	1.8			1					2.5		80	2
27	MENHYIA-KOOFEKROM	2.45		1						0.64		50	1
28	ADEODWOOD	1.3		1						0.687		50	1
29	PEWODIE	2.9		1						0.87		50	1
30	ASUKESE	2.4			1					1.5		80	2
31	KRAMOKROM	1.6		1						0.368		50	1
32	MFAWANINTO	2.85		1						0.408		50	1
33	FAWODWEN	0.2		1						0.543		50	1
34	MMUAWANO	1.8		1						0.97		50	1
35	AKWASIWORO- ABODEASE	2.14			1					2.188		80	2
36	KUNSU-KRAMOKROM	2.1			1					2.314		80	2

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Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
37	ASUOBENA	3.453		1						0.871		50	1
38	AFRESENI CAMP	3.6			1					2.6		80	2
39	AKWASI MARFO	1.2		1						1.45		50	1
40	AFRESENI	1.5			1					2.95		80	2
41	DAGYANSO	3.2		1						1.3		50	1
42	MEYEDEN	0.7		1						0.6		50	1
43	MPASASO NYAMEBEKYERE	5.2		1						2.5		50	1
	Ahafo Ano South West Total	91.376	0	30	15	0	0	0	0	66.903		2700	61
	Ahafo Ano South East												
1	ADENSE	2.2			1					2.7		80	2
2	YAWBOADIKROM #1	2.6			1					2.8		80	2
3	YAWBOADIKROM #2	1.1				1				3.2		100	3
4	BANAHENEKROM	3.1				1				3.3		100	3
5	YAW KOBKROM	1.3				1				3.1		100	3
6	DUFURKROM	2.8		1						1.5		50	1
7	DAATRO	1.5			1					1.7		80	2
8	MMOFRA	1.4		1						1.8		50	1
9	MENTUKWA	4.6			1					2.4		80	2
10	DOMEABRA	1.7			1					3.2		80	2
11	AMPOMAKROM	0.7		1						1.2		50	1
12	APENIAMDI #1	2.7			1					1.7		80	2
13	APENIAMDI #2	1.1			1					2.2		80	2
14	AKYERAKROM	6			1					2.2		80	2
15	SABRONU NYAMEADOM	5.7			1					2.3		50	1
16	BORNAKROM	0.3		1						1.2		50	1
17	MEMWUTEM											0	0

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
18	OGYA BEDIBI	1.8			1					2.6		80	2
19	ABUGYA	1.7			1					2.1		50	1
	Ahafo Ano South East Total	42.3	0	4	11	3	0	0	0	41.2		1320	33
	Offinso North												
1	NYINATEASE	3.9			1					2.1		80	2
2	POKUKROM	1.05		1						0.9		50	1
3	NYAMEBEKYERE NO.2	4.3			1					2.2		80	2
4	JATOKROM	2.6		1						0.5		50	1
5	NKWAAKWAA PANYIN	2.8		1						1.23		50	1
6	GYAEKONTABUO	1.7		1						0.8		50	1
7	MEDOKWAE	4.9		1						1.8		50	1
8	MIAWANI	4.6		1						1.133		50	1
9	NKWADUAM	1.9		1						0.72		50	1
10	MPEAPEAMU	1.7		1						1.3		50	1
11	ASUAFU	2.6		1						0.5		50	1
12	NKUBESA	1.4		1						1.3		50	1
13	SEWUA-NFANTE	0								2.988		0	0
	Offinso North Total	33.45	0	10	2	0	0	0	0	17.471		660	14
	Sekyere Central												
1	MOSIKROM	2.697			1					2.065		80	2
2	TEMA FOOD S/S #1	3.584		1						0.9		50	1
3	TEMA FOOD S/S #2	1.237		1						0.576		50	1
4	GOVERNOR	4.66		1						0.954		50	1
5	ISSAKA	2.1			1					1.63		80	2
6	YERESO NO.1	4.02				1				3.95		100	3
7	ADIDWUN	8.05			1					3.8		80	2
8	YERESO NO.2	1.88			1					2.04		80	2

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Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/ 50KVA	33KV/ 100KVA	33KV/ 200KVA	11KV/ 50KVA	11KV/ 100KVA	11KV/ 200KVA	LV CCT KM	SERVICE	1PH	3PH
9	YERESO NO.3	1.5		1						1.5		50	1
10	KOJOKUMA	4.48			1					1.947		80	2
11	ATARKWAME NO.1	5.8			1					4.59		80	2
12	ATARKWAME NO.2	1.3		1						1.5		50	1
13	NYAMEBEKYERE	2.8				1				4.864		100	3
14	KONKOMA S/S #1	2.4			1					2.34		80	2
15	KONKOMA S/S #2	1		1						1.3		50	1
16	ASAASEBONSO	2.5			1					4.7		80	2
	Sekyere Central Total	50.008	0	6	8	2	0	0	0	38.656		1140	28
	Ashanti Total	771.933	156.178	151	100	12	75	24	4	562.661		22760	529

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/50K VA	33KV/100 KVA	33KV/200 KVA	11KV/50K VA	11KV/100 KVA	11KV/200 KVA	LV CCT KM	SERVICE	1PH	3PH
Brong Ahafo Region													
WENCHI													
1	APENI		0.54				1			1.58	51	50	1
2	ZUBIRIAKURA	2.57		1						1.58	51	50	1
3	HIYAMANKYINI		12.38				1			1.19	51	50	1
4	TANSO		0.75						1	3.36	103	100	3
5	ATABI-NSUTA	0.2			1					2.28	82	80	2
6	WINNMUDA		0.15				1			1.6	51	50	1
7	ABONGO FARMS		0.93					1	1	5.95	185	180	5
8	CARPOT FARMS	2.52			2					1.12	164	160	4
9	JOEBOYE NSUTA	8.04		1						1.05	51	50	1
10	ALFALUQ COLLEGE	1.49		1	1					4.27	133	130	3
11	BINTAABA	0.528	1.8				1	1	2	9.72	339	330	9
12	SIEKROM	4.5		1						0.5	51	50	1
13	BEPOSO					1				3.93	103	100	3
14	JOEBOYE			1						0.6	51	50	1
	WENCHI Total	19.848	16.55	5	4	1	4	2	4	38.73	1466	1430	36
JAMAN NORTH													
1	ABIRIANKOR	3.01			2	2				12.81	370	360	10
2	KOKUA NEWTOWN	0.97			3					7.3	247	240	7
3	KWABENAKROM	2.56		1						1.04	51	50	1
4	NEW DUADASO	3.97		1	2	1				10	319	310	9
5	SAMBUSI	9.78		1						1.37	51	50	1
6	SOOBOO			1						0.79	51	50	1
	JAMAN NORTH Total	20.29	0	4	7	3	0	0	0	33.31	1089	1060	29
TANO SOUTH													
1	ASUBOI	8.5			1					2.01	82	80	2

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Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/50K VA	33KV/100 KVA	33KV/200 KVA	11KV/50K VA	11KV/100 KVA	11KV/200 KVA	LV CCT KM	SERVICE	1PH	3PH
2	MAWANISO				1					2.8	82	80	2
3	ASIKASU	9.01			1					1.96	82	80	2
4	KWADWOFOURJOURKROM	1.29			1					2.45	82	80	2
5	KWAKUFIKROM			1						1.4	51	50	1
6	MONTA	2.34			1					2.38	82	80	2
7	BOFOAKWA				1					2.17	82	80	2
8	MANSOPA	1.55		1						1.02	51	50	1
	TANO SOUTH Total	22.69	0	2	6	0	0	0	0	16.19	594	580	14
	BEREKUM EAST												
1	OFORIKROM		0.77						1	2.41	82	80	2
2	AKATIM	0.54				1				3.67	103	100	3
3	NIFAKWAM	7.22				1				4.65	103	100	3
4	KWAMEKYEREKROM		7.96						1	4.65	103	100	3
5	KUTRE NO2		0.95						1	4.23	103	100	3
6	MPATAPO		1.29				1	1		5.44	133	130	3
7	OSOFOKYERE	2.31			1	2				8.55	288	280	8
8	NEW KATO	1.42		1	2					6.18	216	210	6
9	KYIRIBAA		1.18						1	3.28	103	100	3
10	BIADAN	3.05		1	3					9.87	298	290	8
	BEREKUM EAST Total	14.54	12.15	2	6	4	1	2	3	52.93	1532	1490	42
	TECHIMAN NORTH												
1	ABOABO	2.08			1					2.73	82	80	2
2	ABOABO NEWTOWN				3					9.79	247	240	7
3	AKONKONTI								1	5.09	103	100	3
4	BOURMU		3.98							6.6	0	0	0
5	DAMPASO		1.42					1	1	6.52	185	180	5
6	ISSAKROM		5.24				2	2		6.99	267	260	7

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/50K VA	33KV/100 KVA	33KV/200 KVA	11KV/50K VA	11KV/100 KVA	11KV/200 KVA	LV CCT KM	SERVICE	1PH	3PH
7	KROBO NEWTOWN				1					2.92	82	80	2
8	NEWTOWN AKROFROM					1				4.54	103	100	3
9	TANOKROM		3.73				1		1	4.937	154	150	4
10	TENABEA		11.03				3	1		5.88	236	230	6
11	PATAKRO		1.49				2	1		4	185	180	5
12	BRIDGESO	5.83		1	1					3.56	133	130	3
13	KYIMIRA	0.53		1						1.22	51	50	1
14	ISSAKROM BOMPIA	1.08			1					2.1	82	80	2
15	BOYA NKWANTA							1		2.13	82	80	2
16	MESIDAN	1.85			2	4				18.89	576	560	16
17	AMPEMKROM		4.61				1	1		4.66	133	130	3
	TECHIMAN NORTH Total	11.37	31.5	2	9	5	9	7	3	92.557	2701	2630	71
	NKORANZA NORTH												
1	DINKRA	18.92			1					2.4	82	80	2
2	TAAHO	4.02			1					1.88	82	80	2
3	AMPONABOANO	1.08		2						2.6	103	100	3
4	AMEYAEKROM-FIEMA	4.14		1						1.22	51	50	1
5	NEW DWOMO-MANSO	0.78		2						2.96	103	100	3
6	KRANKASE	0.75		3		1				7.58	257	250	7
7	JAMANKROM-SIKAA	0.32			1					1.96	82	80	2
8	NIPAHIMOA			1						1.4	51	50	1
9	KWAAGYAKROM-FIEMA					1				3.28	103	100	3
10	JOE WAWUAKROM					1				3.08	103	100	3
11	KONKONBA LINE	0.33			1					2.64	82	80	2
12	NTWEMA AMONASO	1.16			3					9.64	247	240	7
13	WALA ZONGO									6.99	0	0	0
14	KOHWIEGU LINE	6.74		1						1.12	51	50	1

