WBSEDCL

WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED

(A Govt.of West Bengal Enterprise)

Office of the Chief Engineer: Procurement & Contracts Department

Bidyut Bhaban (4th Floor) :Bidhannagar : Block-DJ, Sector-II, Kolkata-700 091

Phone No. 033-2359-8397 : Fax No. 033-2359-1921 / e-mail -materialcontroller@yahoo.co.in

CIN- U40109WB2007SGC113473, website: www.wbsedcl.in

NOTICE INVITINGTENDER

N.I.T No –P-47/2021-22/PC-III/ XLPE

Tenders are invited by the Chief Engineer, Procurement & Contracts Department, WBSEDCL,Bidyut Bhaban (4th Floor), Bidhannagar, Block-DJ, Sector-II, Kolkata-91 through **electronic tendering (e-tendering)process** followed by **Reverse Auction (Tender cum Auction)** from genuine manufacturers only for manufacture, testing, supply and delivery of the following item as per schedule detailed below.

Sl No	Description of item	Units	Tendered Quantity(KM)	Estimated Value (Rs. in Cr.)	Minimum quantity to be offered by the Tenderer (KM)
1	1.1 KV, 4 core ,50 sqmm. XLPE Insulated PVC Sheathed Armoured Aluminium cable.	KM	150	3.97	150
2	1.1 KV, 4 core , 120 sqmm. XLPE Insulated PVC Sheathed Armoured Aluminium cable.	KM	200	11.01	140
3	1.1 KV, 4 core ,185 sqmm. XLPE Insulated PVC Sheathed Armoured Aluminium cable.	KM	80	6.62	56
4	1.1 KV, 4 core ,300 sqmm. XLPE Insulated PVC Sheathed Armoured Aluminium cable.	KM	40	5.19	28
5	11 KV, 3 core , 95 sqmm. XLPE Insulated Armoured Aluminium cable.	KM	50	3.34	50
Total:-Rs. Thirty Crore Thirteen Lakh Only.				30.13	
Price: The price is Variable as per PV Formula of IEEMA with base date 01.03.2022.					
Offered quantity: **Offered quantity by the intending Bidder should not be less than minimum quantity** of the item mentioned above. **Bidders applying for promotional order** shall mention the offered quantity in Annexure-II as per the clause no. 20 of Instruction To Bidders of NIT.					

Earnest Money Deposit:

a) All the bidders, except those who are applying for Promotional Order needs to submit **2½ % of the pro-rata Estimated Value of the item-wise offered quantity**, as mentioned above.

b) The fixed EMD of **Rs. 3,76,625.00/-**as mentioned in the e-tender, indicates the minimum amount of Earnest Money Deposit which shall be **submitted in the form of BG only** by the bidders who will offer for **Promotional Order** only.

c) If the offer is submitted with **inadequate Earnest Money** as mentioned above i.e less than 2½% of the pro-rata Estimated value of the item-wise offered quantityexcepting for those applying for promotional order, **the bid will not be opened**.

Schedule of Dates for e-Tendering:

Sl. No.	Activity	Date & Time
1	**Publishing Date**	**25.03.2022 at 14.00 Hrs**
2	**Document Download Start Date**	**25.03.2022 at 14.00 Hrs**
3	**Date of Pre-Bid Meeting**	**05.04.2022 at 12.30 Hrs**
4	**Bid Submission Start Date**	**08.04.2022 from 14.00 Hrs**
5	**Bid Submission End Date**	**26.04.2022 up to 15.00 Hrs**
6	**Last Date of Physical Submission of EMD**	**27.04.2022 up to 16.00 Hrs**
7	**Technical Bid Opening Date**	**28.04.2022 at 15.30 Hrs**
8	**Financial Bid Opening Date**	**To be intimated after evaluation of Technical Proposal**
9	**Reverse Auction date & time**	**To be intimated after evaluation of Financial Proposal**

Intending bidders desirous of participating in the tender are to log on to the website **https://wbtenders.gov.in** for the tender. The tender can be searched by typing WBSEDCL in the search engine provided in the website.

Bidders willing to take part in the process of e-tendering are required to obtain Digital Signature Certificate (DSC) in the name of person who will sign the tender, from any authorized Certifying Authority (CA) under CCA, Govt. of India (viz. nCode Solution, Safescrypt, e-Mudhra). DSC is given as a USB e-Token. After obtaining the Class 2 or Class 3 Digital Signature Certificate (DSC) from the approved Certifying Authority they are required to register the fact of possessing the Digital Signature Certificates through the registration system available in the website.

Tenders are to be submitted online and intending bidders are to download the tender documents from the website stated above, directly with the help of the e-Token provided. This is the only mode of collection of tender documents. Details of submission procedure are given in "Instructions to Bidders".

***Terms & conditions of the Tender Notice**:*

1. The tenderer or their duly authorized representative should **attend the Pre-bid Meeting** at the stipulated date and time.

2. The bidder shall select the tender to bid and initiate payment of EMD. **Earnest Money Deposit** amounting to 2½% (Two & Half Percent) of the pro-rata estimated value of the Item wise offered quantity, as mentioned above, shall be submitted individually along with the offer.

3. **Following payment options are available for paying EMD amount through online mode:**

   i) Net-banking through Payment Gateway.

   ii) RTGS/NEFT Payment: On selection of RTGS/NEFT as the payment mode, the e-Procurement portal will show a pre-filled challan having the details to process RTGS/NEFT transaction. The bidder will print the challan and use the pre-filled information to make RTGS/NEFT payment using his bank account. Once the payment is made, the bidder will come back to the e-Procurement portal to continue the bidding process after expiry of a reasonable time to enable the RTGS/NEFT process to be completed.

   iii) Submission of EMD through BG: For submission of EMD in the form of BG, bidders will have to opt for EMD Exemption in e-tender portal and upload scanned copy of BG in the EMD exemption document upload section. Bank Guarantee (BG) should be drawn on any scheduled Bank drawn as per the proforma of Bank Guarantee for Earnest Money, given with this Tender Document vide Annexure-III, with initially valid for up to 6 (six) months from the due date of submission of tender and with a claim period of another 3 (three) months, subject to further extension if required in favour of West Bengal State Electricity Distribution Company Limited payable at Kolkata .

   Physical copy of BG shall be submitted at the office of tender inviting authority as per respective clauses of NIT.

4. For submission of EMD / Security Deposit in the Form of BG, the particulars of the Banker of Procurement & Contracts Department, WBSEDCL are given below:

   Bank: **Punjab National Bank**
   Branch: PNB Mayukh Bhavan
   Cash Credit A/c No.: 1096250031709
   IFSC Code: **PUNB0109620**
   MICR Code: **700024307**

5. EMD amount can be paid either in online mode or submitted through Bank Guarantee (BG) in full. **Partial payment through online mode and remaining submission through BG is not allowed**.

6. **General Instructions for Online Payment:**

   The bidder will have to mandatorily pay through Net-banking facility once .Net-banking mode is opted for payment.

Status of NEFT/RTGS payment through Challan for a bid may take time to be updated in 24 Hrs. (approx.). As such bidders opting to pay through NEFT/RTGS mode shall make payment well before 24 Hrs. to avoid any complicacy.

In case actual EMD amount as per NIT is more than the one shown in E-tender Portal, bidders will have to opt for NEFT/RTGS mode (challan mode). In that case **the total actual EMD amount** is to be paid only through NEFT/RTGS mode (challan mode).

The bank account used for payment of EMD by the bidders shall be maintained operative until the completion of tendering process. All refunds will be made mandatorily to the Bank A/c from which the payment of EMD has been initiated.

7. Refund/Settlement of EMD Amount:

- For unsuccessful bidders EMD amount submitted against the tender shall be refunded automatically (except EMD submitted in the form of BG), through an automated process, by NIC portal on receipt of updated status of any bid. If the EMD has been submitted in the form of BG, the unsuccessful tenderer(s) is/are to apply for the same to the Chief Engineer (Procurement & Contracts), WBSEDCL, giving the reference of the NIT No., date of tender, amount and mode of Earnest Money deposited –complete in all respect for return of the same.

- For successful bid(s), EMD will be refunded from WBSEDCL authority after completion of tendering process and following due procedures.

- The bank account used for payment of EMD by the bidders shall be maintained operative until the completion of tendering process. All refunds will be made mandatorily to the Bank A/c from which the payment of EMD has been initiated.

- For any queries related to payments and refunds, bidders will have to communicate with ICICI Customer Support, viz, 033-40267512/13 since payment gateway facility used by E-tender portal is maintained by ICICI.

8. Successful bidder(s) shall have to mandatorily **create vendor id through WBSEDCL Vendor Corner**, if not created earlier.

9. The bidder shall submit **along with the offer** necessary documents in support of their previous supply of the items of the tender to WBSEDCL/Other Power Utilities/Other Govt. Departments in earlier occasions and financial capabilities to the extent of the estimated financial amount of their offer.

10. Interested Parties who are having Type Test Report from NABL accredited LAB of Identical Type of Cable having similar Voltage Rating & Sizes only can participate in the Bid. Those who not having Type Test Certificate for Identical Type of Cable having similar Voltage Rating & Sizes need not apply.

