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Bhutan Power Corporation Limited

(An ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Company)

Registered Office, Thimphu

Procurement Services Department

Thimphu: Bhutan



BPC/PSD/Electrical Materials/2022/03/02

February 28, 2022

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.....
.....

Subject: Addendum No. II

Tender Title: Supply and Delivery of Electrical Line Materials and Substation Equipment

Reference: BPC/PSD/Electrical Materials/2022/03 dated February 11, 2022

Dear Sir/Madam,

This is to inform all the bidders that PSD, BPC would like to issue amendment against the above referred tender. The tender now consist of 11 (Eleven) lots. The additional lot consist of ABC cables. The detail commercial and technical requirements of the lot is mentioned under the BDS (Bid Data Sheet) and Schedule of Supply which are attached herewith. The submission and opening dateline for the tender is also amended.

Therefore, Bidders are advised to note the changes and quote accordingly. All other terms and conditions shall remain same.

Thanking you.

Yours sincerely,

(Nim Dorji)
General Manager

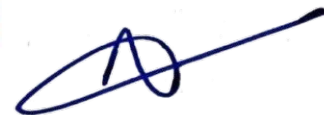


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DRUK HOLDING & INVESTMENTS LTD.

GROUP STANDARD BIDDING DOCUMENT

GOODS (BDS)



Tender Reference: BPC/PSD/Electrical Materials/2022/03 dated February 11, 2022 for the supply and delivery Electrical Line Materials and Substation Equipment

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SECTION II. BID DATA SHEET

The Bid Data Sheet (BDS) contains information and provisions that are specific to a particular bidding process. The Purchaser must specify in the BDS only information that the Instructions to Bidders (ITB) request be specified in the BDS. All information shall be provided, and no clause shall be left blank. To facilitate the preparation of the BDS, its clauses are numbered with the same numbers as the corresponding ITB clauses. This guide provides information to the Purchaser on how to enter all required information, and includes a BDS format that summarizes all information to be provided.

ITB	Particulars																								
1.1	Tender No.: BPC/PSD/Electrical Materials/2022/03 dated February 11, 2022																								
1.1	Tender Name: The Supply and Delivery of Electrical Line Materials and Substation Equipment.																								
1.1	Purchaser: Procurement Services Department, Bhutan Power Corporation Limited, Yarden Lam, Post Box No. 580, Thimphu, Bhutan.																								
1.1	<p>The number and identification of Lots comprising this tender are:</p> <table border="1"> <thead> <tr> <th>Lot No.</th><th>Lot Description</th></tr> </thead> <tbody> <tr> <td>1</td><td>11 kV ID VCB Panels and Accessories</td></tr> <tr> <td>2</td><td>Distribution Boards (AC & DC), Battery Bank and Accessories</td></tr> <tr> <td>3</td><td>Telescopic Pole Fittings</td></tr> <tr> <td>4</td><td>Conductor and Hardware Fittings</td></tr> <tr> <td>5</td><td>Fault Passage Indicator (FPI)</td></tr> <tr> <td>6</td><td>Transformer Spare Parts and Accessories</td></tr> <tr> <td>7</td><td>Miscellaneous Items for Transformer Maintenance</td></tr> <tr> <td>8</td><td>Copper Wire</td></tr> <tr> <td>9</td><td>Distribution Pillar and Termination Kit</td></tr> <tr> <td>10</td><td>HV Switching Equipment</td></tr> <tr> <td>11</td><td>ABC Cables</td></tr> </tbody> </table>	Lot No.	Lot Description	1	11 kV ID VCB Panels and Accessories	2	Distribution Boards (AC & DC), Battery Bank and Accessories	3	Telescopic Pole Fittings	4	Conductor and Hardware Fittings	5	Fault Passage Indicator (FPI)	6	Transformer Spare Parts and Accessories	7	Miscellaneous Items for Transformer Maintenance	8	Copper Wire	9	Distribution Pillar and Termination Kit	10	HV Switching Equipment	11	ABC Cables
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8.2	<p>For Bid clarification purposes, the Purchaser's address is: Attention: The General Manager. Address: Procurement Services Department, Bhutan Power Corporation Limited, Yarden Lam, Post Box No. 580, Thimphu, Bhutan. Telephone number: +975-2-326289 Electronic mail address: nim.dorji@bpc.bt copy to: psdbpc@gmail.com/kinzangwangmo@bpc.bt</p>																								