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/50K VA	33KV/100 KVA	33KV/200 KVA	11KV/50K VA	11KV/100 KVA	11KV/200 KVA	LV CCT KM	SERVICE	1PH	3PH
15	BOMINI NEW TOWN	0.53				2				6.12	206	200	6
16	BONTE JUNCTION	7.92		1	1					3.36	133	130	3
17	PIEYINA	22.19		1	1					3.56	133	130	3
	NKORANZA NORTH Total	68.88	0	12	9	5	0	0	0	61.79	1869	1820	49
	DORMAA CENTRAL												
1	AKYEM	4.6			1					2.5	82	80	2
2	APPAUKROM				1					2.5	82	80	2
3	ASUOKORSO	0.6		1						1.17	51	50	1
4	DATEKROM	2.3			1					1.7	82	80	2
5	HWIEHIEGO	7.92		1						0.39	51	50	1
6	KYEKYEWERE	1.41				1				3.55	103	100	3
7	MANTEWARESO			1						1.3	51	50	1
8	WOMENO	11.31		1						1.33	51	50	1
9	YAWDADEKROM	6.61		1						1.44	51	50	1
10	YAWKRAKROM	0.27		1						1.32	51	50	1
	DORMAA CENTRAL Total	35.02	0	6	3	1	0	0	0	17.2	655	640	15
	Brong Ahafo Total	192.638	60.2	33	44	19	14	11	10	312.707	9906	9650	256

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/50K VA	33KV/100 KVA	33KV/200 KVA	11KV/50K VA	11KV/100 KVA	11KV/200 KVA	LV CCT KM	SERVICE	1PH	3PH
Eastern Region													
AKUAPIM SOUTH													
1	FAHIAKO	2.3			1					2.9	82	80	2
2	ANAMENANPA	1.7		1						1	51	50	1
3	TADANKROM	4.5		1						0.8	51	50	1
4	MENTUKWA	2.2		1						1.7	51	50	1
5	KYEREPONG	1.5		1						0.142	51	50	1
6	ANKWANSU	2.3				1				4.5	103	100	3
7	OBOSONO	2.6			1					1.54	82	80	2
	AKUAPIM SOUTH Total	17.1	0	4	2	1	0	0	0	12.582	471	460	11
DENKYEMBOUR													
1	MMOFRANFADWEN	0.823		1						0.84	51	50	1
2	AKWATIA ALAFIA 2	0.05		1						1	51	50	1
3	AKWATIA ALAFIA 1	0.05		1						1.4	51	50	1
4	AKIM WENCHI KWABENA	0.857		1						0.33	51	50	1
5	AKIM WENCHI TOWOBOASA	0.453		1						0.3	51	50	1
6	KROBO AHENKANOR	0.899			1					2.5	82	80	2
7	MALAM NKWANTA AKWADOTRE	5.1	0	0	2	0	0	0	0	3	164	160	4
8	AKIM ADENKYENSO	0.596		1						1.1	51	50	1
9	AKIM AGYA ADOBOAH	1		1						0.342	51	50	1
10	AKIM SIKA NE ASEM	2.028		1						2	51	50	1
11	AKIM BREDI	0.877		1						1	51	50	1
12	AKIM AYAAFERE	0.4		1						0.4	51	50	1
13	KWABENA AMOAH	1.672		1						0.65	51	50	1
14	AKIM AGYA AYEH	0.7		1						1.2	51	50	1
15	OKUMANING APREKU	1.35		1						1	51	50	1

Signature

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/50K VA	33KV/100 KVA	33KV/200 KVA	11KV/50K VA	11KV/100 KVA	11KV/200 KVA	LV CCT KM	SERVICE	1PH	3PH
16	AKIM BONOQUAYE	0.572		1						0.611	51	50	1
17	AKIM APEMPETIA	3.816		1						0.643	51	50	1
18	AKIM AGBOZI	0.117		1						0.0096	51	50	1
	DENKYEMBOUR Total	21.36	0	16	3	0	0	0	0	18.3256	1062	1040	22
	BIRIM NORTH												
1	ASEWASA	4.9		1						1.485	51	50	1
2	BOTWEKROM	1.6		1						0.315	51	50	1
3	KOTE YE ABOA,ETWE NIN NYANSA&HWOA YE MMOBO	0.234		1						0.72	51	50	1
4	TETTEH BLEFONO	1.4		1						0.135	51	50	1
5	WIAWSO	6.165		1						0.225	51	50	1
6	YAW BRONI	0.6		1						0.09	51	50	1
7	AKYEKYIRESU	2.895		1						0.839	51	50	1
	BIRIM NORTH Total	17.794	0	7	0	0	0	0	0	3.809	357	350	7
	KWAEBIRIREM												
1	KWAME SIAW/AGYENKWAH CONGO	1.4		1						0.495	51	50	1
2	KWESI OFORI/ADDAEKROM	0.898		1						1	51	50	1
	KWAEBIRIREM Total	2.298	0	2	0	0	0	0	0	1.495	102	100	2
	LOWER WEST AKIM												
1	Adam Fantwuma		1.21				1			0.95	51	50	1
2	Akrofikrom		1.646					1		1.8	82	80	2
3	Breku		3.91				1			0.675	51	50	1
4	Breku Nyadieye							1		2.43	82	80	2
5	Dwirantwi						1			0.585	51	50	1
6	Esaase		1.537						1	3.6	103	100	3

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/50K VA	33KV/100 KVA	33KV/200 KVA	11KV/50K VA	11KV/100 KVA	11KV/200 KVA	LV CCT KM	SERVICE	1PH	3PH
7	Fordjour		2.405				1			1.71	51	50	1
8	Kodobeda		3.291				2			2.16	103	100	3
9	Kwametia		2.603				1			1.44	51	50	1
10	Mataheko		3.607						1	3.24	103	100	3
11	Mremre		4.196				2			3.2	103	100	3
12	Obotweme Junction							1		2.61	82	80	2
13	Obotwene		2.43					1		2.66	82	80	2
14	Okotokrom		2.946				1			0.945	51	50	1
15	Oppongkrom							1		2.61	82	80	2
16	Patimpa		2.152				1			1.71	51	50	1
17	Sitey		0.528				1			0.36	51	50	1
18	Tutu						1			1.08	51	50	1
19	Wamase		2.031						1	4.14	103	100	3
20	Wasabiampa		0.649				1			0.95	51	50	1
	LOWER WEST AKIM Total	0	35.141	0	0	0	14	5	3	38.855	1435	1400	35
	Eastern Total	58.552	35.141	29	5	1	14	5	3	75.0666	3427	3350	77

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Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/50K VA	33KV/100 KVA	33KV/200 KVA	11KV/50K VA	11KV/100 KVA	11KV/200 KVA	LV CCT KM	SERVICE	1PH	3PH
	Volta Region												
	KRACHI EAST												
1	ABONGO AKURA			2		0	0	0	0	1.5	103	100	3
2	ADINAKOFO	1.3		1						1.3	51	50	1
3	ADINAKOPE	2.5		1						1.5	51	50	1
4	ADOKOPE ODUMASE	5.02			1	0	0	0	0	1.9	82	80	2
5	ADOKOPE			1						1	51	50	1
6	ADONKWANTA TORNU	3		1						1.4	51	50	1
7	AFADA	5.5		1	0	0	0	0	0	2.8	51	50	1
8	AGBASAKOPE	3		1						1.3	51	50	1
9	AGLAKOPE	2.4			1					3.105	82	80	2
10	AGODEKE	2			1					0.85	82	80	2
11	AKOKROWA	3.5	0	1		0	0	0	0	1.3	51	50	1
12	ALARMBLOW	10.8		1						0.6	51	50	1
13	ASUBIN	3.4		1						0.9	51	50	1
14	BETINASE	9.3			1					2.5	82	80	2
15	KOTOKODZAN 2	2.4	0	1		0	0	0	0	1.5	51	50	1
16	KPEVEKOPE	0.6		1						1.2	51	50	1
17	KPOGEDE			1						1.5	51	50	1
18	NANSO ALAVANYO		0	1		0	0	0	0	1.4	51	50	1
19	NANSO	3.282		1						0.39	51	50	1
20	NAPOA	7			1					2.8	82	80	2
21	NORNUKOPE	4	0	1	0	0	0	0	0	1.2	51	50	1
22	PRONPI			1						0.5	51	50	1
23	SODUKOPE			1						1	51	50	1
24	WULUNBUN			1						0.9	51	50	1
	KRACHI EAST Total	69.002	0	20	5	0	0	0	0	34.345	1431	1400	31

Sum

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/50K VA	33KV/100 KVA	33KV/200 KVA	11KV/50K VA	11KV/100 KVA	11KV/200 KVA	LV CCT KM	SERVICE	1PH	3PH
	KRACHI WEST												
1	KPOLLO MPLIONENJUI SANA	8.03			1	1				6.44	185	180	5
2	ALI AKURA	3.76		1						0.84	51	50	1
3	AMEWOYIKOPE	14.64		3						3.60	154	150	4
4	ANKAASE MATAMALLAM	0.56			1	1				7.05	185	180	5
5	ASEMPA AKURA	2.94		1						1.36	51	50	1
6	BOMMODEN BEPOSO	1.13			1					2.01	82	80	2
7	MATMATA BATTOR	6.35			2					4.90	164	160	4
8	NKATENKWAN	11.18		1	1					2.51	133	130	3
9	PECHI AKURA	4.41			1					1.94	82	80	2
10	SABAJA NAWOM					1				3.24	103	100	3
	KRACHI WEST Total	53	0	6	7	3	0	0	0	33.89	1190	1160	30
	NKWANTA SOUTH												
1	ALEGE AKURA				1					2.27	82	80	2
2	BINCHAR AKURA			1						1.34	51	50	1
3	DUFRUMKPA				1					2.32	82	80	2
4	FANKYENIKOR	4.11		1	2					5.27	216	210	6
5	JATAH AKURA			1						0.60	51	50	1
6	JUMBO CHARJ	12.31				1				5.67	103	100	3
7	KENKYE AKURA					1				3.89	103	100	3
8	LABOANO	3.33		1	1	1				6.95	236	230	6
9	LINKINL AKURA			1						0.56	51	50	1
10	OTULO JUNCTION				1					2.50	82	80	2
	NKWANTA SOUTH Total	19.75	0	5	6	3	0	0	0	31.37	1057	1030	27
	KRACHI-NCHUMURU												
1	ADAKOFE NEAR	0.97		1						1.76	51	50	1
2	DWADWAI	0.45			1					1.71	82	80	2