11. No agent is allowed to participate in the Tender. Original manufacturers will only be allowed in the tender.

12. WBSEDCL reserves its right to take decision keeping its financial interest. The Purchase Policy of WBSEDCL along with the provisions of Vendor Rating & Holiday Listing, as effective from 01.09.2012 and the subsequent amendment effective from 18.03.2013, will be applicable.

13. If the offer is submitted without or inadequate Earnest Money, the bid will not be opened. In case of incomplete offer, the tender will be liable for rejection and Earnest Money Deposit will be forfeited.

14. The offer shall remain valid for a minimum period of 120 days from the next day of opening of the tender.

15. At the time of placing purchase order, the quantity mentioned in the Tender Document may vary up to ± 25%.

16. Any evidence of unfair Trade Practices including over charging, price fixing, cartel etc. as defined in various statutes, will automatically disqualify the bidders.

17. WBSEDCL is not bound to accept the lowest tender and reserves the right to cancel any or all the tenders unilaterally.

18. Any bidder against whom FIR/Complaint is lodged with Police by WBSEDCL shall not be eligible to participate in the bidding process.

19. Other information as well as terms and conditions, which are not covered above, will be available in Instructions to Bidders, General Conditions of Contract of this tender and the **Revised Purchase Policy of WBSEDCL.**

20. Any further information along with WBSEDCL's Revised Purchase Policy may be had from the website: **www.wbsedcl.in** and the following office :

Office of the Chief Engineer (Procurement & Contracts),
West Bengal State Electricity Distribution Company Limited,
Vidyut Bhavan, 4th Floor,
Bidhannagar,
Kolkata - 700091.
Phone No. 033-2319-7663/7391

Instructions to Bidders

1. Eligibility for participation :

i) Original manufacturers of the tendered items will only be eligible in the tender.

ii) The bidders shall have credential for supply of the tendered items to WBSEDCL / other Power Utilities / other Govt. Departments in earlier occasions within last three financial years.

iii) The bidder shall have adequate financial capability to the extent of the estimated value of their offer. For the financial eligibility of the bidder, pro-rata annualized value of the orders in the bidder's hand corresponding to the contract period of this tender along with the estimated value of the offer of the bidder should not exceed 150 % of their Average Annual Turnover of the last three completed financial years.

2. Minimum quantity for offer :

i) **All the Bidders** who will apply for **Promotional Order** are required to submit their **offer for 5% of the tendered quantity.**

ii) The Bidders, except who will apply for promotional order are required to submit their offer for the quantity not less than the minimum quantity as specified in Notice Inviting Tender (NIT).

Note: Tenders will be summarily rejected if the quantity offered by the bidder is less than the minimum quantity as specified in the NIT.

iii) At the time of placing purchase order, the quantity mentioned in the Tender Document may vary upto $\pm$ 25%.

3. General guidance for e-Tendering :

Instructions/Guidelines for electronic submission of the tenders have been mentioned below for assisting the bidders to participate in e-Tendering.

4. Registration of bidder :

Any bidder willing to take part in the process of e-Tendering will have to be enrolled & registered with the e-Procurement system, through logging on to https://wbtenders.gov.in.

5. Digital Signature certificate (DSC) :

Each bidder is required to obtain a class-II or Class-III Digital Signature Certificate (DSC) for submission of tenders.

6. The bidder can search and download NIT & Tender Documents electronically from the website mentioned in Clause 4 using the Digital Signature Certificate. This is the only mode of collection of Tender Documents.

7. Submission of Tenders :

7.1 General process of submission

Tenders are to be submitted online through the website https://wbtenders.gov.in. All the documents uploaded by the Tender Inviting Authority form an integral part of the contract. Tenderers are required to upload all the tender documents along with the other documents, as asked for in the tender, through the above website within the stipulated date and time as given in the Tender. Tenders are to be submitted in two folders - one is Technical Proposal and the other is Financial Proposal. The tenderer shall carefully go through the documents and prepare the required documents and upload the scanned documents in Portable Document Format (PDF) to the portal in the designated locations of Technical Bid.

The bidder needs to download the **Forms / Annexures**, fill up the particulars in the designated Cell and upload the same in the designated location of Technical Bid. He needs to download the BOQ, fill up the rates of items in the BOQ in the designated Cell and upload the same in the designated location of Financial Bid.

The documents uploaded shall be virus scanned and digitally signed using the Digital Signature Certificate (DSC). Tenderers should take note of all the addendum/corrigendum related to the tender and upload the latest documents as part of the tender.

7.2 Technical Proposal

The Technical Proposal shall contain scanned copies and/or declarations in the following standardised formats in two covers (folders).

A. Statutory Cover

a) To be submitted in "Drafts" folder

i. Tender Fee **Not Applicable**

ii. Earnest Money Deposit (EMD)

As prescribed in payment options in the NIT.

b) To be submitted in "Annexures" folder

i. Application for Tender (*Vide Annexure -I*)

ii. Price Schedule in unpriced condition *(Vide Annexure -II)*

As prescribed before about payment options in the NIT.

***c)* To be submitted in "NIT" folder**

i. Notice Inviting Tender (NIT)

ii. Addenda/Corrigenda: if published.

Note: Bidders are to keep track of all the Addendum/Corrigendum issued with a particular tender and upload all the above digitally signed along with the NIT. Tenders submitted without the Addendum/Corrigendum will be treated as informal and liable to be rejected.

d) To be submitted in "Forms" folder

i. Schedule of Bid

The bidder needs to download the form for "Schedule of Bids" (*Vide Form-I*), fill up the particulars in the designated Cell and upload the same in the designated location of Technical Bid. Submission of incomplete "Schedule of Bids" will render the tender liable to summary rejection.

ii. Declaration Sheet (*Vide Form-II*), Deviation Sheet (*Vide Form-III*) and Check List (*Vide Form-IV*). Proforma for undertaking to be submitted by the Bidders (*Vide Form-IX*) and Format of Letter of Bid (*Vide Form-X*)

iii. Guaranteed Technical Particulars

The bidder needs to download the form for "Guaranteed Technical Particulars" (*Vide Form-V*), fill up the particulars in the designated Cell and upload the same in the designated location of Technical Bid. Submission of incomplete "Guaranteed Technical Particulars" will render the tender liable to summary rejection.

iv. Summary statement *(Vide Form-VI)* of average annual turnover for a period of the last three financial years, certified by the Auditor appointed under Companies Act, 2013. In case the bidder is not a company, certificate of Tax Auditor may be submitted.

v. Statement of orders executed during last three financial years *(Vide Form-VII)*.

vi. List of Type Test Reports carried out within five years as on date of bid submission *(Vide Form-VIII).*

(Only downloaded copies of the above documents are to be uploaded, virus scanned and digitally signed by the bidder)

Note: Tenders will be summarily rejected if any item in the statutory cover is missing.

B. ***Non-Statutory Cover (My Document)***

i. **Company Details**:

Proof of Original Equipment Manufacturer.

ii. **Certificates:**

1) PAN Card details.
2) Current Professional Tax (PT) submission Chalan. Application for such addressed to the competent authority may also be considered.
3) GSTIN registration certificate.
4) Banker's certificate to the Chief Engineer, P&C Department or in a generalised format regarding financial capability issued within last one year from the date of opening of tender.
5) MSME Certificate, if any.

iii. **Financial Info** :

Annual turnover for a period of the last three financial years.

iv. **Credential:**

Documents in support of supply of the tendered items to WBSEDCL / other Power Utilities / other Govt. Departments in earlier occasions within last three financial years as mentioned below:

1) Purchase Orders, Inspection Offer letter, Despatch Instructions, Signed Challans etc. for completing supply of the item against a particular contract.
2) Type Test Reports for identical rating cable having similar size, design, construct and material, carried out within last five years from the date of opening of tender. Those who have not having with the said Type Test Report need not apply.

v. **Declaration** :

1) List of Orders in hand

The bidder shall submit the list of orders in his hand mentioning the order value to be executed within one year from the date of submission of bid.

2) Others : Any other documents found necessary.

Note : Failure of submission of any one of the above mentioned documents will render the tender liable to summary rejection.

7.3 Financial Proposal

The financial proposal should contain the following documents in one cover (folder).

Bill of Quantities (BOQ)

The bidder is to quote the rate in online through computer in the space marked for quoting rate in the BOQ. *(Only downloaded copies of the above documents are to be uploaded, virus scanned and digitally signed by the bidder).*

8. Submission of original copies of documents of Earnest Money Deposit in case the bidder chooses EMD Exemption in e-tender portal and upload scanned copy of BG:

i. ***Place of submission****:* The original copies of the BG, if so, towards Earnest Money Deposit shall be submitted in the following office:

Office of the Chief Engineer,
Procurement & Contracts Department,
West Bengal State Electricity Distribution Company Limited,
Bidyut Bhavan, 4th Floor, D-Block,
Bidhannagar,
Kolkata – 700091.

ii. ***Time of submission****:* The original copies of BG towards EMD shall be submitted in a sealed envelope in the office as stated above within the date and time as specified in the NIT. If the bidder fails to submit the original copies within the due date and time his tender will not be opened and his bid will stand rejected.

9. Conditional and incomplete tender :

Conditional and incomplete tenders are liable to summary rejection.

10. Validity of Tender and Offer :

The offer against tender should remain valid for a minimum period of 120 days from the next day of opening of the tender. However, WBSEDCL may, on the merit of case, request for extension of validity of the offer for a further suitable period without any change in terms & conditions of the offer.