8.3	Bid Clarification request will be received on or before: Time : 17:00 hour Date : March 10, 2022
8.5	A pre-bid meeting shall not take place.
12.1	The Bidder shall submit with its Bid the following additional documents: a) <i>Copies of valid Trade License</i> b) <i>Latest Tax Clearance Certificate</i> c) <i>Compliance to Delivery Schedule</i>
15.1	Alternative Bids shall not be permitted.
16.3	The Bidder shall quote prices in DDP (Delivered Duty Paid), RSD, Pasakha (Place of destination) for all the lots as per incoterm 2020. Notwithstanding any possible misinterpretation/ambiguity in interpretation, it is explicitly clarified that the offered prices shall be all inclusive covering all costs including but not limited to transportation, insurance, taxes and duties and any other costs for delivery of the materials to the Purchaser at the designated place of delivery/destination.
16.3 (a) (iii)	The final destination is: Pasakha, Regional Store Divisions, Phuentsholing, Bhutan.
16.3 (b) i, ii, & iii	The price shall be inclusive of all taxes and duties that are applicable both inside and outside the purchaser's country.
16.5	Bids are being invited for lots
18.1	The prices quoted by the Bidder <i>shall not be adjustable</i> except under the circumstances specified under Clause 38.3 (e)
19.1, 19.2 and 19.3	Bid Prices shall be quoted in Ngultrum for goods offered from Bhutan, in Indian Rupees for goods offered from India; and in US dollar/major foreign currencies for goods offered from other Countries. Bid Prices expressed in Indian currency and US Dollars/major foreign currencies shall be accepted and evaluated in accordance to ITB 38. For bid evaluation purpose the exchange rate will be based on the Telegraphic Transfer (TT) selling rate published by the Royal Monetary Authority (RMA) of the Kingdom of Bhutan on the day of bid opening or the immediate preceding date as posted by the RMA. For bid expressed in Indian currency and US Dollars/major foreign currencies, payments shall be made in equivalent Ngultrum through banking channel and the responsibilities of payment transfer and transfer charges lie on the Suppliers.