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/50K VA	33KV/100 KVA	33KV/200 KVA	11KV/50K VA	11KV/100 KVA	11KV/200 KVA	LV CCT KM	SERVICE	1PH	3PH
3	LUMBUSU 2	0.45		1						0.86	51	50	1
4	MAGIMAGI 2	3.94			1					1.62	82	80	2
5	NGBANYI 2	3.91			1					2.85	82	80	2
6	ODOMI	1.59			1					1.67	82	80	2
	KRACHI-NCHUMURU Total	11.3	0	2	4	0	0	0	0	10.458	430	420	10
	JASIKAN												
1	AMOAKO	3.79			1					1.98	82	80	2
2	GALI KOFE	2.69			1					2.34	82	80	2
3	GUAMA ODUMASE	2.83		1						0.58	51	50	1
4	KATSI KOFE	2.56			1					2.56	82	80	2
5	NANANKOR 1	3.73		1	1					3.74	133	130	3
6	TOGBUI BOYE	1.39			1					3.18	82	80	2
	JASIKAN Total	16.986	0	2	5	0	0	0	0	14.375	512	500	12
	HOHOE												
1	LORVETONU			1						1.50	51	50	1
2	MANAME		0.43				1			1.28	51	50	1
3	TEMKORKOFE	2.39		1						0.43	51	50	1
4	TOTAME	0.45		1						1.03	51	50	1
5	KPEFE				1					2.79	0		
6	NEW ATABU				1					5.36	82	80	2
7	KABREKOFE	0.90			1					3.04	82	80	2
8	AKPATANU		1.06						1	8.10	103	100	3
9	KADIBATU	1.92		1						2.48	51	50	1
	HOHOE Total	5.661	1.49	4	3	0	1	0	1	26.003	522	510	12
	Volta Total	175.699	1.49	39	30	6	1	0	1	150.441	5142	5020	122

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/50K VA	33KV/100 KVA	33KV/200 KVA	11KV/50K VA	11KV/100 KVA	11KV/200 KVA	LV CCT KM	SERVICE	1PH	3PH
	Western Region												
	MPOHOR WASSA EAST												
1	AWIADASO	6.656		4	0	0	0	0	0	3.87	206	200	6
2	AKROFI	0.042		1						1.17	51	50	1
3	AMANKESEASE	2.179		1	1	0	0	0	0	3.15	133	130	3
4	AHOMAKAMUA	1.724		1						1.8	51	50	1
5	ABOABOSO	1.017		2	0	0	0	0	0	1.71	103	100	3
6	ASATOASE NO.1	5.747		1	1	0	0	0	0	3.42	133	130	3
7	ASATOASE NO.2	1.608		1						0.27	51	50	1
8	BADAGO	0.027		1						1.665	51	50	1
9	BETHLEHEM	3.635		1						0.99	51	50	1
10	DIDISO	1.614		1						0.585	51	50	1
11	KWAFOKROM	2.694			1					3.42	82	80	2
12	MUSUNKWA	0.961		1						1.575	51	50	1
13	NYAMEBEKYERE	1.207		1						0.45	51	50	1
14	PATATWUMSO	0.655		1						0.63	51	50	1
15	SENSHEM SHED	2.935			1					2.07	82	80	2
	MPOHOR WASSA EAST TC	32.701	0	17	4	0	0	0	0	26.775	1198	1170	28
	AMENFI EAST												
1	KWAKU DRIVER	2.474	0	0	2	0	0	0	0	3.51	164	160	4
2	BOTWE 1	2.494			1					1.66	82	80	2
3	BOTWE NEW SITE	1.674			1					1.76	82	80	2
4	BETENASE	2.321	0	1	1	0	0	0	0	3.17	133	130	3
5	BETENASE 2	3.282		1						0.39	51	50	1
6	APPIAHKROM JUNT	0.024		1						0.67	51	50	1
7	KWAW TAWIAKROM	7.428	0	2	0	0	0	0	0	1.23	103	100	3
8	NYAMETEASE	2.97		1						0.37	51	50	1

Beneficiary Communities of Self-Help Electrification Programme in Five Regions-Phase II

NO.	NAME OF TOWN	33/34.5KV HT KM	11/11.5KV HT KM	33KV/50K VA	33KV/100 KVA	33KV/200 KVA	11KV/50K VA	11KV/100 KVA	11KV/200 KVA	LV CCT KM	SERVICE	1PH	3PH
	AMENFI EAST Total	22.667	0	6	5	0	0	0	0	12.76	717	700	17
	JOMORO												
1	TWEAKO NO.1	5.004		3						3.195	154	150	4
2	TWEAKO NO.2	7.033				1				4.455	103	100	3
3	NAVRONGO	1.102				1				3.285	103	100	3
4	BENTELEBO	4.819			2					4.63	164	160	4
5	KOJO BUKARI	0.054		2						1.708	103	100	3
6	KWADWO-BUKELE	0.02		1						0.259	51	50	1
	JOMORO Total	18.032	0	6	2	2	0	0	0	17.532	678	660	18
	PRESTEA												
1	BEPOASE	5.367			1					2.79	82	80	2
2	NAZARETH	0.444		1						0.225	51	50	1
3	MFANTEKROM	1.774			1					0.4	82	80	2
4	WASA KWAWU	1.34		1						0.675	51	50	1
5	KWASI KORKOR	0.267		1						1.845	51	50	1
6	ONIPAHAMBOA	6.987	0	2	1	0	0	0	0	4.635	185	180	5
7	GAMBIA	4.584			1					1.44	82	80	2
8	NSIAKROM	3.34		1						1.395	51	50	1
9	ENTOWOADA	2.855		2						1.21	103	100	3
	PRESTEA Total	26.958	0	8	4	0	0	0	0	14.615	738	720	18
	Western Total	100.358	0	37	15	2	0	0	0	71.682	3331	3250	81

Minutes of Value for Money Audit

PH
AMS



The Hon. Minister,
Ministry of Finance
P. O. Box MB 40,
Accra.



Our Ref: 001/VFM157

23rd June, 2015

Attn: Director, Legal

Dear Madam,

COMPLETION OF VALUE FOR MONEY (VFM) PROCESS

CONTRACT BETWEEN THE MINISTRY OF ENERGY AND PETROLEUM (MOEP) NOW MINISTRY OF POWER (MOP) AND CHINA INTERNATIONAL WATER AND ELECTRICAL CORPORATION (CWE) FOR THE SUPPLY, CONSTRUCTION, INSTALLATION, COMMISSIONING OF ELECTRICAL MATERIALS FOR THE ASHANTI, BRONG-AHAFO, CENTRAL, EASTERN AND VOLTA REGIONS, REGIONS ELECTRIFICATION PROJECT.

We refer to the Value for Money (VFM) Assessment Reports Issued on the 12th March, 2015 (Final VFM Report) and on the 15th May, 2015 (Final Revision 2.0 VFM Report) to Ministry of Finance on the above named contract and the negotiations held as follows:

- Government of Ghana (GOG) Team meetings: Friday, 17th April, 2015 and concluded on Tuesday, 26th May, 2015.
- Negotiations meeting between the GOG Team and the Contractor: Thursday 4th June 2015 and concluded on Monday 8th June 2015.

Please find herewith, an original copy of the signed final minutes of Value for Money (VFM) Negotiations based on the Final VFM Assessment Report concerning the above-named Contract. As detailed in the VFM Negotiation Minutes the Parties agreed to adopt the majority of CAGL's recommendations to mitigate significant risks associated with the contract components. With respect to the Contract Price, the Parties reached a negotiated final settlement to reduce the Contract Price by US\$500,000 and to increase the Contract Scope proportionately.

Consequently, CAGL is of the view that the above-named Contract has the potential to offer Value For Money to the Ghanaian taxpayer, provided that the recommendations agreed to by the Parties, as documented in the VFM Negotiation Minutes, are fully implemented during the project execution. As noted in the VFM Negotiation Minutes, the success of this Contract as a whole is also contingent on confirmation by the MOF that the current debarment of the Contractor by the World Bank will not result in cross-debarment by the Public Procurement Authority of Ghana.

Yours faithfully,

Frank Mante
Team Leader



cc Hon. Deputy Ministers, L404
Chief Director, MOF

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Registered in Ghana
No. C-87 209

Suma

Points for Negotiations
VFM157 National Electrification Project by China International Water and Electrical Corporation

Title:	Minutes of Value for Money Negotiations
Contract:	Rural Electrification of Ashanti, Brong Ahafo, Western, Eastern and Volta Regions
Employer:	Ministry of Power (MOP)
Contractor:	China International Water and Electrical Corporation (CWE)
Meeting Dates:	Thursday, 4th June 2015 and Adjourned to Monday, 8th June, 2015.
Meeting Venue:	Ministry of Finance-Annex A Conference Room 23
Organisations Present: (see attendance sheets appended to these minutes)	Ministry of Finance (MOF) Ministry of Power (MOP), formally MOEP China International Water and Electrical Corporation (CWE) Crown Agents Ghana Limited (CAGL)
Meeting purpose:	To negotiate with the Contractor final agreed positions on all recommendations made in the Final Value for Money (VFM) Assessment Report (Revision 2) issued by CAGL.
CAGL Reference:	VFM157

1. BACKGROUND

The Ministry of Finance (MOF) submitted to Crown Agents Ghana Limited (CAGL) on 30th July 2014 documents relating to a proposed contract between: The Ministry of Energy and Petroleum (MOE) ("the Purchaser"), and China International Water and Electrical Corporation ("the Supplier") (Together referred to as "the Parties") for an electrification project in the Ashanti, Brong-Ahafo, Western, Eastern and Volta Regions, for a Value for Money (VFM) assessment.