11. Earnest Money Deposit (EMD) :

(a) Amount of earnest money deposit shall be 2.5% (two and half percent) of the **pro-rata estimated value of the Item-wise offered quantity specified in the NIT**..

(b) Earnest Money shall be paid as mentioned before in detail. Earnest Money shall (if, in the form of Bank Guarantee) to be submitted as per the proforma of Bank Guarantee for Earnest Money, given with this Tender Document vide Annexure-III, with validity upto 6 (six) months from the due date of submission of tender and with a claim period of another 3 (three) months.

(c) Tenderer shall not claim any interest on Earnest Money Deposit.

(d) Earnest money will be refunded as per clause 7 of Terms & conditions of the Tender Notice of this NIT.

(e) Earnest Money submitted will be liable to forfeiture,

(i) if the successful tenderers fail to accept Purchase Order / LOI issued within their offered validity period.
(ii) for failure to submit specified Security Deposit within time limit indicated in the Purchase Order / LOI.
(iii) <u>If any cartel is formed by the tenderer in their quotation</u>.

12. Opening and evaluation of tender:

12.1 **Opening of Technical Proposal**

i. Technical proposals will be opened by the Tender Inviting Authority or his authorised representative electronically from the website stated above, using their Digital Signature

Certificate.

ii. Technical proposals for those tenderers whose original copies of BG towards EMD have been received/payment successfully received through Net- Banking / RTGS/NEFT as described before will only be opened. If the offer is submitted with **inadequate Earnest Money, the bid will not be opened.**

iii. Intending tenderers may remain present if they so desire.

iv. Cover (Folder) for Statutory Documents (vide Clause 7.2.A) will be opened first and if found in order, Cover (Folder) for Non-statutory Documents (vide Clause 7.2.B) will be opened. If there is any deficiency in the Statutory Documents, the tender will summarily be rejected.

v. Decrypted (transformed into readable formats) documents of the Statutory and Non-statutory Covers will be downloaded for the purpose of evaluation.

12.2 **Techno-commercial Evaluation of Tender**

i. While evaluation, the Tender Inviting Authority or his authorised representative may summon of the tenderers and seek clarification / information or additional documents or original hard copy of any of the documents already submitted and if these cannot be produced within the stipulated timeframe, their proposals will be liable for rejection.

ii. The summary list of tenderers, whose bids will be found techno-commercially eligible, will be uploaded in the web portals. Date of opening of financial bid will be intimated to the techno-commercially qualified tenderers.

12.3 **Opening and evaluation of Financial Proposal**

i. Financial proposals of the tenderers declared techno-commercially eligible, will be opened electronically by the Tender Inviting Authority from the web portal stated above on the prescribed date.

ii. The encrypted copies will be decrypted and the rates will be read out to the bidders remaining present at that time.

iii. After opening of the financial proposal the preliminary summary result containing inter-alia, name of bidders and the rates quoted by them will be uploaded.

iv. The Tender Accepting Authority may ask any of the tenderers to submit analysis to justify the rate quoted by that tenderer.

12.4 **Reverse Auction**

a) After opening the financial proposal of the bidders , Reverse Auction will be conducted among the techno-commercially eligible bidders only.

b) The date and time of Reverse Auction, Start bid price, Rate of decrement for each item will be provided in the portal well in advance of the date of Reverse Auction. The decrement of the bid price will be multiple of rate of decrement value for that item.

c) After putting bid price by any bidder within last 10 (ten) minutes of closing time, the closing time of Reverse Auction will be automatically extended by 10 (ten) minutes in a repetitive loop.

d) During Reverse Auction the quoted Price will be the Landed price which will include Ex-Works, F&I, GST (at applicable rate). During Reverse Auction process, the **Landed price** is to be varied by varying Ex-Works price only keeping the F&I, percentage % of GST (as applicable) quoted by the bidder in their Financial proposal unaltered. During Reverse Auction **the base date of quoted Landed price** by the Bidders will **remain same as that of NIT**. The **L1 bidder** will submit their breakup of price within three working days after completion of Reverse Auction.

e) During the Reverse Auction the bidders will be able to see the prices quoted in Real Time.

f) Maximum admissible bid value will be last bid value minus minimum decrement as specified before starting of Reverse Auction.
During bidding of reverse auction, bidder will not be able to quote less than the seal price applicable at the time of bidding which is calculated as **"The price equal to half of last bid value minus rate of decrement."**

g) Neither WBSEDCL nor NIC can be held responsible for consequential damages such as system problem, inability to use the system, loss of electronic information, power interruptions, UPS failure, local Bandh/ strike etc.

h) The L1, L2, L3, L4, L5……..bid position will be considered from the final bid position after Reverse Auction.

13. Revision/withdrawal of Financial Proposal by the bidder after opening of Technical Proposal of the tender will not be allowed if it is not sought by the Tender Inviting Authority.

14. In case the tenderer becomes eligible for placement of purchase order on them for the first time, the tenderer will get order upto 30% of their offered quantity. If the tenderer is of National / International repute or if the tenderer had supplied the item of the tender in a single order to any Power Utility / Govt. Department in earlier occasion within last three financial years for a minimum quantity equivalent to 80% of the quantity of this tender, the bidder may get order upto maximum 50% of their offered quantity.

15. **Acceptance of Tender**

Lowest valid rate should normally be accepted. However, the Tender Accepting Authority does not bind himself to do so and reserves the right to reject any or all the tenders, for valid reasons.

16. **Purchase Order**

WBSEDCL will communicate acceptance of tender to the successful bidder by a Purchase Order. The successful tenderer shall communicate the acceptance of the purchase order.

17. **Concession**

No price preference will be allowed to any tenderer based on the size of the industry or its geographic location. Co-operative Society, will not be considered with separate status.

18. **Holiday Listing and Vendor Rating**

Holiday Listing & Vendor Rating will be applicable according to the "Holiday Listing & Vendor Rating" policies of the Revised Purchase Policy, which is posted in website of WBSEDCL (www,wbsedcl.in).

Performance of the bidders, who supplied materials/equipment to WBSEDCL previously, will be evaluated for their Vendor Rating according to the said Vendor Rating policy and their Vender Rating will be taken into consideration at the time of evaluation of Technical and Financial Proposals of the tender.

19. **Return of Earnest Money of the unsuccessful tenderer(s)**

Details of refund/settlement of EMD amount is mentioned in clause no: 7 of Terms & conditions of the Tender Notice of this NIT.

20. Promotional order:

To develop new vendors, promotional orders on new units will be placed for the quantity upto 5% of the total quantity for which Purchase Order would be issued against the tender.

The original equipment manufacturers, who intend to participate in the tender to introduce their new units, may apply for promotional order by submitting Earnest Money on estimated value of 5% of item wise tendered quantity. However, at the time of submission of offer, the Fixed EMD shall be submitted as per Earnest Money Deposit clause of the Notice Inviting Tender. The excess amount of the Earnest Money Deposit will be refunded to the bidder.

For submission in Statutory Cover as stated in Clause No. 7.2 A, in Application for Tender (*Vide Annexure-I*) **"APPLICATION FOR PROMOTIONAL ORDER"** shall be written on the top in bold & capital letters in case of original equipment manufacturers intend to apply for promotional order as mentioned above.

If the bid of the new vendor is found techno-commercially eligible, their offer for promotional order will be processed separately after finalization of original tender subject to acceptance of the lowest evaluated rate of the tender by the vendor.

Financial proposal of the bidder for promotional order shall not be opened. Order may be placed at the discretion of WBSEDCL, at the lowest evaluated rate of the Purchase Order against the original tender. However, placement of promotional order is not mandatory for each tender and shall be processed at the discretion of WBSEDCL.

21. **In addition to the Security Deposit under clause no. 1 of GCC of NIT in two parts of 2.5% each**, upon the ordered value, **Additional Performance Security equal to 10% of the ordered value**, should be furnished in the prescribed format, within a period of 30 days from the date of issue of the order, **for bids falling in the range of -20% to -80% of the estimated rate**. **This Security Deposit shall remain valid upto the time of completion of supply of materials, with a claim period of further six months**

NOTE:

---

1. GCC clause no. 2, 6C, 10,11, 18 & 19 will be modified as per present tax structure.

2. GCC Clause no . 20(ISSUE & SUBMISSION OF WAY BILL) will be modified as follows:
"The E-way Bill shall be generated for the movement of materials/equipments from their location to the WBSEDCL' stores. WBSEDCL's GSTIN is 19AAACW6953H1Z. "

3.GSTIN no. of factory premises, from where goods will be dispatched and relevant HSN code of the material, are to be mentioned in a separate sheet and uploaded in the bid.

4.Evaluation of the price bids will take into account the Unit Landed Cost of the material/equipment at the final destination. For the purpose of evaluation, the unit landed cost will be arrived at by adding the ex-works, F&I charges and GST as applicable.

5.TDS on GST will be applicable.

GENERAL CONDITIONS OF CONTRACT FOR SUPPLY AND DELIVERY OF EQUIPMENT/ MATERIALS

1) SECURITY DEPOSIT:

The security deposit in two parts of 2.5% each upon the Ordered value, should be furnished within a period of 30 days from the date of issue of the order to the paying officer under intimation to Chief Engineer, P&CD.