20.1	Technical Specifications The minimum technical specification (where ever required) are detailed out under respective Lot and Price schedule . Any technical deviation shall be brought out in the GTP forms for the items where GTP forms are provided and for the items where GTP forms are not required, the deviation shall be brought out in the deviation sheet provided. If the deviations are not mentioned in GTP and deviation sheet provided, the specification shall be considered as complied with the requirement.																								
20.2	<p>Guaranteed Technical Specifications (GTPs) “is” required /to be offered if any</p> <table border="1" data-bbox="462 582 1500 1451"> <thead> <tr> <th>Item / Lot Description</th><th>Remarks</th></tr> </thead> <tbody> <tr> <td>Lot 1: 11 kV ID VCB Panels and Accessories</td><td>Required Item A1</td></tr> <tr> <td>Lot 2: Distribution Boards (AC &DC), Battery Bank and Accessories</td><td>Required for item 1,2,3 &4</td></tr> <tr> <td>Lot 3: Telescopic Pole Fittings</td><td>To be Offered</td></tr> <tr> <td>Lot 4: Conductor and Hardware Fittings</td><td>To be Offered</td></tr> <tr> <td>Lot 5: Fault Passage Indicator (FPI)</td><td>Required</td></tr> <tr> <td>Lot 6:Transformer Spare Parts and Accessories</td><td>To be Offered</td></tr> <tr> <td>Lot 7: Miscellaneous Items for Transformer Maintenance</td><td>To be Offered</td></tr> <tr> <td>Lot 8:Copper Wire</td><td>To be Offered</td></tr> <tr> <td>Lot 9: Distribution Pillar and Termination Kit</td><td>Required for Item 1 &2</td></tr> <tr> <td>Lot 10: HV Switching Equipment</td><td>To be Offered</td></tr> <tr> <td>Lot 11: ABC Cables</td><td>Required</td></tr> </tbody> </table> <p>a) The bid for that item(s)/Lot(s) shall be rejected if the GTP required Forms are not duly filled up and submitted as specified under respective lot.</p> <p><i>The bidders are required to duly fill up the GTP forms provided in the bidding document. The catalogue/brochures of the items shall not be considered as GTP of the item. Further, if there are discrepancies between the item catalogue/brochures and the offered GTP, then GTP shall prevail.</i></p> <p><i>For convenience purpose, the GTP in Excel format is attached herewith. The GTP must be seal, sign and fill up without any alteration to its format.</i></p> <p>b) For the item(s)/Lot(s) of which GTP forms are not provided under respective lot, the bidders are requested to submit the catalogue or drawings for individual items or offer GTP if there is any. The offered items shall be clearly indicated in</p>	Item / Lot Description	Remarks	Lot 1: 11 kV ID VCB Panels and Accessories	Required Item A1	Lot 2: Distribution Boards (AC &DC), Battery Bank and Accessories	Required for item 1,2,3 &4	Lot 3: Telescopic Pole Fittings	To be Offered	Lot 4: Conductor and Hardware Fittings	To be Offered	Lot 5: Fault Passage Indicator (FPI)	Required	Lot 6:Transformer Spare Parts and Accessories	To be Offered	Lot 7: Miscellaneous Items for Transformer Maintenance	To be Offered	Lot 8:Copper Wire	To be Offered	Lot 9: Distribution Pillar and Termination Kit	Required for Item 1 &2	Lot 10: HV Switching Equipment	To be Offered	Lot 11: ABC Cables	Required
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	<i>the catalogue and if there is any deviation, brought out in deviation sheet provided.</i>																								
20.3	The period of time for which the Goods are expected to be functioning (for the purpose of spare parts, special tools, etc.): <i>Not Applicable.</i>																								
21.1	Financial Capability The Bidder shall furnish documentary evidence that it meets the financial requirement(s): <i>Not Applicable</i>																								
21.2	Experience and Technical Capacity The Bidder shall furnish documentary evidence to demonstrate that it meets the following experience requirement(s): <i>ISO Certificate, list of previous clients, relevant catalogues, notarized test certificates, list of past performance certificates and manufacturer's profile for all new brands that are introduced in BPC.</i>																								
21.3(a)	<p>Manufacturer's Authorization (MA) "is" required/Not Required</p> <table border="1"> <thead> <tr> <th>Lot Description</th><th>Remarks</th></tr> </thead> <tbody> <tr> <td><i>Lot 1: 11 kV ID VCB Panels and Accessories</i></td><td><i>Required</i></td></tr> <tr> <td><i>Lot 2: Distribution Boards (AC & DC), Battery Bank and Accessories</i></td><td><i>Required</i></td></tr> <tr> <td><i>Lot 3: Telescopic Pole Fittings</i></td><td><i>Required</i></td></tr> <tr> <td><i>Lot 4: Conductor and Hardware Fittings</i></td><td><i>Required</i></td></tr> <tr> <td><i>Lot 5: Fault Passage Indicator (FPI)</i></td><td><i>Required</i></td></tr> <tr> <td><i>Lot 6: Transformer Spare Parts and Accessories</i></td><td><i>Required</i></td></tr> <tr> <td><i>Lot 7: Miscellaneous Items for Transformer Maintenance</i></td><td><i>Not Required</i></td></tr> <tr> <td><i>Lot 8: Copper Wire</i></td><td><i>Required</i></td></tr> <tr> <td><i>Lot 9: Distribution Pillar and Termination Kit</i></td><td><i>Required</i></td></tr> <tr> <td><i>Lot 10: HV Switching Equipment</i></td><td><i>Required</i></td></tr> <tr> <td><i>Lot 11: ABC Cables</i></td><td><i>Required</i></td></tr> </tbody> </table> <p>a) <i>The bid for that item(s)/Lot(s) shall be rejected if the Manufacturer's Authorization is not submitted for which the Manufacturer's Authorization is required.</i></p> <p>b) <i>The Bidders are to mention the brand and origin of goods in the price schedule and submit the Manufacturer's Authorization accordingly.</i></p> <p>c) <i>The brands (restricted/preferred) are mentioned in the price schedule and bidders are to quote accordingly. Item/lots for which brands are restricted, no alternative/ substitute brand shall be accepted and shall be considered as non-responsive for that particular item/lot.</i></p>	Lot Description	Remarks	<i>Lot 1: 11 kV ID VCB Panels and Accessories</i>	<i>Required</i>	<i>Lot 2: Distribution Boards (AC & DC), Battery Bank and Accessories</i>	<i>Required</i>	<i>Lot 3: Telescopic Pole Fittings</i>	<i>Required</i>	<i>Lot 4: Conductor and Hardware Fittings</i>	<i>Required</i>	<i>Lot 5: Fault Passage Indicator (FPI)</i>	<i>Required</i>	<i>Lot 6: Transformer Spare Parts and Accessories</i>	<i>Required</i>	<i>Lot 7: Miscellaneous Items for Transformer Maintenance</i>	<i>Not Required</i>	<i>Lot 8: Copper Wire</i>	<i>Required</i>	<i>Lot 9: Distribution Pillar and Termination Kit</i>	<i>Required</i>	<i>Lot 10: HV Switching Equipment</i>	<i>Required</i>	<i>Lot 11: ABC Cables</i>	<i>Required</i>
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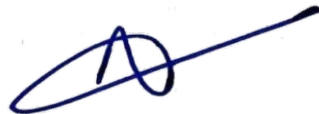