CAGL conducted a VFM Inception meeting with the MOE and MOF on 27th August 2014. Unfortunately, CAGL were forced to suspend work on the Ghana VFM Assessment project for significant periods of time in 2014 due to non-payment of fees. Owing to these suspensions and the order in which this assignment was received, CAGL was not able to begin work on this assignment until February 2015.

The Contract Agreement gives the Contract Price as US\$200 million (two hundred million dollars). This amount includes the Grand Total of the BOQ (US\$176,991,150) plus a 13% contingency (US\$23,008,850). The time for completion of the contract is 4 years.

The contract is for the electrification of 5 regions for a total of 95,621 (1-phase) service connections and 3,967 (3-phase) service connections. The scope comprises primarily the installation of electrical line up to and including the service connections.

To facilitate a full VFM assessment, CAGL issued a Final Value for Money (VFM) assessment report on 12th March, 2015 and a Final Revision 2.0 Value for Money (VFM) assessment report on 15th May, 2015 making recommendations to reduce risk to the Employer and to improve the potential of the Contract to offer Value for Money.

2. Final VFM157 Report (Revision 2.0) Summary

The Final Value for Money (VFM) assessment report pertains to a proposed contract between the Ministry of Power (MOP, the Employer) and China International Water and Electric (CWE, the Contractor) for the supply, installation and commissioning of a phase of the MOP's rural electrification programme. The report makes recommendations to address low risks associated with the Contract Condition, Commercial Terms and Technical Considerations. With respect to the Contract Price, the report concludes that there is scope for reduction in the Contract Price of at least US\$10.9 million and for reduction of the Contingency Amount of at least US\$10.2 million.

The overall risk level for this Contract is assessed, in the report, as high, for the reason that the current World Bank debarment of the Contractor may imply cross-debarment by the PPA (Part I, Clause 24 of the 2003 Regulations) may force the cancellation of this Contract.

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3. Concluding GOG Team Meeting on VFM157

The Government of Ghana (GOG) Team meeting was held on 17th April, 2015 to review the findings in the Final VFM Report by CAGL and agree on a way forward to as part of the process of concluding the VFM process. The meeting commenced at 11.15 am and was chaired by David Agbale, Legal Counsel at MOF. The chair invited Crown Agents to take members through the VFM Final Report after members had introduced themselves. David Agbale (MOF) then called on CAGL to lead the meeting. Subsequently, Frank Mante of CAGL led the team through discussions as captured in the agreed final minutes attached.

In line with this, the Government of Ghana (GOG) Team meeting was reconvened on the 26th May, 2015 to conclude the review process on Section 7 Final Revision 2.0 Value for Money (VFM) assessment report: Contract Price. Prior to this meeting, and in order to facilitate the conclusion of this VFM assessment, CAGL issued a Final Revision 2.0 Value for Money (VFM) assessment report that was forwarded to MOF and MOP on the 15th May, 2015.

CAGL noted this Final Revision 2.0 Value for Money (VFM) assessment report is the final report on which the points for negotiation with the contractor would be developed and it is important to note that this final revision 2.0 report takes precedence over the final report that was issued on the 12th March, 2015.

The GOG team agreed with the recommendations on section 7.2.1 Materials Price Analysis and section 7.2.2 Transport and Installation Costs (TIC) of the Final Revision 2.0 Value for Money (VFM) assessment report and requested CAGL to proceed with the review as planned for the acceptance by the GOG Team.

Activity/Meeting	Date
Meeting 1: To review CAGL Value for Money final VFM Report recommendations and to agree and document negotiating positions with respect to all recommendations.	Friday, 17 th April, 2015
Meeting 2: To agree negotiation positions with respect to the recommendations made in the Final Revision 2.0 VFM Report focusing on the revised recommendations pertaining to Contract Price	Tuesday, 26 th May, 2015

4. ~~Negotiation Meeting Details~~

The negotiation meeting commenced at 10.30 am on 4th June 2015 and was chaired by David Agbale, Senior Legal Counsel at MOF. The chair invited Jordan Fast, Technical Adviser for Crown Agents, to take members through the GOG agreed VFM157 points for negotiations after members had introduced themselves.

Table 2: Negotiations Meeting days.
Negotiations: DAY 1 : 4 th JUNE 2015 Negotiations DAY 2: 8 th JUNE 2015
The Negotiations between the Government of Ghana (GOG) Team and the contractor were held on 4 th June, 2015 and concluded on the 8 th June, 2015 and were based on the points for negotiation agreed by the GOG team on meetings (see meeting dates in Table 1, above)
The Parties agreed to adjourn the negotiations and to conclude on Monday 8 th of June, 2015 to give both parties time to consider their positions on section 7.1.2.2 Materials Price Analysis and section 7.1.3 Transport and Installation Costs (TIC) of the Final VFM Report as.
The Parties agreed final positions on both 7.1.2.2 and 7.1.3 and concluded negotiations on 8 th June 2015.
Attendance sheets for both days of Negotiation meetings are appended to these minutes

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5. Table 3: Points for Negotiation with the Contractor

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Points for Negotiations
VFM157 National Electrification Project by China International Water and Electrical Corporation

Revision/Item Reference	Final VFM report Recommendation	GOG Team Agreed Positions (MOP/MOE) Comments	MOP/MOE Agreed Actions Taken (Yes/No)	Contractor Comments	Final Position Agreed to by Both Parties
3.1.1 World Bank Debarment of Contractor	<p>CAGL recommended that the MOP should ensure that the Public Procurement Authority of Ghana (PPA) are consulted to provide guidance for working with firms debarred by the World Bank, especially given that the PPA regulations and their website imply cross-debarment.</p> <p>CAGL further sought clarifications on the MoF and MOP positions on whether or not this GOG meeting should proceed as planned given the fact that the Contractor is currently debarred by the World Bank.</p>	The legal counsel for MOP Mr. Richard Agbotame stated that MOP accepted CAGL recommendation as stated in Section 3.1.1.1. World Bank Debarment of Contractor, and would seek consultation from MOF and PPA. He however, called on the GOG team to agree for the meeting whilst a determination of the position of Government on the subject of the debarment will be made. The GoG team accepted this and thus, the meeting progressed.	MOP to take up the responsibility of clarifying at policy level and will communicate the decision to MOP and CWE. MOP accepted MOF request.	CWE however, commented that the issue of debarment was because of misinformation and not fraudulent practice as stated in the final revision 2.0 VFM report by CAGL.	The GOG Team agreed with MOF and MOP and would leave this to be handled at the policy level by government.
3.1.2.2 Access to Liquid Assets	<p>CAGL recommended that the MOEP should seek written confirmation that CWE has guaranteed access to funds more than US\$ 100,000,000.00 (50% of the contract price) for use in this project to fulfil its contractual obligations.</p> <p>During the VFM negotiation process, the Parties should agree on a specific form for the written confirmation and a timeframe in which it will be provided to the Contractor.</p>	The MOP, agreed to request the contractor to provide evidence in the form of a line of credit notification and would ensure that the contract have access to real assets meeting or exceeding the minimum criteria listed in Appendix A.	MOP agreed to request from CWE this information	CWE insisted this can only be made available by their bankers after the loan agreement has been sign by parliament of Ghana. However, as it stands this can only be made possible after a successful completion of VFM assessment and PPA approval. Until such, the bank can only issue a letter of credit promise.	GOG team agreed to accept the letter of promise until CWE's banker a able to issue a letter of credit based on the signed loan agreement by Parliament of Ghana.
3.1.3.1 Related Experience and Project References	CAGL recommended that the MOP should maintain an up-to-date file documenting past and on-going performance of the Contractor with respect to their work on the Rural Electrification programme	The MOP agreed to the recommendation.	MOP has already began an update on CWE projects	Agreed	Agreed

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Points for Negotiations
VFM157 National Electrification Project by China International Water and Electrical Corporation

Final VFM Report Section	Final VFM Report Recommendation	GOE/Contractor Agreed Positions (MOP/MOP Comments)	MOP/MOP Agreed Action/ Stakeholder Yes/No	Contractor Comment	Final Position Agreed to by Both Parties
3.1.3.2. Experience and Qualifications of the Contractor's Person	CAGL recommended that the MOEP should obtain from the Contractor a firm, written indication of which of their staff will be directly involved with designing and delivering the programme of Works for this Contract.	The MOP accepted the recommendation under this section and would request for a comprehensive staff profile from the contract and further evaluate the CV of the contractor's Key staff that will be directly involved with the designing and delivery of the programme of works for this contract.	MOP to send a request to CWE and expects response in 2 weeks after date issued.	Agreed	Agreed to provide response in 2 weeks after receipt of MOP's request
4.2. PCC 1.1.5.6 Sections "Definitions"	CAGL recommended that Sections should be clearly defined in PCC 1.1.5.6 with explicit reference to the programme of Works and BOM. The BOM should show the price breakdown relating to each Section.	The MOP accepted the recommendation under this section and will request that the contractor clearly defines in PCC 1.1.5.6 with explicit reference to the programme of works and BOM and the BOM should show the price breakdown relating to each section..	MOP will ensure that this is rectified by engaging CWE in the progress	CWE accepted this recommendation in principle.	CWE will work with MOP to to explicitly define Sections by listing the towns to be covered under each Section and by linking these Sections to the Programme of Works and BOM.
4.3 PCC 1.3 – Communications	CAGL recommended that PCC 1.3 should be number PCC 1.3(a) as an addition to GCC 1.3, and the details for both the employer and the contractor should be clearly specified.	The MOP, confirmed that their communication details have changed due to the creation of the new Ministry of Power (MOP) and the position of the Director of Power has now been redefined as Director of Distribution. The MoP indicated that they would notify the Contractor of the necessary changes to the Communication details.	MOP agreed	CWE agreed	Agreed
4.4 PCC 1.4 Law and Language	CAGL recommended that PCC1.4 (b) and (c) should be deleted and rewritten as PCC 1.4(a) the contract shall be governed by and construed in accordance with the laws of Ghana and PCC 1.4(b) language for communication shall be English.	The MOP agreed to this recommendation.	MOP agreed	CWE agreed	Agreed