Thereafter one part will remain valid upto 3(three) months from the date of completion of supply and other part will remain valid upto a period of 19 (nineteen) months in general, except Energy Meters, and 67 (sixty seven) months in case of all types of Energy Meters. For equipments& cables, 61 (sixty one) months in case of Equipments& all types of HT cable & LT Arial Bunch Cable from the date of completion of supply.

It may be in the form of Bank Guarantee issued by any schedule Bank of India duly approved by Reserve Bank of India in this regard, in which event it would be open to WBSEDCL or its designated Officer to prefer the claim for invocation/encashment of the concerned Bank Guarantee within 6 months from the expiry of the period of such guarantee. Accordingly, there should be a claim period of 6 (six) months in each of the Bank Guarantees from the date of expiry of the validity. The B.Gs are to be extended/revalidated by the supplier to maintain the above time schedule of 3 (three) months & 19 (nineteen) months in general except Energy Meters, Equipments& all types of HT cable & LT AB Cable, 67 (sixty seven) months in case of all types of Energy Meters, and 61(sixty one) months for Equipments& all types of HT cable & LT Arial Bunch Cable, for delay in physical delivery due to any reason whatsoever.

The Bank Guarantee should be executed in line with enclosed Proforma and on non-judicial stamp paper of Rs.100/=. **The Security Deposit is liable to be forfeited in case of non-compliance of order or failure to complete the order. Order is liable to be cancelled for non-submission of Security Deposit in time with forfeiture of earnest money. No claim shall be made against WBSEDCL in respect of interest on Security Deposit**.

Bank Draft/Pay Order for an amount equivalent to 5% of the ordered value will also be accepted in place of Bank Guarantee.

2) TERMS OF PAYMENT:

90% payment inclusive of Price Variation bill, along with 100% taxes and duties will be made within 45 (forty five) days from the date of submission of bill against :

a) Original receipted Challan/Invoice signed by an officer in the rank of Superintending Engineer/Asstt. Manager/Jr. Manager(Stores) attached to the respective stores. And

b) Report for in-house testing, if done after delivery of the items at different site stores signed by the Engineers of Dist. Testing Department.

c) Balance 10% payment will be made within 45 (forty five) days of submission of bills along with SRV.

3) PAYING AUTHORITY:

Addl. G. M. (F&A), Procurement and Contracts Department, WBSEDCL, Bidyut Bhavan (4th Floor), Kolkata- 700 091 will be the Paying Authority.

4) CONSIGNEE:

The name of the consignee will be intimated by S.E. (Inspection) along with Despatch Instruction.

5) GUARANTEE:

a)IN GENERAL EXCEPT ENERGY METER AND EQUIPMENT & CABLE :

In the event of any defect in the equipment/materials arising out of faulty design, materials, workmanship within a period of 12 (twelve) months of commissioning or 18 (eighteen) months from the date of last despatch of any integral part of the equipment/materials whichever is earlier the supplier shall guarantee to replace or repair the same to the satisfaction of the purchaser.

If the supplier fail to do so within a reasonable time, WBSEDCL reserves the right to effect repair or replacement by any other agency and recover charges for repair or replacement from the supplier.

b) FOR EQUIPMENT, ALL TYPE OF HT CABLE & LT AB CABLE :

In the event of any defect in the equipment/cable arising out of faulty design, materials, workmanship within a period of 5 (five) years from the date of last dispatch of any integral part of the equipment/cable, the supplier shall guarantee to replace or repair the same to the satisfaction of the purchaser.

If the supplier fails to do so within one month of receipt of intimation, WBSEDCL reserves the right to effect repair or replacement by any other agency and recover charges for repair or replacement from the supplier.

c) FOR ENERGY METER :

The meters and Meter Box shall be guaranteed against defects arising out of faulty design, materials and workmanship for a period of 5 ½ years from the date of supply. The meters found defective within the above guarantee period should be replaced by the supplier free of cost within one month of receipt of intimation. Collection point of defective meters and supply point of new meters shall be intimated by Distribution Testing department. **If the defective meters are not replaced within the above specified period, WBSEDCL will recover twice the cost of meters from the supplier.**

Name Plate of the meter is to be marked with "Guarantee of the Meter: 5 ½ Years from the date of Supply".

6) TESTING:

a) CALIBRATION:

The instruments/equipment required for Inspection & Testing should have valid calibration as per following guideline:

1) Calibration Certificate issued by Laboratory accredited by NABL may be accepted unconditionally provided the certificate bears an Accreditation body Logo.
2) For Testing equipments, where NABL Accreditation is not available, Calibration Certificate from Educational Institutions like IIT's, NIT's, J.U., C.U., BHU only can be accepted provided they can demonstrate traceability.

Necessary confirmation regarding above is to be given along with inspection offer failing which the inspection offer will not be accepted. If during inspection & testing, the suppliers fail to produce Calibration Certificate as indicated above the offered lot may be rejected.

b) INSPECTION & TESTING:

1) Before finalization of Tender:

After opening of Techno-Commercial part of the Tender, the tendering authority at its discretion may send their representative for inspection of the factory premises at any day

within working hrs. to ensure participating tenderer's manufacturing capability & technical eligibility to combat with WBSEDCL's requirement.

2) <u>After finalization of Tender</u>:

i) <u>In general Except Energy Meter</u>:

The materials/equipment shall be subjected to tests as per relevant Indian Standards and as per our technical specification. If the Indian Standard has the provision of routine tests, each material/equipment shall be subjected to those routine tests. In all such cases, while offering, test reports indicating the test results should be submitted in six copies to the inspecting authority of the Company as will be indicated in the Purchase Order. Delivery of the material/ equipment shall be done after having the dispatch clearance with approval of the supplier's test reports and the supplier should send intimation to this office regarding dispatch of materials to stores immediately after dispatch. No extra cost shall be charged for the above tests.

However, WBSEDCL reserves the right to depute its Engineers for carrying out inspection and testing on the offered lot as per relevant Indian Standards and our Technical Specification and also reserves the right to reject either raw materials or finished products found to be not complying with the requirement of the specifications and standards. The supplier shall give at least 15 (fifteen) days prior intimation about the readiness of the materials/equipment at the works for testing and inspection. The supplier shall extend all facilities for such inspection and testing for which no extra cost shall be charged and the inspection report shall have to be signed jointly otherwise the offered lot(s) shall be treated as cancelled.

WBSEDCL reserves the right to carry out in-house testing of the supplied materials at destination stores, in presence of authorized representative of the Manufacturer. In case they do not be present, company shall Test unilaterally and their result will be binding on them. **In case the test results deviates from the inspection result carried out at Manufacturers' Works (more than 2% tolerance as per IS where ever applicable), the Company reserves the right to cancel the specific lot and in that event materials are to be replaced by the Manufacturer free of cost** including the transportation from the site to their works and back.

ii) <u>Energy Meter</u>:

The Meters and Meter Box, manufactured as per Technical Specification will be subjected to tests as per relevant Indian Standard and our Technical Specification. Each Meters and Meter Box shall be subjected to routine tests as per relevant Indian Standard. In all such cases, while offering for inspection and testing, one hard copy and one soft copy of the test reports indicating the test results **along with sequential sl.nos. of the body seals of the offered lot of meters**should be submitted to the C.E.(DTD), WBSEDCL, Abhikshan, Salt Lake, Kolkata-700091 with copies to the Materials Controller, WBSEDCL **and otherwise inspection offer will not be valid. Inspection offer will not be valid if replacement of defective meters against previous orders is pending for more than 60 days from the date of intimation also**.

However, WBSEDCL reserves the right to depute its Engineers for carrying out inspection and testing on the offered lot as per relevant Indian Standard and our Technical Specification and also reserves the right to reject either raw materials or finished products found to be not complying with the requirement of the specifications and standards.

The supplier shall give at least 15(fifteen) days prior intimation about the readiness of the Meter and Meter Box at the Works for testing and inspection. The supplier shall extend all facilities for such inspection and testing for which no extra cost shall be charged and the inspection report shall have to be signed jointly otherwise the offered lot(s) shall be treated as cancelled.

Delivery of the Meter and Meter Box shall be done after having the dispatch clearance from. The C.E.(DTD) with approval of the supplier's test reports and the supplier should send intimation to this office and also to the C.E.(DTD), WBSEDCL regarding dispatch of Energy Meters to stores immediately after dispatch.

Inspection of further lot against the order will be arranged by the inspection authority, after receipt of confirmation regarding physical delivery to our store.

WBSEDCL will carry out re-testing of the supplied meters at their Laboratory in presence of supplier's representative after delivery at different stores. **In case the supplied meters are not found in order during testing, the lot will be declared defective and in that event meters are to be replaced by the manufacturer free of cost including free transportation from the site to their works and back.**

Acceptance test as per "Clause 3- Test" of the Technical Specification will be carried out before delivery of the replaced meters.

c) <u>RE-TESTING CHARGE</u>:

In case of failure to present the offered equipment/materials during inspection (fake offer) or failure in two consecutive inspections of any particular lot of offered materials/equipment, re-testing fee will be charged **@ Rs. 5,000/= (within the State of W.B) & @ Rs.10,000/= (outside State) for carrying out each subsequent inspection** of that particular lot, after the re-offer. The date of re-offer will be the date of submission of re-offer along with W.T.C. & copy of Duplicate Carbon Receipt (D.C.R).

d) In case of outstation inspection, arrangement for to and fro journey/stay at that place will be made by WBSEDCL and the expenditure for the journey/ stay will be made by WBSEDCL.