21.3 (b)	After sales maintenance, repair, spare parts stocking and related services: <i>are not Required</i> , and the Bidder therefore is <i>not required</i> to be represented by a suitably equipped and able agent in Bhutan.																								
21.3 (c)	Joint Venture, Consortium (JV/C) Bids are permitted: "YES" , the number of partners forming Joint Venture, Consortium (JV/C) : <i>Two</i>																								
22.1	The Bid validity period shall be 90 days from the last date of bid submission i.e., up to June 15, 2022 .																								
23.1	<p>The Bidder shall furnish a bid security in the amount and currencies as shown below in favour of Director, FAS, BPC:</p> <table border="1"> <thead> <tr> <th>Lot Description</th><th>Amount (Nu.)</th></tr> </thead> <tbody> <tr> <td><i>Lot 1: 11 kV ID VCB Panels and Accessories</i></td><td><i>335,000.00</i></td></tr> <tr> <td><i>Lot 2: Distribution Boards (AC & DC), Battery Bank and Accessories</i></td><td><i>61,000.00</i></td></tr> <tr> <td><i>Lot 3: Telescopic Pole Fittings</i></td><td><i>15,000.00</i></td></tr> <tr> <td><i>Lot 4: Conductor and Hardware Fittings</i></td><td><i>16,000.00</i></td></tr> <tr> <td><i>Lot 5: Fault Passage Indicator (FPI)</i></td><td><i>530,000.00</i></td></tr> <tr> <td><i>Lot 6: Transformer Spare Parts and Accessories</i></td><td><i>34,000.00</i></td></tr> <tr> <td><i>Lot 7: Miscellaneous Items for Transformer Maintenance</i></td><td><i>32,000.00</i></td></tr> <tr> <td><i>Lot 8: Copper Wire</i></td><td><i>42,000.00</i></td></tr> <tr> <td><i>Lot 9: Distribution Pillar and Termination Kit</i></td><td><i>47,000.00</i></td></tr> <tr> <td><i>Lot 10: HV Switching Equipment</i></td><td><i>128,000.00</i></td></tr> <tr> <td><i>Lot 11: ABC Cables</i></td><td><i>470,000.00</i></td></tr> </tbody> </table> <p>Preferably Bid Security should be submitted for the individual lots. Combined Bid Security would be also accepted. However, if the combined Bid Security is not sufficient in terms of total amount, the offer for the entire quoted lots would be treated as non-responsive as per ITB 23 and not considered for further evaluation.</p> <p><i>For e-bids, bidders shall submit the Bid Security in original form to Procurement Service Departments (PSD), Head Office/ Regional Store Division (RSD), Phuentsholing/RSD Gelephu on or before the deadline for the submission of bids and also upload the scan copy of bid security in the www.tender.bt</i></p>	Lot Description	Amount (Nu.)	<i>Lot 1: 11 kV ID VCB Panels and Accessories</i>	<i>335,000.00</i>	<i>Lot 2: Distribution Boards (AC & DC), Battery Bank and Accessories</i>	<i>61,000.00</i>	<i>Lot 3: Telescopic Pole Fittings</i>	<i>15,000.00</i>	<i>Lot 4: Conductor and Hardware Fittings</i>	<i>16,000.00</i>	<i>Lot 5: Fault Passage Indicator (FPI)</i>	<i>530,000.00</i>	<i>Lot 6: Transformer Spare Parts and Accessories</i>	<i>34,000.00</i>	<i>Lot 7: Miscellaneous Items for Transformer Maintenance</i>	<i>32,000.00</i>	<i>Lot 8: Copper Wire</i>	<i>42,000.00</i>	<i>Lot 9: Distribution Pillar and Termination Kit</i>	<i>47,000.00</i>	<i>Lot 10: HV Switching Equipment</i>	<i>128,000.00</i>	<i>Lot 11: ABC Cables</i>	<i>470,000.00</i>
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23.5	The Bid Security validity period shall be valid till July 15, 2022 .																								