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Points for Negotiations
VFM157 National Electrification Project by China International Water and Electrical Corporation

Final Revision / VFM Report Section	Final VFM Report Recommendation	GCC Team agreed/Propositions (MOP/MOF) Comments	MOP/MOF Agreed/Actions Taken/Yes/No	Contractor Comments	Final Position Agreed to by both Parties
4.5 PCC 1.5 Priority of Documents	CAGL noted the list of documents given in PCC 1.5 reflects the lack of organisation within the Contract Documents, in particular, the failure to clearly identify which documents form part of the Employer's Requirements and which form part of the Contractor's Proposal.	MOP confirmed that they have always agreed with CAGL's position and would recommend that PCC 1.5 be deleted and replaced with the following list of document: 1. The Minutes of the Value for Money Negotiations 2. The Contract Agreement 3. Particular Conditions of Contract 4. General Conditions of Contract, namely the FIDIC Conditions of Contract for EPC/Turnkey (1st Edition, 1999). 5. The Employer's Requirements 6. The Contractor's Offer 7. Any other documents forming part of the Contract	MOP agreed	CWE agreed	Agreed
4.6 PCC 4.3 Contractor's Representative	CAGL recommended that the contractor should confer with the MOP in approving and accepting Mr. Xie Dehu as the Country Director and the contractor's representative particularly in relation to the qualifications and experience level in relation to this project.	MOP and MOF agreed to the recommendation.	MOP agreed	Agreed	CWE will resubmit originals of CV's and power of attorney to MOP
4.7 PCC 4.21 Progress Reports	CAGL therefore recommended that GCC 4.21 should remain to include as a sub-clause PCC 4.21(b) The monthly reports shall also include a breakdown of quantities of materials used during the month.	MOP and MOF agreed to the recommendation.	MOP agreed	CWE agreed	Agreed
4.8 PCC 5.4- Technical Standards	CAGL strongly recommended that and the wording of PCC sub-clause 5.4 should be deleted and replaced by insertion of a reference to "Annex 1-Employer's Requirements-Technical Specifications for distribution networks" as the applicable source of the Technical Standards.	The MOP agreed to the recommendation.	MOP agreed	CWE agreed	Agreed

Points for Negotiations
VFM157 National Electrification Project by China International Water and Electrical Corporation

Final Revision 2.0 VFM Report Section	Final VFM Report Recommendation	GOE Team Agreed Positions (MOP/MOP) Comments	MOP/MOP Agreed Actions Taken (Yes/No)	Contractor Comment	Final Position Agreed to by both Parties
4.9 PCC 7.3 Inspection	<p>CAGL recommended that the number of visits be justified, and possibly increased, with respect to a schedule of equipment deliveries for this project.</p> <p>As a more cost effective and practical alternative we recommend the appointment of an independent Inspection Company from the country where the Inspection will be undertaken.</p>	<p>The MOP agreed to the recommendation and specified the constituent parts of the cost to include: international airfares, local transport, hotel accommodation, and incidental expenses which would be paid for by the Contractor.</p> <p>Furthermore, the MOP proposed a maximum of 4 persons per visit for a maximum of 4 trips for 2 weeks each.</p> <p>MOP agreed with CAGL's recommendation for the appointment of an independent Inspection Company from the country where the inspection will be undertaken. However, MOP was of the opinion that in the interim, the Ministry take up such a role.</p>	MOP agreed	CWE agreed to increase the number of trips allowable under the Contract, but challenged the recommendation to appoint an independent inspector.	<p>The Parties agreed that the costs of the components listed by the MOP will be borne by CWE.</p> <p>The wording of PCC 7.3 will be changed to state that CWE will cover the costs of up to 4 inspection trips for up to four officials per trip and for up to two weeks' duration per trip.</p> <p>The Parties agreed not to take a decision (at present) to appoint an independent inspector</p>
4.10 PCC 8.2 Time for Completion - Programme	CAGL recommended that the project programme be attached by the Contractor in Gantt chart form and added to the contract documents.	MOP agreed to the recommendation.	MOP agreed	CWE agreed to the recommendation by CAGL and would provide MOP with a more detailed Program of Work in line with the Gantt Chart already submitted to MOP under this project.	CWE agreed to provide a detailed Programme of Works to MOP for review no later than 3 weeks after these minutes of negotiations are signed.
5.1 PCC 4.2 Performance Security	CAGL recommended that the current wording in PCC 4.2 should be deleted in its entirety and replaced with the simple statement that: "The Performance Security shall be 10% of the Contract Price."	MOP agreed to the recommendation.	MOP agreed	CWE agreed	Agreed




Points for Negotiations
VFM157 National Electrification Project by China International Water and Electrical Corporation

Final Revision/2nd VFM Report Section	Final VFM Report Recommendation	GOG Team Agreed Positions (MOP/MOF) Comments	MOP/MOF Agreed Action Taken (Yes/No)	Contractor Comment	Final Position Agreed to by Both Parties
PCC 14.1 Contract Price and payment	CAGL recommended that that, FIDIC clause 14 has adequate procedures in the GCC for interim payments based on progress. The proposed terms of Payment as detailed in the PCC are unacceptable as they are not based on progress of the Works and would pass risk from the Contractor to the Employer prematurely.	MOP agreed to the recommendation.	MOP agreed	CWE agreed, but insist that this section is currently under discussion with MOF and MOP. CWE would comply with the outcome of the decision by MOP and MOF.	Agreed
5.4 PCC 14.1 Advance Payment	CAGL recommended that clauses (a)(i), (a)(ii), (b) and (c) of PCC 14.4 should be deleted. In their place, PCC 14.2 should be added and should be worded as follows: "PCC 14.2(b) the amount of the Advance Payment shall be 15% of the Contract Price"	MOP agreed with CAGL and accepted the recommendations as discussed thereof as the standard industry practice over the years the MOP accepted 15% advance payment of the contract price.	MOP agreed	CWE agreed, but insist that this section is currently under discussion with MOF and MOP. However, MOF is considering a request from CWE and this has been brought to the attention of MOF.	Agreed. (At issue is the procedure for disbursement of the advance payment amount which is being considered by the Debt Management Unit of the MOF.)

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Points for Negotiations
VFM157 National Electrification Project by China International Water and Electrical Corporation

Final Revision 2-D VFM Report Section	Final VFM Report Recommendation	GDC Team Agreed Positions (MOP/MOF) Comments	MOP/MOF Agreed Action Taken (Yes/No)	Contractor Comment	Final Position Agreed by both Parties
PCC 14.4 Schedule of Payments	<p>CAGL noted and recommended that PCC 14.4 should be deleted and replaced with the following wording: "Other than for the Advance Payment, the Schedule of Payments shall be as follows: For Materials (not including Materials intended for the Works covered in GCC 14.5) delivered to the Contractor's warehouse in Ghana, the Contractor shall be entitled to apply for payments of 80% (less 15% for repayment of the Advance Payment) of the cost of progressive shipments (less applicable deductions listed in GCC 14.3). For Installation Works the Contractor shall submit Statements for each Section of the Works completed and shall be entitled to claim for 100% of the Installation Costs for each Section (less applicable deductions listed in GCC 14.3)" It is further recommended that the documents which shall be submitted with claims for interim payments for materials costs and for Works completed should be listed under PCC 14.3 Application for Interim Payments.</p>	<p>MOP agreed to the recommendations however, they opted for the following schedule of payments which in their view, was most suitable:</p> <ol style="list-style-type: none"> a. 15% Advance payment as agreed and stated in PCC 14.1 Advance Payment above. b. 80% of the Contract Price for Materials upon shipment to the Tema port c. 5% Retention. 	MOP agreed	CWE agreed, but insist that this section should be agreed upon with MOF and MOP in accordance with the loan agreement. CWE would comply with the outcome of the decision by MOF and MOP.	Agreed

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Points for Negotiations
VFM157 National Electrification Project by China International Water and Electrical Corporation

Final Revision to VFM Report Sections	Final VFM Report Recommendation	BOQ Team Agreed Positions (MOP/MOP) Comments	MOP / MOP Agreed Actions Taken (Yes/No)	Contractor Comment	Final Position Agreed by both Parties
6.4 Programme of Works	CAGL recommended that the Contractor should prepare a comprehensive Programme of Works based on the completion of Sections (following the definition of Sections recommended in sub-section 4.2 above) and explicitly linked to the BOM. The MOP should not proceed with the Contract until this Programme has been received from the Contractor and thoroughly reviewed by the MOP.	MOP agreed to the recommendation. MOP agreed to the recommendations and would ensure that the contractor's programme of work is clearly defined and structured appropriately to cover the entire project. Following the submission of the programme of work to the MoP, the MoP will review it and agree with the contract before commencement of the project.	MOP agreed	CWE agreed	Agreed
7.1 Contract Price Summary and BOQ Correction	CAGL recommended that the arithmetic errors in the BOM summary included in the Contract should be corrected prior to the Contract coming into full force and effect.	The MOP agreed to the recommendation.	MOP agreed	CWE agreed and would resubmit a revised BOQ to MOP. CWE noted that some of the errors arising in CAGL's calculations can be attributed to rounding errors.	Agreed

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Points for Negotiations
VFM157 National Electrification Project by China International Water and Electrical Corporation