7) <u>DESPATCH</u>:

(i) **<u>Except Energy Meter</u>**:

(a) The supplier after receiving dispatch clearance from the respective inspection Authority/Purchaser shall deliver the equipment/materials suitably packed to the Stores located in West Bengal as instructed. The materials are to be booked by Road only and the same should be suitably packed and fully insured against all risks and deliver the consignment as per dispatch instruction to be communicated in due course. Immediately after dispatch of materials/equipment by Road, the supplier shall notify the purchaser and consignee officer about value of consignment, weight and dimension of consignment by FAX and post copy by Registered Post the relevant documents on the strength of which the consignment can be taken delivery at destination.

(b) Materials/equipment as per dispatch clearance shall have to be dispatched within the stipulated period of the order and inspection of further lots against the said order will be arranged by the inspection authority.

(c) In case the inspected materials/equipment are not delivered within one month after the stipulated period of order, without any valid reasons, the dispatch clearance already issued against the said lot shall be considered to be withdrawn and materials/equipment shall have to be re-offered for inspection and testing and re-testing charges as per Clause- 8(C) will be levied for such cases also.

(ii) **<u>Energy Meter</u>** :

Energy meter and meter box as per dispatch clearance shall have to be dispatched within the stipulated period of the order and inspection of further lots against the order will be arranged after receipt of confirmation regarding physical delivery to our stores by the inspecting authority and for this purpose a copy of the receipted challan by our store is to be submitted along with the offer for inspection and testing.

8) PACKING:

i) Except Energy Meter:
The materials/equipment shall have to be securely packed in transportable lots as indicated in the technical specifications. If the materials/equipment are found acceptable after inspection and testing, the same shall be suitably sealed by our Inspecting Officer. Due care shall have to be ensured during transportation to keep the packing and seal intact for acceptance by consignee stores.

ii) Energy Meter:
The Energy meter and Meter Box shall have to be securely packed in transportable lots as indicated in clause 10 of the Technical Specification. If the meter and meter box are found acceptable after inspection and testing, due care shall have to be ensured during transportation to keep the packing intact for acceptance by consignee stores.

9) DELIVERY:

a) Commencement period with firm quantity in the delivery schedule shall have to be mentioned and thereafter monthly/quarterly delivery schedule within WBSEDCL delivery Period should be specifically mentioned in the "Schedule of Bids".

In the event of failure to supply the ordered quantity by the selected Vender as specified in the delivery schedule, the delegated authority of the Company will be empowered to reduce the ordered quantity of the selected Vendor after the expiry of the delivery date as specified in the schedule of delivery which corresponds to $1/3^{rd}$ of the total ordered quantity. The total ordered quantity will be reduced in proportion to the quantity undelivered assessed up to the period mentioned above. The quantity so reduced will be allotted proportionately to the other selected Vendors to whom the orders have been placed in the same tender and who have adhered to the delivery schedule. Allotment so made shall under no circumstances exceed the offered quantity of the respective selected bidder and the limit as per the Vendor rating policy. In the event, the allotment is not possible for reasons due to above limitation, the said allotment may be considered to the non-selected bidders to the extent of limit as per Vendor rating policy and who had matched L_1 evaluated rate and will consent to adhere the allotment.

b) The date of receipt of offer for inspection of the materials/ equipment along with works test certificate will be treated as the date of delivery of that particular lot provided the materials pass in inspection and testing. Delay in offer beyond the delivery schedule to be incorporated in the order shall attract imposition of L.D. as per L.D. Clause. The materials should reach the destination store within.

a. 21 working days from the date of issue of the Dispatch Instruction for the manufacturer located outside state.

b. 10 working days from the date of issue of the Dispatch Instruction for the manufacturer located within West Bengal. Otherwise L.D. will be levied as per L.D. Clause.

Delay beyond the date of delivery as per schedule of Purchase order shall attract imposition of L.D. as per L.D. Clause.

c)**CHECKING OF MATERIALS/EQUIPMENT AFTER DELIVERY:**

The materials delivered to consignee stores will be subjected to re-inspection / re-testing in presence of authorised representative of suppliers for which due notice in advance will be furnished by the CE. (DTD). If any discrepancy/ dispute in quality arises in any sample selected from a lot , the supplier shall have to replace that specific lot at the Supplier's cost and WBSEDCL reserves the right to take any penal action whatsoever without any further reference.

10) SUBMISSION OF CHALLAN & EXISE DUTY DOCUMENTS:

Copies of Challans in triplicate are to be submitted to the consignee along with the materials/equipment at the time of physical delivery. The original signed Challan shall have to be submitted to the Paying Authority as indicated in Clause no. 5. The original copy of the Excise Duty document (if applicable), which is required to be submitted along with the bill for re-imbursement, need not be submitted to the consignee along with the challan. It is the responsibility of the supplier to retain the original Excise Duty document even if the same is sent along with the transporter. The duplicate copies of the challan duly signed by the consignee officer, will be returned to the supplier.

Documents for claiming WBVAT as required under WBVAT Act, 2003 as amended from time to time need to be submitted, where applicable.

11) LIQUIDATED DAMAGE FOR DELAY IN DELIVERY :

The time of delivery (successful offer for inspection) of the equipment/materials are to be treated as an essence of the contract and the WBSEDCL reserves the right to repudiate the contract, if the equipment / materials are not offered for inspection within scheduled delivery period and physically delivered within stipulated period as per physical delivery clause. But The Chief Engineer, P&C Dept., may at his discretion waive this condition and accept the material with imposition of liquidated damage @ 1/2% of the value of the materials of the particular lot offered and/or delivered beyond the schedule delivery period for each week of delay or part thereof upto 10(ten) weeks and @ 1% of the value per week beyond 10 weeks subject to **maximum of 10% of the particular lot and accept the goods beyond the stipulated period**. Liquidated damage, if any involved, shall be recovered from the outstanding bills/ Bank Guarantee.

12) ADDITIONAL LIABILITIES:

The WBSEDCL shall not take any additional liability towards enhanced taxes, duties and price variation beyond the scheduled delivery period as incorporated in the purchase order, if the delay is due to any failure on the part of the supplier.

13) IMPORT & EXPORT LICENCES:

For imported equipment, orders will be subject to grant of an import license by the appropriate authority. The purchaser will arrange for necessary license.

The tenderer offering equipment manufactured outside India shall clearly state in his tender that there is no export restriction in the country of manufacture and the manufacturer do not anticipate any difficulty in obtaining necessary export license within a reasonable time from the date of issue of Letter of Intent.

14) REPEAT ORDER:

With due consent of the supplier the WBSEDCL may place repeat order within a period of six (6) months from the date of completion of delivery as per the order to cover approximately 50% of the ordered quantity on successful performance of the contract and on the need of the WBSEDCL, on the basis of existing rates, terms and conditions.

The repeat order may also be placed within one year from the date of issuance of original order subject to successful completion of delivery as per the order to the extent of at least 75% of the quantity ordered.

15) RISK PURCHASE:

The time of delivery (offer for inspection) or physical dispatch stipulated in the purchase order shall be deemed to be of the essence of the contract and if the supplier fails to deliver or dispatch any consignment within the period prescribed for such delivery or dispatch in the said purchase order/contract/letter of intent, the purchaser shall be entitled to purchase such consignment or if not available, the best and nearest available substitute elsewhere on the account and at the risk of the supplier or to cancel the contract and the supplier shall be liable to compensate for any loss or

damage which the purchaser may sustain by reason of such failure on the part of the supplier. The Company at its discretion may not issue subsequent tender if earlier Purchase Order against earlier tender is not executed fully.

If there is a failure to execute the contract fully, WBSEDCL reserves the right to invoke Bank Guarantee/forfeit Earnest Money deposit/cash security to the extent of loss so suffered by the WBSEDCL on risk purchase or otherwise, and may deduct the additional amount, if any, so incurred by the Company from other claim / bill lying with the WBSEDCL.

16) LEGAL JURISDICTION:

If any dispute or difference arises with respect to quality/quantity of the equipment/materials pertaining to this order or any other terms and conditions of the order including its execution, such dispute/difference shall be subject to settlement under the jurisdiction of Courts in Kolkata only.

17) FORCE MAJEURE:

The supplier shall be under no liability if he is prevented from carrying out any of his obligations by reason of war, invasion, act of foreign country, hostilities (whether war declared or not), riots, civil commotion, mutiny, insurrection, rebellion, revolution, accident, earthquake, fires, floods Govt. order and/or restrictions (except power supply restriction) delay or inability to obtain materials due to import or other statutory restriction and other cause beyond the reasonable control of the supplier. However, such force majeure circumstances are to be intimated immediately and to be established subsequently with proper documents/proofs to the entire satisfaction of the purchaser.

18) SALES TAX AND S.T.D. FORM:

Central Sales Tax at concessional rate where applicable will be paid to you extra at the rate prevailing on the date of Supply, since the materials will be directly used for Transmission / Distribution / Generation of electricity. Necessary declaration form for concessional rate will be issued to you by our Manager (F&A) –Indirect Tax, WBSEDCL, 6th floor, Bidyut Bhavan, Kolkata-700091 in due course. You are requested to furnish one copy of each of the invoices/bills duly attested by paying authority to the above officer for facilitating issue of S.T.D. Form.