24.1 & 25.1	In addition to the original Bid, the number of copies is: <i>Not Applicable</i>
25.2(b)	For bid submission purposes only, the Purchaser's address is: <i>Attention: The General Manager</i> <i>Address: Procurement Services Department, Bhutan Power Corporation Limited, Yarden Lam, Post Box No. 580, Thimphu, Bhutan.</i>
25.3	Mode of Tendering is Single Stage – One Envelope Process.
25.8	Bidders are required to submit e-bids through e-procurement system (www.tender.bt). Bidders have to visit website www.tender.bt for vendor registration if the vendor has not registered in the e-procurement platform and submit the bid online. The user manual for vendor registration and bidding process is available under Downloads in website www.tender.bt
26.1	The deadline for the submission of Bid is: March 17, 2022 at 14:00 hours
29.1	The Bid Opening shall take place at: Address: Conference Hall, Head Office, BPC, Thimphu Date : March 17, 2022 Time : 15:00 Hours Venue : BPC Conference Hall
37.1	A margin of five percent (5%) Domestic Preference <i>shall not apply.</i>
38.3 (a)	Evaluation will be done for: <i>Lot wise</i> <i>A lot with an alternative item price shall be rejected and that lot shall not be considered for further evaluation.</i> <i>In case some items are not quoted for a particular lot, the corporation reserves the right to cost load the highest responsive rate of other bidders for the purpose of evaluation of that lot if it was determined that the non-quoted items are not a major component of the lot or do not form an integral element of the lot. Actual order shall however be done based on the lowest rate that has been quoted in that bid package.</i>
38.3(e)	The adjustments shall be determined using the following criteria: (a) Deviation in Delivery schedule: Yes <i>No credit will be given to earlier delivery but Bids offering late delivery schedules (LDS) will be accepted but the Bids shall be adjusted for the purpose of the bid evaluation only adding at the rate of @one (1) per cent of the bid price for each week of delay to the bid price. Bids offering delivery schedules beyond 1 (one) month of the delivery period shall be rejected.</i>