7.1.2.2 Materials Price Analysis	CAGL recommended that the total materials price should be reduced by US\$3.4 million to reflect the reduction in Aluminium raw material prices over the period 2010 to 2014.	MOP agreed to the recommendation.	<p>Concluding Negotiations Day 1: In response to CAGL's summary of the VFM Final Report (revision 2) recommendation, CWE request the GOG team to accept a 12% increase in the materials prices as initially quoted by CWE for this project.</p> <p>CWE put forward the following points to explain their request for a 12% increases in the cost of material prices.</p> <ul style="list-style-type: none"> i. Cost of labour in China has increased 10% between 2010 and 2014 and is anticipated to increase a further 10% over the next 5 years. ii. Global economy is in recovery and this will result in increased raw materials costs over the next 5 years (over which the project is executed). iii. RMB has appreciated relative to the USD by 4.4% between 2011 and 2015. <p>Based on the above, CWE would consider a reduction for TIC if GOG team accepts CWE 12% increase in materials prices.</p>	<p>Concluding Negotiations Day 1: The GOG team considered this offer and countered by proposing that the Parties focus on the recommended reduction of US\$3.4 million to reflect the reduction in Aluminium raw material prices over the period 2010 to 2014.</p> <p>CAGL grounded their position in an Aluminium quote recently obtained showing prices significantly lower than even the market reference price used in the report.</p> <p>The Parties agreed to adjourn and consider their positions before reconvening on Monday 8th June 2015 at 10am.</p>
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Points for Negotiations
VFM157 National Electrification Project by China International Water and Electrical Corporation

				<p>Concluding Negotiations Day 2:</p> <p>Based on the concerns raised in 1st day of negotiations, CWE still stands on their offer of a 12% increase on materials prices for a corresponding reduction in the TLC.</p> <p>CWE then revised their position and proposed no change to their Contract Price.</p> <p>CWE objects to this position by GOG team and insist that the BOQ as it stands already has the lowest market prices as quoted by CWE this CAGL confirmed in the final</p>	<p>Concluding Negotiations Day 2:</p> <p>At the outset of day 2 of negotiations, the GOG team stated categorically that they cannot accept under any circumstance a price increase above the Contract Price documented in the Contractor's office offer.</p> <p>Subsequently the GOG team, in recognition that CWE's prices are largely competitive, agreed to drop the request for a reduction in the TIC percentage and focus only on the Aluminum conductor prices. The GOG team revised their position to a request for reduction of USD3.4 million to reflect reductions in raw Aluminium prices.</p> <p>By this GOG team counter offer to meet CWE mid-way on the two positions of USD no price reduction by the CWE and USD 3.4 by the</p>

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Points for Negotiations :
VFM157 National Electrification Project by China International Water and Electrical Corporation

Final Revision 2.0 VFM Report Section	Final VFM Report Recommendation	GOG Team Agreed Positions (MOP/MOE) Comments	MOP/MOE Agreed Actions Taken (Yes/No)	Contractor Comment	Final Position Agreed by both Parties
				<p>revision 2.0 report, however GOG team request is based on the fact that aluminum prices in the world market has reduced. CWE has taken up that risk by not increasing it's SOQ over the period under this contract. Then also, the GOG has delayed this contract for a period of 2 year now.</p> <p>CWE upon considering the concerns of the GOG team and based on CWE long and ongoing projects and relationship with MOP offered USD 500,000 reduction to the contract price as saving to MOP.</p>	<p>GOG team. As a mid-way the GOG Team final offer to CWE is at USD 1.5 million and by this GOG Team wants the negotiation concluded.</p> <p>The GOG team accepted the offer by the CWE at USD 500,000 as the saving for this project.</p>

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Points for Negotiations
VFM157 National Electrification Project by China International Water and Electrical Corporation

Final Revision of VFM Report Section	Final VFM Report Recommendation	GOG team Agreed Positions (MOP/MOF) Comments	MOP/MOF Agreed Action Taken (Yes/No)	Contractor Comments	Final Position Agreed to by both Parties
7.2.2 Transport and Installation Costs	CAGL reaffirmed based on the analysis in the final revision 2.0 VFM157 Report, summarised in Table 10, recommended that the total price for local transportation, installation and commissioning should be reduced by US\$ 7.5 million and that the MOP should insist on this reduction.	MOP agreed to the recommendation.	MOP agreed		Concluding Negotiations Day 2: At this point, the GOG team agreed not to pursue the reduction on the TLC component of the project but focus the lump sum reduction of USD 3.4 million.
7.2.3 Contingency Amount	CAGL recommended that the MOP should assess actual expenditures against Contract Price for VFMs 135,123 and 122 to determine a realistic and fair contingency amount for this Contract and then enforce that amount on the Contractor. In the absence of the recommended MOP analysis, it is recommended that, based on the analysis summarised in Table 12, the Contingency percentage of 7.7% is applied for this Contract. Therefore, the Contingency amount should be reduced by US\$10.2million to a total of US\$12.8 million	MOP stated their position that reduction in contingency does not represent real savings to the Government of Ghana and requested that the contingency be treated separately from the Material and TIC price reduction recommendations.		NA.	Changing the contingency amount was not discussed during the meeting and the contingency amount was left as is.
Additional points for negotiation added by MOP at final day of GOG team meeting, 26th May 2015:					
Project Management Unit (PMU)	This matter was not previously raised with CAGL and so was not covered in the final VFM report. CAGL suggests that the MOP lead the discussion on this point during the negotiation meeting with the Contractor.	The MOP proposes that cost of a PMU to be included in the agreed contract price for this Contract so as to justify its legitimacy and approval from the relevant approving bodies. This approach would reduce overreliance on contingency funds to set up and run such an important unit.	MOP requested that, all the modalities and budgeting regarding this component would be finalised with CWE.	CWE agreed to the request of MOP and would discuss with MOP to conclude and accept this component (PMU) to form part of the project.	The GOG team agreed and accepted the position of MOP and CWE.

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Points for Negotiations
VFM157 National Electrification Project by China International Water and Electrical Corporation

Final Revision of VFM Report Section	Final VFM Report Recommendation	GOG Team Agreed Positions (MOP/MO) Comment	MOP/MO Agreed Action Taken (Yes/No)	Contractor Comment	Final Position Agreed to by both Parties
Local Content – A minimum of 30%	This matter was not previously raised with CAGL and so was not covered in the final VFM report. CAGL suggests that the MOP lead the discussion on this point during the negotiation meeting with the Contractor.	The MOP advised CAGL that the Contractor has agreed, in principle, to comply with the MOP's requirement for local content. The MOP requests that the Contractor agree to this in writing and that the mechanisms for measuring and confirming compliance with this requirement should be agreed and written into the Contract.	MOP requested that, all the modalities regarding this component would be finalised with CWE.	CWE agreed to the request of MOP and would discuss with MOP to conclude and accept this component local content to form part of the project.	The GOG team agreed and accepted the position of MOP and CWE.
Pre-paid System	This matter was not previously raised with CAGL and so was not covered in the final VFM report. CAGL suggests that the MOP lead the discussion on this point during the negotiation meeting with the Contractor.	The MOP advised CAGL that they have proposed replacement of the current post-paid system with a pre-paid system and wish to table this point for discussion and agreement with the Contractor.	MOP requested this is still being discussed with the stake holder and would communicate the decision to CWE	CWE agreed to the request of MOP and would discuss with MOP to conclude and accept the decision of MOP to form part of the project.	The GOG team agreed and accepted the position of MOP and CWE.
Central Region replaced by Western Region under this project	This matter was not previously raised with CAGL and so was not covered in the final VFM report. CAGL suggests that the MOP lead the discussion on this point during the negotiation meeting with the Contractor.	The MOP advised CAGL that the Contractor has agreed, in principle, to comply with the MOP's requirement for replacing Central Region with Western Region under this project. The MOP explains the reason being that, the towns under the Central Region which were initially earmarked under this project has already been connected to the national grid under a different project. The MOP requests that the Contractor agree to this in writing and confirming compliance with this requirement should be agreed and written into the Contract.	MOP requested that, the final scope of works covering the Western Region would be finalised with CWE.	CWE agreed to the request of MOP and would discuss with MOP to conclude and accept the decision of MOP to form part of the project.	The GOG team agreed and accepted the position of MOP and CWE.



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Points for Negotiations
VFM157 National Electrification Project by China International Water and Electrical Corporation

List of Attendees

~~GOI/CONTRACTOR NEGOTIATIONS DAY 11 JUNE 2015~~

No	NAME	ORG	POSITION	E-MAIL ADDRESS
MINISTRY OF FINANCE				
1	David Agbale	MOF	Legal Officer	dagbale@mofep.gov.gh
2	Dabone Atta	MOF	Economic Officer	Emensah@mofep.gov.gh
3	Isaac Ben Arthur	MOF	Economic Officer	iarthur@mofep.gov.gh
4	Frank Adanuvor	MOF	SEO	fadanuvor@mofep.gov.gh
MINISTRY OF POWER (MOP) formally MOEP				
5	George Tettey	MOP	Financial Expect	gtettey@gmail.com
6	William Hutton-Mensah	MOP	Dir. Distribution	whmensah@yahoo.com
7	Sulemana Abubakari	MOP	Dept. Dir. Distribution	molafarm@yahoo.com
8	Richard Agbotame	MOP	Legal Counsel	richardagbotame@yahoo.com
Contractor: China International Water and Electrical Corporation (CWE)				
9	Yi Iiu	CWE	Construction Manager	Yilin8884@gmail.com
10	NI lun yue (stella NI)	CWE	Commercial Manager	Stella.nee@hotmail.com
11	Xie Dahu	CWE	Director	Ghana311@hotmail.com
12	Shi Welliang	CWE	Engineer	shiweliang@cwe.com
CROWN AGENTS GHANA/UK				

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Points for Negotiations
VFM167 National Electrification Project by China International Water and Electrical Corporation

3	13	Jordan Fast	CA-UK	Technical Advisor	Jordan.fast@crowagents.co.uk
	14	Swanzy Awozum	CAGL	Supply Chain Specialist	awozum.swanzy@gh.crowagents.com
	15	Gloria Offel	CAGL	Asist. Adm.	gloria.offel@gh.crowagents.com

List of Attendees

~~FOR CONTRACTOR NEGOTIATIONS DAY 28/01/2015~~

No	NAME	ORG	POSITION	E-MAIL ADDRESS	
MINISTRY OF FINANCE					
1	1	David Agbale	MOF	Legal Officer	dagbale@mofep.gov.gh
	2	Dabone Atta	MOF	Economic Officer	Emensah@mofep.gov.gh
	3	Isaac Ben Arthur	MOF	Economic Officer	iarthur@mofep.gov.gh
	4	Frank Adanuvor	MOF	SEO	fadanuvor@mofep.gov.gh
MINISTRY OF POWER (MOP) formally MOEP					
2	5	George Tettey	MOP	Financial Expect	gtettev@gmail.com
	6	Willam Hutton-Mensah	MOP	Dir. Distribution	wimensah@yahoo.com
	7	Sulemana Abubakari	MOP	Dept. Dir. Distribution	molafarm@yahoo.com
	8	Richard Agbotame	MOP	Legal Counsel	richardagbotame@yahoo.com
Contractor: China International Water and Electrical Corporation (CWE)					
	9	Yi Ilu	CWE	Construction Manager	Yilin8884@gmail.com