19) EXCISE DUTY:

Exclusive and will be paid extra, on production of original documentary evidence at the rate applicable at the time of physical delivery provided the physical delivery is made within the stipulated delivery time as per delivery clause from the date of issue of dispatch clearance and the offer of inspection is received within the schedule delivery period given in the purchase order.
In case, however, the materials/equipment are offered for inspection after the schedule delivery period, Excise duty will be paid at the rate prevailing at the time of schedule delivery period, unless any amendment in this regard is issued by the ordering authority.

20) ISSUE & SUBMISSION OF WAY BILL:

a) Immediately on receipt of the order copy, the supplier shall have to submit their (i) GSTINNo (ii) PAN No (iii) Trade Name, Address, Pin No & State tothe Manager (F&A) Indirect Tax, 6th floor C Block, Vidyut Bhavan, and Dematerialized Way Bill in Form No 50A Part I (Original & Duplicate) will be issued by the Manager (F&A) Indirect Tax Vidyut Bhavan,

b) Dematerialized Way Bill in Form 50A, Part II and the annexure i.e. invoice detail (Original & Duplicate) are to be generated and printed by the supplier from the Directorate's website (www.wbcomtax.gov.in) by entering the WBSEDCL's Tin No 19671325006 and the Way Bill Key No (it will be available in Part I Way Bill) against which Way Bill no will be generated. Driver / Transporter should possess such Way Bill Part I, Part II and Annexure (both Original & Duplicate Copy) while entering the territory of the West Bengal.

c) The utilization report is to be submitted to the Manager (F&A) Indirect Tax Vidyut Bhavan, 6th floor, 'C' Block through this end within 03 days, and utilized Way Bills (Part I, Part II & Annexure) both original & duplicate copies are to be submitted to this end, within 05 days from entry of the vehicle with materials into the State of West Bengal, failing which no C Form for concessional rate of CST will be issued to the supplier.

21) CANCELLATION / TERMINATION OF ORDER (if placed):

The time period for effecting complete supply and delivery of the above materials/equipment as indicated through the delivery schedule enclosed shall have to be treated as the essence of the contract. The Company reserves the right to repudiate the contract if the above period is not strictly adhered to. In the event of failure in effecting the desired supply and delivery of the above equipment/materials within above stipulated due date as incorporated through the schedule enclosed, the above order may be cancelled on submission of necessary notice in this regard and fresh order may be placed on the next higher bidder or on any other bidder, as a result of which the extra cost thus liable to be incurred shall be realised from the original supplier's pending bills which may be lying with the WBSEDCL.

22) SUBMISSION OF DRAWING:

The tenderer must submit 5 (five) copies of drawing within 10 (ten) days from the next date of issue of order as per indication in the Technical Specification. Any delay in submission of Drawing beyond the above stipulated period will be on their account.

23) QUALITY ASSURANCE PROGRAMME:

Immediately on receipt of this order you shall have to submit a "Quality Assurance Plan" indicating the specific quality control procedure and practices adopted in the major activities of production to ensure its standard.

WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED
(A Govt. of West Bengal Enterprise)

Office of the Chief Engineer,
Procurement & Contracts Department
Vidyut Bhavan, 4th. floor,
Bidhannagar, Kolkata – 7 00091.

TECHNICAL SPECIFICATION FOR

1.1KV XLPE insulated PVC sheathed multicore armouredAluminum Cable
&
11 KV Grade XLPE Insulated PVC Sheathed Armoured Aluminum Cable of Different sizes Suitable for Effectively Earthed System

Tender No. P-47/2021-22/PC-III/LT-HT XLPE

Technical specification for 1.1 KV XLPE insulated PVC sheathedsingle & multicore Aluminum Cable

(armoured & unarmoured)

1.0 **Scope :**

This Specification covers the requirement of XLPE insulated Cables for working voltages upto and including1100 Volts.

2.0 **Location :**

The Cable shall be laid/buried directly in ground anywhere in West Bengal and terminated for outdoorconnection.

The Cables may be laid within covered Cable Trenches in Cable Racks/Ladder/open Air etc. for certain portionof length.

3.0 **STANDARD**

The materials covered under this specification shall comply with the requirements of the latest version of thefollowing standards as amended upto date, except where specified otherwise.

i)	IS : 7098 (Part-I) : 1988 (amended up to date)	:	Specification for Cross linked Polyethylene Insulated PVC sheathed Cables for workingVoltage up to & including 1100 Volt
ii)	IS:8130-1984 (amended up to date)	:	Specification for Conductors for insulated electric cables and flexible cords
iii)	IS:5831-1984 (amended up to date)	:	PVC insulation & sheath of electric cables
iv)	IS: 3975-1970 (amended up to date)	:	Specification for Low Carbon Galvanized steel wires, Formed Wires and tapes forarmouring of Cables.
v)	IS:10810-1984 (amended up to date)	:	Methods of test for Cables.
vi)	IS:10418-1982 (amended upto date)	:	Cable Drums for Electric Cables.

4.0 **RATED VOLTAGE:**

The rated voltage of the cables shall be 1100 V.

CABLE SIZE & DATA

1.1 KV XLPE insulated PVC sheathed armoured Aluminum Cable (multi core)

]

The standard sizes and technical characteristics for the said Cable of different sizes are shown below:

Cable size	Nominal thickness of Insulation	Minimum thickness of inner sheath	Armour (Galvanized steel Round Wire/Strip)	Nominal dia./ dimensions of Armour (Galvanized steel Round Wire/Strip)	Maximum DC resistance of Armour of Cable at 200C (Ohm/KM)	Minimum thickness of outer sheath	Cable Code
1.1 KV XLPE insulated PVC sheathed armoured Aluminum Cable of size							
4C x 10 sq. mm	0.70	0.30	Galvanized steel RoundWire	1.4 mm dia.	3.62	1.40	A2XWY
4C x 25 sq. mm	0.90	0.30	Galvanized steel Strip	4 X 3.4 X0. 8 mm	3.78	1.40	A2XFY
4C x 50 sq. mm	1.00	0.30	Galvanized steel Strip	4 X 3.4 X0. 8 mm	3.18	1.56	A2XFY
4C x 120 sq. mm	1.20	0.50	Galvanized steel Strip	4 X 3.4 X0. 8 mm	2.11	1.72	A2XFY
4C x 185 sq. mm	1.60	0.50	Galvanized steel Strip	4 X 3.4 X0. 8 mm	1.72	2.04	A2XFY
4C x 300 sq. mm	1.80	0.70	Galvanized steel Strip	4 X 3.4 X0. 8 mm	1.37	2.36	A2XFY
4C x 400 sq. mm	2.00	0.70	Galvanized steel Strip	4 X 3.4 X0. 8 mm	1.26	2.68	A2XFY

A) 1.1 KV XLPE insulated PVC sheathed unarmoured Aluminum Cable (Single Core)

The standard sizes and technical characteristics for the said Cable of different sizes are shown below:

Cable size	Nominal thicknessof Insulation	Nominal Thicknessof Outer Sheath	Minimum Thicknessof Outer Sheath	Cable Code
1.1 KV XLPE insulated PVC sheathed unarmoured Aluminum Cable of size				
1C x 35 sq. mm	0.90	1.80	1.24	A2XY
1C x 70 sq. mm	1.10	1.80	1.24	A2XY
1C x 95 sq. mm	1.10	1.80	1.24	A2XY
1C x 120 sq. mm	1.20	1.80	1.24	A2XY

6.0 **Conductors :**

For all types of Cable, aluminium conductor shall be H4 grade, stranded in construction with flexibilityclass 2, complying with the requirements as specified in IS-8130-1984 with latest amendments.

The conductor shall be clean & reasonably uniform in size and shape and its surface shall be free fromsharp edges.

7.0 **Insulation :**

The Conductor shall be provided with XLPE insulation applied by extrusion. The smallest of measured valuesof thickness of insulation shall not fall below the nominal value (ti) by more than 0.1 mm+ 0.1(ti).

The insulation shall be so applied that it fits closely on the conductor (or barrier, if any) and it shall bepossible to remove it without damaging the conductor.

8.0 **Laying up of cores**

In multi core cables, the cores shall be laid up together with a suitable lay, the outermost layer shall haveright hand lay and the successive layer shall be laid with opposite lay.

9.0 **Inner sheath :**

Inner sheath is used for multicore Cables. Single core Cable shall have no inner sheath**.**

For multi core Cables, the laid up cores shall be provided with Inner Sheath applied by extrusion. It shall be ensured that it is as circular as possible. Material of inner sheath should be PVC Type ST2 as per IS:5831- 1984.

Inner sheath shall be so applied that it fits closely on the laid up cores and it shall be possible to remove it without damaging the insulation.

10.0 **Armouring:**

Armouring is used for single core & multicore armoured cable. The armour wires/strips shall be applied as closely as practicable. A binder tape may be provided on the armour.

The joints in armour wire or strip shall be made by brazing or welding and the surface irregularities shall be removed. A joint in any wire/strip shall be atleast 300 mm from the nearest joint in any other armour wire/flat strip in the completed cable.