	<p>(b) Deviation in payment schedule: No</p> <p>(c) The cost of major replacement components, mandatory spare parts, and service: No</p> <p>(d) The availability in Bhutan of spare parts and after-sales services for the equipment offered in the Bid : No</p> <p>(e) The projected operating and maintenance costs during the life of the equipment: No</p> <p>(f) The performance and productivity of the equipment offered: No.</p>
38.6	Bidders shall be allowed to quote prices for one or more lots. The price schedule must be completed without any alteration to its format.
44.2 & 45.1	The successful Bidder shall submit the performance security and sign the Contract within fifteen (15) days after the issuance of the Notification of Award.



SECTION VII: SCHEDULE OF SUPPLY

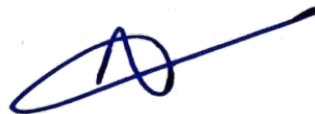
- 1. Delivery and Completion Schedule**
- 2. Technical Specification**

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1. Delivery and Completion Schedule

The Delivery period shall be commence from the date of signing contract.

Lot Description	No. of days
<i>Lot 1: 11 kV ID VCB Panels and Accessories</i>	150 days
<i>Lot 2: Distribution Boards (AC & DC), Battery Bank and Accessories</i>	150 days
<i>Lot 3: Telescopic Pole Fittings</i>	150 days
<i>Lot 4: Conductor and Hardware Fittings</i>	150 days
<i>Lot 5: Fault Passage Indicator (FPI)</i>	150 days
<i>Lot 6: Transformer Spare Parts and Accessories</i>	120 days
<i>Lot 7: Miscellaneous Items for Transformer Maintenance</i>	120 days
<i>Lot 8: Copper Wire</i>	150 days
<i>Lot 9: Distribution Pillar and Termination Kit</i>	150 days
<i>Lot 10: HV Switching Equipment</i>	150 days
<i>Lot 11: ABC Cables</i>	150 days



2. Technical Specification

Table of Content

Sl #	Technical Specification
1	Common Technical Specification and Test Standards
2	Technical Specifications for the Lots and drawings
3	GTP to be filled up by bidder
4	Price Schedule



LOT 11 (ABC Cables)**1.0 General****1.1 Scope of supply**

This section covers the requirements for the design, manufacture, testing, and delivery and unloading at BPC stores of ABC Cables.

2.0 High Voltage Aerial Bundled Conductor

HV ABC consists of XLPE insulation. It has bearer wire (Messenger wire) which is either of aluminium alloy or steel wire (bare or insulated). The design of ABC shall comprise compacted, stranded, hard drawn aluminium phase conductors with dry cured cross linked polyethylene insulation. The main advantages of HV ABC over bare ACSR conductors are as follows:

- Offers relative resistance to short circuits caused by external forces (wind, fallen branches), unless they abrade the insulation.
- Can stand in close proximity to trees and branches will not generate sparks if it in contact
- Simpler installation, as cross arms and insulators are not required.
- Less cluttered appearance than bare conductors.
- It can be installed in a narrower right-of-way.

However the disadvantages were additional cost for the cable itself and shorter spans and maximum use of poles due to increased weight of the cable. The Insulation of the cable also degrades due to direct exposure to sun. Following are minimum technical requirement of HV Aerial Bundled Cable.