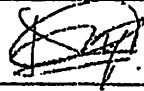
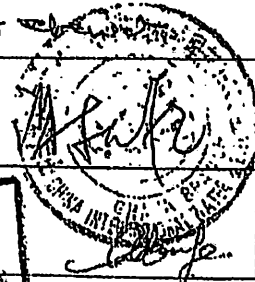
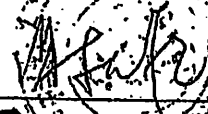
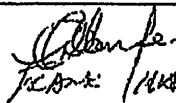

[Handwritten signatures and initials]
SMA

Points for Negotiations
VFM167 National Electrification Project by China International Water and Electrical Corporation

	10	Ni lun yue (stella NI)	CWE	Commercial Manager	Stella.nee@hotmail.com
	11	Xie Dahu	CWE	Director	Ghana311@hotmail.com
	12	Shi Welliang	CWE	Engineer	shiweliang@cwe.com
CROWN AGENTS GHANA/UK					
3	13	Jordan Fast	CA-UK	Technical Advisor	jordan.fast@crowngents.co.uk
	14	Swanzv Awozum	CAGL	Supply Chain Specialist	awozum.swanzv@gh.crowngents.com
	15	Cornella Gyasi	CAGL	Admin. Finance officer	Cornella.gyasi@gh.crowngents.com

Acceptance of the Points for Negotiations

We, the undersigned, hereby endorse our acceptance of these final minutes of negotiations based on the agreed Points of Negotiations between the GOG Team and the contractor.

Organisation	Name of Authorised Signatory	Signature
Ministry of Finance	DAVID AGBALE	
Ministry of Power, Formally MOEP	MINISTRY OF POWER WILSON BOATENG-MENSAH P. O. BOX MB 350 MINISTRIES - ACCRA GHANA	
China International Water and Electrical Corporation (CWE)	Xie Dahu	
Crown Agents Ghana Limited	 CROWN AGENTS GHANA LIMITED	

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Other Documents

EMP

In case of reply the number and date of this letter should be quoted

Our Ref: DMD/IRU/MOP-CWE/ICBC/2016/1
Your Ref
Tel No.: +233 302 661358/686153
Email: irudmd@mofep.gov.gh



REPUBLIC OF GHANA

MINISTRY OF FINANCE
P. O. BOX MB 40
ACCRA

3RD MARCH, 2016

FINANCING AGREEMENT FOR RURAL ELECTRIFICATION IN FIVE REGIONS IN GHANA

We refer to the supply contract between the Government of the Republic of Ghana represented by Ministry of Power and China Water Electrical and Construction with respect to rural electrification works to be undertaken in five regions in Ghana.

2. Please be informed that the supply contract amount for the project has been reduced from US\$200 million to US\$97.00 million.
3. In view of the above development, Industrial and Commercial Bank of China (ICBC) is requested to amend the terms and conditions of the draft loan agreement to reflect 85% of the supply contract amount.
4. In addition, we kindly request that the Sinosure premium is financed under the credit facility agreement.
5. We value your cooperation in this regard.

PARLIAMENT OF GHANA LIBRARY

C. A. Forson
HON. CASSIEL ATO FORSON (MP)
DEPUTY MINISTER
FOR: MINISTER

INDUSTRIAL AND COMMERCIAL
BANK OF CHINA

CC: Hon. Minister, MOF
Hon. Minister, MOP
Hon. Deputy Minister (ES), MOF
Chief Director, MOF
Director, DMD, MOF

CAF

CAF

4. Tax Assessment

In case of reply the
number and date of this
letter should be quoted

Customs Division Form No. 80

THE COMMISSIONER
CUSTOMS DIVISION OF
GHANA REVENUE AUTHORITY
P. O. BOX 68
ACCRA

TEL: 233-302-666841-4
FAX: 233-302-660019



H/ DUTY/ 6
OUR REF NO.....
YOUR REF:.....

21ST MAY, 2019

THE MINISTER,
MINISTRY OF FINANCE,
ACCRA.

RE: REQUEST FOR TAX ASSESSMENT IN RESPECT OF PROJECT MATERIALS AND EQUIPMENT FOR THE SELF-HELP ELECTRIFICATION PROGRAMME(SHEP) IN FIVE REGIONS-PHASE II BY CHINA INTERNATIONAL WATER AND ELECTRIC CORPORATION(CWE).

Reference is made to your letter no. RMERD/TPU/TA/CWE/GRA/019 dated May, 2019 on the above subject.

I forward herewith the schedule of Assessment of Tax Liabilities totaling the Cedi equivalent of Thirty One Million, Sixteen Thousand, Seven Hundred and Seventy One U.S. Dollars(\$31,016,771.00) being Project Equipment and Materials for the above Project to enable you request for Tax Exemption.

for: COMMISSIONER
(Y. BOAKYE AGYEMANG)
ASST COMMISSIONER

PARLIAMENT OF GHANA LIBRARY

TAX ASSESSMENT

MINISTRY OF ENERGY/SELF-HELP ELECTRIFICATION PROGRAMME IN FIVE REGIONS-PHASE II/CHINA INTERNATIONAL WATER & ELECTRIC CORP

Description of Items	Specs	unit	Qty	CIF (USD)	I/D Rate	Imp. Duty	Nhil/Gfund 5%	Imp. VAT 12.5%	EXIM Levy 0.75%	Ecowas Levy 0.5%	SIL 0%/2%	TOTAL (USD)
Stay Insulator	54-2 0.4KV	pcs	14,794	44,382	10%	4438	2441	6408	333	222	0	13,842
Stay Insulator	54-3 11KV	pcs	5,000	20,000	10%	2000	1100	2888	150	100	0	6,238
Stay Insulator	54-4 33KV	pcs	10,820	43,280	10%	4328	2380	6249	325	216	0	13,498
Stay Block, With Stay Plate		pcs	27,859	501,462	20%	100292	30088	78980	3761	2507	0	215,629
Stay Rod	D18*2500	pcs	27,859	417,885	20%	83577	25073	65817	3134	2089	0	179,691
Staywire	GJ-7/3.25	m	277,149	831,447	20%	166289	49887	130953	6236	4157	0	357,522
Staywire Termination, Pre	BG-2186	pcs	55,718	278,590	20%	55718	16715	43878	2089	1393	0	119,794
Staywire Pole Temination,	WGL-2186	pcs	27,859	278,590	20%	55718	16715	43878	2089	1393	0	119,794
Adjustable Stay Clamp	NUT-2	pcs	27,859	891,488	20%	178298	53489	140409	6686	4457	0	383,340
Binding Wire	φ3.2	m	50,000	50,000	20%	10000	3000	7875	375	250	0	21,500
Connector, Parallel Groove	JBY-120-3 5	pcs	113,911	569,555	20%	113911	34173	89705	4272	2848	0	244,909
Connector, Parallel Groove	JBY-120-3 1	pcs	12,162	97,296	20%	19459	5838	15324	730	485	0	41,837
Line Splice	LS-0123	pcs	1,515	6,060	20%	1212	364	954	45	30	0	2,606
Line Splice	LS-0134	pcs	2,626	15,756	20%	3151	945	2482	118	79	0	6,775
Dead End, Perfformed(Lv	DG-4543	pcs	96,656	386,624	20%	77325	23197	60893	2900	1933	0	166,248
Dead End, Perfformed (Ht	DG-4547	pcs	21,295	191,655	20%	38331	11499	30186	1437	958	0	82,412
M12*35 Bolt & Nut	M12*35	set	3,194	3,194	20%	539	192	503	24	16	64	1,437
M16x175 Pole Bolt & Nut	M16x175	pcs	31,812	63,624	20%	12725	3817	10021	477	318	1272	28,631
M16x200 Pole Bolt & Nut	M16x200	set	1,000	2,000	20%	400	120	315	15	10	40	900
M16x225 Pole Bolt & Nut	M16x225	set	96,659	193,318	20%	38664	11599	30448	1450	967	3866	86,993
M16x250 Pole Bolt & Nut	M16x250	set	5,000	15,000	20%	3000	900	2363	113	75	300	6,750
M16x300 Pole Bolt & Nut	M16x300	set	51,746	258,730	20%	51746	15524	40750	1940	1294	5175	116,429
M16x350 Pole Bolt & Nut	M16x350	set	3,000	15,000	20%	3000	900	2363	113	75	300	6,750
M20*40 Bolt & Nut	M20*40	set	39,025	156,100	20%	31220	9366	24586	1171	781	3122	70,245
M20*200 Pole Bolt & Nut	M20*200	set	15,150	75,750	20%	15150	4545	11931	568	379	1515	34,088
M20*300 Pole Bolt & Nut	M20*300	set	23,727	166,089	20%	33218	9965	26159	1246	830	3322	74,740
M20*350 Bolt & Nut	M20*350	set	1,321	9,247	20%	1849	555	1456	69	46	185	4,161
Screw		pcs	304,157	304,157	20%	60831	18249	47905	2281	1521	6083	136,871
17.5 Washer, Square	φ17.5	pcs	54,625	54,625	20%	10925	3278	8603	410	273	1093	24,581