Where the calculated dia. below armouring does not exceed 13 mm, the armour shall consist of round wires. Where the calculated dia. below armouring exceeds 13 mm, the armour shall consist of flat strips.

For flat strips armour (for armour material either galvanized steel or non-magnetic), nominal dimensions of armour should be 4 mm. X 3.4 mm. X 0.8 mm.

For Single Core armoured Cable, armouring shall be applied over the insulation with non-magnetic material.For, Multi Core armoured Cable, armouring shall be applied over the inner sheath by galvanized steel.

11.0 **Outer Sheath :**

The outer sheath shall be black & applied by extrusion. It shall be applied:

i) Over the insulation in case of unarmoured single core cable

ii) Over the inner sheath in case of unarmoured multicore Cables

iii) Over the armouring in case of armoured single core & armoured multicore Cables.

Material of outer sheath should be PVC Type ST2 as per IS:5831-1984.

12.0 **CLASSIFICATION OF TESTS**

Type Test Report

During bid submission, the bidder shall submit Type Test report for each offered item.Type Test should be carried out

i) Within 5 years from the due date of opening of tender.

ii) From CPRI or ERDA or NABL accredited LAB bearing NABL Logo. Accreditation of NABL LAB shouldbe displayed in the official website of NABL.

iii) As per IS: 7098-Part I-1988 and it latest amendment and other relevant IS.

All the tests mentioned below are to be made as per details given in IS: 10810-*1984*.

The following shall constitute type Test:

a) Resistance Test on Conductor

b) Tests for armouring Wires/strips (for Armour Cable).

c) Test for thickness of insulation and sheath

d) Physical test for insulation.

i) Tensile strength and elongation at break.

ii) Ageing in air oven.

iii) Shrinkage test

iv) Hot set test.

v) Water absorption (Gravimetric)

e) Physical tests for outer sheath

i) Tensile strength and elongation at break

ii) Ageing in air oven

iii) Shrinkage test

iv) Hot deformation

v) Loss of mass in air oven

vi) Heat shock test

Vii) Thermal stability

f) Insulation resistance (Volume resistivity) Test

g) High voltage test

h) Flammability test

ACCEPTANCE TEST:

The following shall constitute acceptance Test:

a) Resistance Test on Conductor
b) Test for thickness of insulation and sheath
c) Tensile strength and elongation at break test for insulation & outer sheath.
d) Hot set test for insulation.
e) Insulation resistance (Volume resistivity) Test
f) High voltage test

i) ROUTINE TEST:

The following shall constitute routine test:

a) Resistance Test on Conductor
b) High voltage test

13.0 **Cable identification & sequential length marking**:**Cable identification by embossing:**

The following shall be embossed on the outer sheath of the cable throughout the length of cableat 1.0 metre spacing for identification:

i)	Manufacturer's Name or Trade Mark
ii)	Name of the purchaser : WBSEDCL or WBSEDCL/DDUGJY or WBSEDCL/IPDS (as applicable)
iii)	Voltage Grade of Cable (1100 V)
iv)	Type of insulation, material of conductor (XLPE insulated Aluminium conductor)
v)	Number of cores & nominal cross sectional area of conductor
vi)	Cable Code
vii)	Marking "Electric".
viii)	Month & Year of manufacture

Sequential length marking by printing

Sequential length shall be marked on the outer sheath of the cable throughout the length byPrinting in each meter length interval.

14.0 **Packing & drum details:**

The Cable shall be supplied in non-returnable wooden drums each containing length of 250/500 Meters of Cable with tolerance of ± 5% per drum subject to overall maximum minus (-) 1% on total quantity will be accepted.

Cable Size	Drum Length
A. 1.1 KV XLPE insulated PVC sheathed unarmoured Aluminum Cable of size	
1C x 35 sq. mm	500 ± 5%
1C x 70 sq. mm	
1C x 95 sq. mm	

1C x 120 sq. mm	
B. 1.1 KV XLPE insulated PVC sheathed armoured Aluminum Cable of size	
4C x 10 sq. mm	500 ± 5%
4C x 25 sq. mm	
4C x 50 sq. mm	250 ± 5%
4C x 120 sq. mm	
4C x 185 sq. mm	
4C x 300 sq. mm	
4C x 400 sq. mm	

The drums shall be proofed against attack by white ant or termite, conforming to IS:10418:1982. The clearance between the outermost layer of the cable & the edge of the flange should be at least 75 mm orequal to the diameter of the Cable whichever is less.

15.0 **Sealing of cable ends** :

The ends of the cable shall be sealed with heat shrinkable caps.

16.0 **Marking on each drum**

The following information shall be stencilled on each drum:

i)	Reference Indian Standard and Lisence Number
ii)	Serial number of the Drum
iii)	Manufacturer's Name or Trade Mark
iv)	Name of the purchaser : WBSEDCL or WBSEDCL/DDUGJY or WBSEDCL/IPDS (as applicable)
v)	Voltage Grade of Cable
vi)	Type of insulation, material of conductor
vii)	Number of cores & nominal cross sectional areaof Conductor
viii)	Cable Code
ix)	Purchase Order No. & Date
x)	Length of Cable on the Drum
xi)	Direction of rotation of Drum by means of arrow.
xii)	Approximate Weight : Tare : Gross
xiii)	Number of length on the drum(if more than one)
xiv)	Month & Year of manufacture
xv)	Country of Manufacture

Guaranteed Technical Particulars for 1.1 KV XLPE insulated PVC sheathed unarmoured Aluminum Cable

Sl. No.	Name of Manufacturer & Country				
	Factory Address				
	Size of Cable	1Cx 35 sq. mm	1CX 70 sq. mm	1C X95 sq. mm.	1CX 120 sq. mm
1	Make of Cable				
2	Voltage Grade of Cable	635/1100 V			
3	Type of Cable	A2XY			
4	Applicable Standard	IS: 7098(Part-I)-1988, IS:8130-1984, IS:5831-1984, IS:10810-1984 & IS:10418-1982			
5	Conductor				
a)	Material	H4 Grade Aluminium wires, Class 2 of IS: 8130			
b)	Form of Conductor	Stranded compacted circular			
c)	Nominal cross sectional area	35 sq. mm	70 sq. mm	95 sq. mm	120 sq. mm
d)	Nos. of wires in each Conductor				
e)	Nominal diameter of wire before stranding				
f)	Maximum DC resistance of conductor at 20^0C	0.868	0.443	0.320	0.253
6	Insulation				
a)	Material	XLPE as per IS: 7098 (Part-I)-1988			
b)	Method of application	By Extrusion			
c)	Nominal thickness of Insulation	0.9	1.1	1.1	1.2
7	Outer Sheath				
a)	Material	PVC (type ST2) of IS: 5831-1984,			
b)	Method of application	By Extrusion			
c)	Colour of outer sheath	Black			
d)	Nominal thickness of Outer Sheath	1.8 mm	1.8 mm	1.8 mm	1.8 mm
e)	Minimum thickness of Outer Sheath	1.24 mm	1.24 mm	1.24 mm	1.24 mm
8	Minimum Bending Radius	15 X O/D of Cable			
9	Maximum operating temperature of Conductor	90^0C			
10	Maximum temperature of conductor during short circuit	250^0C			
11	Drum length & tolerance of each drum	500$\pm$5%			
12	Overall tolerance in total quantity	-1%			
13	Cable identification & sequential length marking	**Cable identification by Embossing** The following shall be embossed on the outer sheath of the cable throughout the length of cable at 1.0 metre spacing for identification: i) Manufacturer's Name or Trade Mark ii) Name of the purchaser : WBSEDCL or WBSEDCL/DDUGJY or WBSEDCL/IPDS (as applicable) iii) Voltage Grade of Cable iv) Type of insulation, material of conductor v) Number of cores & nominal cross sectional area of conductor vi) Cable Code vii) Marking "Electric". viii) Month & Year of manufacture			

		Sequential length marking by printing Sequential length shall be marked on the outer sheath of the cable throughout the length by Printing in each meter length interval.
14	Sealing of cable ends	The ends of the cable shall be sealed with heat shrinkable caps
15	Marking on each drum	The following information shall be stencilled on each drum: i) Reference Indian Standard and Lisence Number ii) Serial number of the Drum iii) Manufacturer's Name or Trade Mark iv) Name of the purchaser : WBSEDCL or WBSEDCL/DDUGJY or WBSEDCL/IPDS (as applicable) v) Voltage Grade of Cable vi) Type of insulation, material of conductor vii) Number of cores & nominal cross sectional areaof Conductor viii) Cable Code ix) Purchase Order No. & Date x) Length of Cable on the Drum xi) Direction of rotation of Drum by means of arrow. xii) Approximate Weight : Tare : Gross xiii) Number of length on the drum(if more than one) xiv) Month & Year of manufacture xv) Country of Manufacture
16	Approximate net weight of Cable	
17	Maximum permissible short circuit current for 1 sec	
18	Continuous current rating of the Cable under standard condition when laid i) Direct in the ground at 30^0C ii) In duct at 30^0C iii) In air in 40^0C	

Guaranteed Technical Particulars for 1.1 KV XLPE insulated PVC sheathed armoured Aluminum Cable