The Minimum Technical Requirement of the HV ABC

Sl. No.	Parameters	Unit	Minimum Requirement		
1	Applicable Standards	IEC 60502-2, IEC 60228 or equivalent standards			
2	Rated Voltage	kV	6.35/11(12)		
3	Conductor				
	Nom. Area of core Conductor	mm ²	50	95	
	Conductor Screen Material	Extruded cross-linked semi-conductive			
	Min. Thickness of Conductor Screen	mm	0.3	0.3	
4	Insulation				
	Insulation material	XLPE			
	Min. Thickness of Insulation	mm	3.4	3.4	
	Min. Thickness of insulation Screen	mm	0.8	0.8	
5	Metallic Screen				
	Material	Plain Annealed Copper Wire			

	Size for Conductor Screen	No./mm	26/0.85	26/0.85
6	Sheath			
	Material	Black, High Density Polyethylene (HDPE)		
	Min. Thickness of sheath	mm	1.8	1.8
7	Support Catenary			
	Support Catenary size	No./mm	19/2	19/2
	Material	Aluminium-Clad Steel without insulation		
8	Max. D.C Resistance of cable at 20°C	Ohm/km	0.641	0.320
9	Max. A.C Resistance of cable at 90°C	Ohm/km	0.822	0.411
10	Inductive Reactance of cable at 50Hz	Ohm/km	0.144	0.134
11	Voltage drop (three phase)	mV/A.m	1.45	0.746
12	Continuous current carrying capacity per phase at 90°C conductor tempt & 30°C ambient tempt	Amps	184	280
13	Approximate mass of cable	kg/km	2850	4090
14	Phase cable diameter (Nominal)	mm	25	29

The conductors shall be marked on the external surface with the following:

- Manufacturer's name
- Year of manufacture
- Length in meters marking in sequential numbers at 1 m intervals, with the lowest number at the inner end of the drum.
- Phase marking.

The Bidder shall submit the UV weathering test of the cable (outer sheath) with type test reports.

LV Aerial Bundled Conductor

1 General

The design of aerial bundled conductors shall comprise compacted, stranded, hard drawn aluminium phase conductors with dry cured cross linked polyethylene insulation ***The Bidder shall submit the UV Weathering test of the cable (outer sheath) with the type test reports.***

All of the Aerial Bundled Conductors required shall be Fully Supported Cable, where all the equal-sized phase and neutral cores share the mechanical load. The cable shall be XLPE insulated and rated for 0.6/1kV. The bundle shall have a right-hand lay.

Two core cable shall be used for single phase distribution and 4 core cable for three phase. Typical design parameters for the ABC cable used are given in table below:

The Minimum Technical Requirement of the LV ABC

Sl. No.	Cable Size (mm ²)	50		95		120
	Parameter	2 core	4 core	2-core	4-core	4-core
1	Applicable Standard	IEC60502-1 & IEC 60228 OR Equivalent Standards				
2	Rated Voltage (kV)	06/1(1.2)				
3	Nominal conductor diameter (mm)	8.05		11.40		12.90
4	Minimum insulation thickness (mm)	1.5		1.7		1.7
5	Nominal overall diameter (mm)	23.8	28.7	31.8	38.4	42.2
6	Approximate mass (kg/km)	350	700	680	1,350	1660
7	DC resistance at 20°C (ohms/km)	0.641		0.320		0.253
8	AC resistance at 50 Hz 80°C (ohms/km)	0.796		0.398		0.315
9	Inductive reactance at 50 Hz (ohms/km)	0.086	0.093	0.080	0.087	0.0844
10	Voltage drop at 50 Hz, 80°C (mV/A/m)	1.60	1.39	0.81	0.71	0.564
11	Continuous current rating (A)	150	140	230	215	280
	Fault current rating (kA for 1 sec)	4.1		8.3		11.3
	Minimum bending radius core (mm)	65		90		102
	Minimum bending radius cable (mm)	130	160	270	320	352
	Minimum breaking load (kN)	14.0	28.0	26.6	53.2	67.2
	Recommended highest everyday tension (kN)	2.52	5.04	4.79	9.58	12.10
	Recommended maximum working tension (kN)	3.92	7.84	7.45	14.90	18.82

2 Construction

The cores shall form a bundle, which comprise four (and two) single cores of insulated aluminium twisted together, for phase and neutral conductors. The total pull of the line shall be distributed among the four (and two) conductors.