17.5 Washer, Curved	φ17.5	pcs	222,486	222,486	20%	44497	13349	35042	1669	1112	4450	100,119
22 Square Washer	φ22	pcs	67,357	67,357	20%	13471	4041	10609	505	337	1347	30,311
22 Curved Washer	φ22	pcs	37,867	37,867	20%	7573	2272	5964	284	189	757	17,040
D Iron	6*110*80*40	set	186,311	3,539,909	20%	707982	212395	557536	26549	17700	70798	1,592,959
Reel Insulator Ed-2b	ED-2B	pcs	111,438	557,190	10%	55719	30645	80444	4179	2786	0	173,774
Reel Insulator Ed-2c	ED-2C	pcs	145,423	727,115	10%	72712	39991	104977	5453	3636	0	226,769
J-Hook, Ball Ended	QG-2	pcs	21,295	511,080	20%	102216	30665	80495	3833	2555	0	219,764
Clevis Socket	W-7A	pcs	21,295	511,080	20%	102216	30665	80495	3833	2555	0	219,764
Strap	12*280*60	pcs	12,178	292,272	20%	58454	17536	46033	2192	1461	0	125,677
Crossarm Tie		psc	26,848	671,200	20%	134240	40272	105714	5034	3356	0	288,616
Crossarm Intermediate (2.84m)	∠110*110*8	psc	2,088	81,432	20%	16286	4886	12826	611	407	0	35,016
Crossarm Intermediate (2.84m)	∠110*110*8	psc	11,203	761,804	20%	152361	45708	119984	5714	3809	0	327,576
H Pole Crossarm (2.84m)	∠110*110*8	psc	4,019	341,615	20%	68323	20497	53804	2562	1708	0	146,894
COMPOSITE PIN INSULATOR	11KV	pcs	7,671	153,420	10%	15342	8438	22150	1151	767	0	47,848
COMPOSITE PIN INSULATOR	33KV	pcs	43,107	1,508,738	10%	150874	82981	217824	11316	7544	0	470,538
Composite String Insulator	11KV	pcs	3,863	57,945	10%	5795	3187	8366	435	290	0	18,072
Composite String Insulator	33KV	pcs	17,432	348,640	10%	34864	19175	50335	2615	1743	0	108,732
Pvc Cable, Cu	1V-16 YB ea	m	53,675	268,375	20%	53675	16103	42269	2013	1342	0	115,401
Bimetal Line Tap	JBG-1 16/	pcs	9,454	56,724	20%	11345	3403	8934	425	284	0	24,391
Earth Rod	XJT1210 M	pcs	15,132	151,320	20%	30264	9079	23833	1135	757	0	65,068
Earth Clamp	XJD04	pcs	15,132	75,660	20%	15132	4540	11916	567	378	0	32,534
Bimetal Line Tap	JBG-2 35/50	pcs	5,284	31,704	20%	6341	1902	4993	238	159	0	13,633
Bimetal Lug	BL-120(EGG)	pcs	10,769	75,383	20%	15077	4523	11873	565	377	0	32,415
Copper Line Tap	JB-0 TJ-16-	pcs	4,860	34,020	20%	6804	2041	5358	255	170	0	14,629
Copper Lug	DTGY-35	pcs	17,021	51,063	10%	5106	2808	7372	383	255	0	15,925
Copper Lug	φ22	pcs	234	819	10%	82	45	118	6	4	0	255
Lv Fuse Box	54611-18	set	2,860	143,000	20%	28600	8580	22523	1073	715	0	61,490
Lighting Arrester	Y10W-11	set	540	37,800	10%	3780	2079	5457	284	189	0	11,789
Lighting Arrester	Y10W-33	set	1,814	127,008	10%	12701	6985	18337	953	635	0	39,611
Drop Out	11KV	set	465	32,550	10%	3255	1790	4699	244	163	0	10,152
Drop Out	33KV	set	1,689	118,230	10%	11823	6503	17069	887	591	0	36,873
Pvc Cable, Cu	VV-35	m	49,564	1,486,920	20%	297384	89215	234190	11152	7435	0	639,376
Copper Strand Wire	TJ-16	m	13,472	202,080	20%	40416	12125	31828	1516	1010	0	86,894
Copper Strand Wire	TJ-35	m	14,678	366,950	20%	73390	22017	57795	2752	1835	0	157,789

Nylon Pipe	φ16	m	4,300	12,900	20%	2580	774	2032	97	65	0	5,547
Al.Tape	FLD-1 (1*10	m	3,333	16,665	20%	3333	1000	2625	125	83	0	7,166
Pipe Clip	φ16	set	347,608	173,804	20%	34761	10428	27374	1304	869	0	74,736
Crossarm	∠75*75*8*20	pcs	1,436	35,900	20%	7180	2154	5654	269	180	0	15,437
Channel Steel	[100*48*650	pcs	1,192	29,800	20%	5960	1788	4694	224	149	0	12,814
Channel Steel	[100*48*700	pcs	116	3,480	20%	696	209	548	26	17	0	1,496
Channel Steel	[140*58*200	pcs	1,308	65,400	20%	13080	3924	10301	491	327	0	28,122
Transformer	11/11.5/0.433	pcs	105	472,500	5%	23625	0	0	3544	2363	0	29,531
Transformer	11/11.5/0.433	pcs	48	312,000	5%	15600	0	0	2340	1560	0	19,500
Transformer	11/11.5/0.433	pcs	23	195,500	5%	9775	0	0	1466	978	0	12,219
Transformer	33/34.5/0.433	pcs	282	1,410,000	5%	70500	0	0	10575	7050	0	88,125
Transformer	33/34.5/0.433	pcs	195	1,365,000	5%	68250	0	0	10238	6825	0	85,313
Transformer	33/34.5/0.433	pcs	45	405,000	5%	20250	0	0	3038	2025	0	25,313
Load Isolator	SBC-17/400	set	15	46,500	10%	4650	2558	6713	349	233	0	14,502
Load Isolator	SBC-36 33kv	set	68	270,640	10%	27064	14885	39074	2030	1353	0	84,406
Insulating Adhesive Tape	10meter/tape	pcs	4,448	22,240	20%	4448	1334	3503	167	111	445	10,008
Lv Fuse Link	0.433KV/50A	pcs	1,103	4,412	10%	441	243	637	33	22	0	1,376
Lv Fuse Link	0.433KV/100	pcs	1,406	5,624	10%	562	309	812	42	28	0	1,754
Lv Fuse Link	0.433KV/200	pcs	351	1,404	10%	140	77	203	11	7	0	438
Drop Out Fuse Link	11KV/5A	pcs	290	290	10%	29	16	42	2	1	0	90
Drop Out Fuse Link	11KV/10A	pcs	126	126	10%	13	7	18	1	1	0	39
Drop Out Fuse Link	11KV/20A	pcs	57	57	10%	6	3	8	0	0	0	18
Drop Out Fuse Link	33KV/2A	pcs	857	857	10%	86	47	124	6	4	0	267
Drop Out Fuse Link	33KV/3A	pcs	605	605	10%	61	33	87	5	3	0	189
Drop Out Fuse Link	33KV/7.5A	pcs	328	328	10%	33	18	47	2	2	0	102
Coach Screw Insulator	0.433KV P8	pcs	91,374	365,496	10%	36550	20102	52768	2741	1827	0	113,989
Meter (Single -Phase)	1 phase 5/60A	pcs	42,420	1,611,960	10%	161196	88658	232727	12090	8060	32239	534,969
Meter (Three - Phase)	3 phase 20/10	pcs	1,031	164,960	10%	16496	9073	23816	1237	825	3299	54,746
Meter Box	1 phase	pcs	17,101	1,658,797	10%	165880	91234	239489	12441	8294	33176	550,513
Meter Box	3 phase	pcs	335	32,495	10%	3250	1787	4691	244	162	650	10,784
Mcb(Single -Phase)	1 phase	pcs	42,420	84,840	10%	8484	4666	12249	636	424	1697	28,156
Mcb (Three - Phase)	3 phase	pcs	1,031	4,124	10%	412	227	595	31	21	82	1,369
Mcb Box (Single -Phase)	1 phase	pcs	42,420	42,420	10%	4242	2333	6124	318	212	848	14,078
Mcb Box (Three - Phase)	3 phase	pcs	1,031	2,062	10%	206	113	298	15	10	41	684

Service Cable 1*16	1*16mm	m	1,717,813	5,153,439	20%	1030688	309206	811667	38651	25767	0	2,215,979
Pvc/Pvc Cable 2*16	2*16mm	m	216,342	1,514,394	20%	302879	90864	238517	11358	7572	0	651,189
Pvc/Pvc Cable 4*16	4*16mm	m	5,258	68,354	20%	13671	4101	10766	513	342	0	29,392
Conductor (ECG)	AAC50	km	4,781	4,546,617	20%	909323	272797	716092	34100	22733	0	1,955,045
Conductor (ECG)	AAC120	km	4,831	11,352,380	20%	2270476	681143	1788000	85143	56762	0	4,881,523
Wooden Pole	7m	pcs	16,890	2,364,600	20%	472920	141876	372425	17735	11823	47292	1,064,070
Wooden Pole	8m	pcs	19,591	4,427,566	20%	885513	265654	697342	33207	22138	88551	1,992,405
Wooden Pole	9m	pcs	6,350	1,657,350	20%	331470	99441	261033	12430	8287	33147	745,808
Wooden Pole	10m	pcs	7,225	2,731,050	20%	546210	163863	430140	20483	13655	54621	1,228,973
Wooden Pole	11m	pcs	6,496	2,851,744	20%	570349	171105	449150	21388	14259	57035	1,283,285
Steel Pole	11m	pcs	8,257	10,321,250	20%	2064250	619275	1625597	77409	51606	206425	4,644,563
Pick-Up-Toyota Hilux		unit	20	600,000	5%	30000	31500	82688	4500	3000	12000	163,688
Big Toyota Pick-Up		unit	6	300,000	5%	15000	15750	41344	2250	1500	6000	81,844
Trucks		unit	4	400,000	5%	20000	21000	55125	3000	2000	8000	109,125
Crane Truck		unit	2	200,000	5%	10000	10500	27563	1500	1000	4000	54,563
5t Forklift		unit	3	186,000	5%	9300	0	0	1395	930	0	11,625
TOTAL				77,084,590		13727400	4312435	11320141	578134	385423	693238	31,016,771

CERTIFICATE

TOTAL TAX LIABILITY=31,016,771 U.S. DOLLARS

This is to certify that the assessment given is true and correct.

Signature:.....

Importer/Agent's Name & Designation:.....

For Official Use

Assessment rechecked and found correct and complete.

Signature:.....

.....15-05-2019.....

Officer's Name & Rank:- **GIDEON GLEY**
(REV. OFFICER)

Date