Each core shall be insulated with extruded cross linked polyethylene (XLPE). The three phase conductors shall be indelibly marked with one, two or three, as appropriate or longitudinal ridges formed from the insulation material. The cores shall be twisted together with a right hand lay. The pitch of laying shall be such as to allow easy separation of conductors when making connection but also maintain the bundle cohesion at the angle points on the line route. Cables shall be supplied on drums, in one continuous length.

The conductors shall be marked on the external surface with the following:

- Manufacturer's name
- Year of manufacture
- Length in meters marking in sequential numbers at 1 m intervals, with the lowest number at the inner end of the drum.
- Phase marking.



Guaranteed Technical Particulars for HV ABC Cable			
			Bidders to fill up
SL. No.	Parameters	Units	HV ABC
			3 core 95 sq. mm
1	Manufacturer		
2	Applicable Standards		
3	Rated voltage	kV	
	Conductor		
4	Nominal Area of core Conductor	mm ²	
5	Conductor Screen Material		
6	Min. Thickness of Conductor Screen	mm	
	Insulation		
7	Insulation material		
8	Minimum Insulation thickness	mm	
9	Minimum thickness of insulation screen	mm	
	Metallic Shield		
10	Material		
11	Size for Conductor screen	No./mm	
	Sheath		
12	Material		
13	Min. thickness	mm	
	Support Catenary		
14	Support Catenary size	No./mm	
15	Material		
	Test Voltage		
16	Five minute Power frequency withstand voltage	kV/5min	
17	Continuous Current Rating	A	
18	Type of cable end sealing		
	Cable drums		
a.	Dimensions	Mtr.	
b.	Weight	Kg	
c.	Nominal Length per drum	Mtr.	

Guaranteed Technical Particulars for LV ABC Cables

SL. No.	Parameters	Units	Bidders to fill up		
			LV ABC		
			2 core 50 sq.mm	4 core 50 sq.mm	4 core 95 sq.mm
1	Manufacturer				
2	Applicable Standards				
3	Rated voltage	kV			
	Conductor				
4	Nominal Conductor Diameter	mm			
5	Nominal Area of core Conductor	mm ²			
6	Nominal Overall Diameter	mm			
	Insulation				
7	Insulation material				
8	Minimum Insulation thickness	mm			
9	DC Resistance at 20 Deg. C	Ohm/km			
10	AC Resistance at 50Hz, 80 Deg. C	Ohm/km			
11	Inductive Reactance at 50 Hz	Ohm/km			
12	Voltage Drop at 50Hz., 80 Deg. C	mV / A/m			
13	Continuous Current Rating	A			
14	Minimum Breaking Load	kN			
15	Maximum Working Tension	kN			
	Test Voltage				
16	Five minute Power frequency withstand voltage	kV/5min			
17	Cable drums				
a.	Dimensions	Mtr.			
b.	Weight	Kg			
c.	Nominal Length per drum	Mtr.			



Price Schedule

Lot 11: ABC Cables						
Sl#	Item Description	UoM	Qty	Brand and Country of Origin	Unit Rate in DDP (Nu.)	Total Amount in DDP (Nu.)
1	HV ABC 6.35/11kV grade 3 core, 95sqmm	KM	4.5			
2	LV ABC Conductor for 2x50 sqmm	KM	15			
3	LV ABC Conductor for 4x50 sqmm	KM	10			
4	LV ABC Conductor for 4x95 sqmm	KM	20.5			
Total Amount of the lot (Nu.)						
Note : Brand restricted to : PT KMI Wires and cables, Tbk, PT Sucaco Tbk, PT Voksel Electric Tbk, PT Jembo cables company Tbk and Zhongli Science & Technology, China.						