Sl. No.	Name of Manufacturer & Country							
	Factory Address							
	Size of Cable	4Cx10 sq. mm	4Cx25 sq. mm	4Cx50 sq. mm	4Cx120 sq. mm	4Cx185 sq. mm	4Cx300 sq. mm	4Cx400 sq. mm
1	Make of Cable							
2	Voltage Grade of Cable	635/1100 V						
3	Type of Cable	A2XWY	A2XFY	A2XFY	A2XFY	A2XFY	A2XFY	A2XFY
4	Applicable Standard	IS: 7098(Part-I)-1988, IS:8130-1984, IS:5831-1984, IS: 3975-1970, IS:10810-1984 & IS:10418-1982						
5	Conductor							
a)	Material	H4 Grade Aluminium wires, Class 2 of IS: 8130						
b)	Form of Conductor	Stranded compacted circular						
c)	Nominal cross sectional area	10 sq. mm	25 sq. mm	50 sq. mm	120 sq. mm	185 sq. mm	300 sq. mm	400 sq. mm
d)	Nos. of wires in each Conductor							
e)	Nominal diameter of wire before stranding							
f)	Maximum DC resistance of conductor at 20^0C	3.08	1.20	0.641	0.253	0.164	0.100	0.0778
6	Insulation							
a)	Material	XLPE as per IS: 7098 (Part-I)-1988						
b)	Method of application	By Extrusion						
c)	Nominal thickness of Insulation	0.70	0.90	1.00	1.20	1.60	1.80	2.00
7	Inner Sheath							
a)	Material	PVC (type ST2) as per IS: 5831-1984						
b)	Method of application	By Extrusion						
c)	Minimum thickness of inner Sheath	0.30	0.30	0.30	0.50	0.50	0.70	0.70
8	Armouring							
a)	Material	Galvanized Steel Round Wire, single layer	Galvanized Steel Strip, Single layer, applied helically					
b)	Nominal dia./ dimensions of Armour (Galvanized steel Round Wire/Strip)	1.4 mm dia.	4X3.4X0.8 mm					
c)	Maximum DC resistance of Armour of Cable at 20^0C (Ohm/KM)	3.62	3.78	3.18	2.11	1.72	1.37	1.26
9	Outer Sheath							
a)	Material	PVC (type ST2) as per IS: 5831-1984						
b)	Method of application	By Extrusion						
c)	Colour of outer sheath	Black						
d)	Minimum thickness of Outer Sheath	1.40	1.40	1.56	1.72	2.04	2.36	2.68
10	Minimum Bending Radius	15 X O/D of Cable						
11	Maximum operating temperature of Conductor	90^0C						
12	Maximum temperature of conductor during short circuit	250^0C						
13	Drum length & tolerance of each drum	500$\pm$5%						

<table>
<tr><td>14</td><td>Overall tolerance in total quantity</td><td>-1%</td></tr>
<tr><td>15</td><td>Cable identification & sequential length marking</td><td>Cable identification by Embossing
The following shall be embossed on the outer sheath of the cable throughout the length of cable at 1.0 metre spacing for identification:

i) Manufacturer’s Name or Trade Mark
ii) Name of the purchaser : WBSEDCL
iii) Voltage Grade of Cable
iv) Type of insulation, material of conductor
v) Number of cores & nominal cross sectional area of conductor
vi) Cable Code
vii) Marking “Electric”.
viii) Month & Year of manufacture

Sequential length marking by printing
Sequential length shall be marked on the outer sheath of the cable throughout the length by Printing in each meter length interval.</td></tr>
<tr><td>16</td><td>Sealing of cable ends</td><td>The ends of the cable shall be sealed with heat shrinkable caps</td></tr>
<tr><td>17</td><td>Marking on each drum</td><td>The following information shall be stencilled on each drum:
i) Reference Indian Standard and Lisence Number
ii) Serial number of the Drum
iii) Manufacturer’s Name or Trade Mark
iv) Name of the purchaser : WBSEDCL or WBSEDCL/DDUGJY or WBSEDCL/IPDS (as applicable)
v) Voltage Grade of Cable
vi) Type of insulation, material of conductor
vii) Number of cores & nominal cross sectional areaof Conductor
viii) Cable Code
ix) Purchase Order No. & Date
x) Length of Cable on the Drum
xi) Direction of rotation of Drum by means of arrow.
xii) Approximate Weight : Tare : Gross
xiii) Number of length on the drum(if more than one)
xiv) Month & Year of manufacture
xv) Country of Manufacture</td></tr>
<tr><td>18</td><td>Approximate net weight of Cable</td><td></td></tr>
<tr><td>19</td><td>Maximum permissible short circuit current for 1 sec</td><td></td></tr>
<tr><td>20</td><td>Continuous current rating of the Cable under standard condition when laid
i) Direct in the ground at 30^0C
ii) In duct at 30^0C
iii) In air in 40^0C</td><td></td></tr>
</table>

Signature with Designation & Seal
With Name of the Firm

TECHNICAL SPECIFICATION
FOR
XLPE CABLE SUITABLE FOR USE IN NON-EFFECTIVELY EARTHED 33 KV SYSTEM
AND EFFECTIVELY EARTHED 11 KV SYSTEMS

1. SCOPE :

1.1 The specification covers the design, manufacture, testing, supply and delivery in proper packed condition of different grades of 1 or 3 core, Aluminum Conductor, Cross-linked polyethylene (XLPE) insulated, PVC sheathed, Armoured, screened Power Cables.

2. DEVIATION :

Normally the offer should be as per Technical Specification without any deviation. But any deviation felt necessary to improve performance, efficiency and utility of equipment must be mentioned in the 'Deviation Schedule' with reasons duly supported by documentary evidences and advantages of such deviation. Such deviation suggested may or may not be accepted. But deviations not mentioned in 'Deviation Schedule' will not be considered afterwards.

3. LOCATION :

3.1 The Cables may be laid buried directly in ground at a depth of one meter in average, anywhere in West Bengal and terminated for outdoor connection to a power transformer or to overhead lines.

3.2 The Cables may also be laid within covered cable trenches, in cable racks or open air ladder trays etc. for certain portions of lengths.

4.0 SYSTEM DEAILS :

4.1	*Voltage grade (KV) of cable required*	*::*	***19/33***	***6.35/11***
4.2	*Service Voltage*	*::*	*33 KV*	*11 KV*
4.3	*Highest Voltage*	*::*	*36 KV*	*12 KV*
4.4	*Earthing System*	*::*	*Delta connected system earthed through Earthing transformer*	*Solidly Earthed*
4.5	*B.I.L. For Cable*	*::*	*170 KV for 33 KV Grade*	*75 KV for 11 KV Grade*
4.6	*Fault Level (Maxm.)*	*::*	*See Clause 7.06*	*See Clause 7.06*
4.7	*Frequency*	*::*	*50 C./S*	*50 C/S*

5.0 WEATHER CONDITION :

5.1 Monsoon prevails generally from the month of June to October with showers sometimes heavy, acidic, smoky, industrial and foggy.

5.2	*Maximum ambient temperature*	*::*	*50 degree C.*
5.3	*Minimum ambient temperature*	*::*	*4 degree C*
5.4	*Thermal resistance of soil*	*::*	*150 degree C-Cm/Watt*
5.5	*Maximum Daily average ambient temp*	*::*	*40 degree C*
5.6	*Maximum relatively humidity*	*::*	*100.00%*
5.7	*Average rainfall per annum*	*::*	*200 cm*

5.1 Monsoon prevails generally from the month of June to October with showers sometimes heavy, acidic, smoky, industrial and foggy.

5.8 Maximum height above the Sea level :: 1000 Meters

6.0 STANDARDS:

6.1 The Cable shall conform to the following standards to the extent of WBSEDCL's requirement is fulfilled.

1)	*IS: 7098 (Part-II) (**2011**)and its latest amendment*	*:*	*Specification for cross-linked polyethylene Insulated PVC Sheathed Cables for working Voltages from 3.3 KV up to and including 33 KV*
2)	*IS:8130-1984*	*:*	*Specification for Conductors for insulated electric cables and flexible cords*
3)	*IS:5831-1984*	*:*	*PVC insulation & sheath of electric cables*
4)	IS: 3975-1970	*:*	*Armour for cables (for 3 Core)*
5)	*IS:10810-1984*	*:*	*Methods of test for Cables.*
6)	*IS:10418-1982*	*:*	*Cable Drums for Electric Cables.*

6.2 The cable, joints, outdoor termination and their accessories and fittings may conform to other Indian and/or equivalent Standards or important publications to improve upon their performance, but shall not fall short of the requirement of this specification. The tenderer shall clearly indicate such standards in their offers.

7.0 ELECTRICAL CHARACTERISTICS & PERFORMANCE:

7.01 Description of Cables:

a) 19/33 KV Grade: Stranded compacted circular Aluminum (H4 Grade) Conductor, shielded with black extruded semi-conducting compound XLPE insulated, core shielded with black extruded semi-conducting compound, black semi-conducting tape and a copper tape, coloured strips having Red, Yellow & Blue for core identification, shielded cores laid up with fillers, binder taped and **Black extruded PVC (Type ST-2) inner sheath,** single layer of galvanized **flat steel strip armoured** and **Green extruded PVC (Type ST-2)**, **overall sheathed**, conforming generally to IS:7098(Part-II) and its latest amendments.

b) 6.35/11KV Grade: Stranded compacted circular Aluminum (H4 Grade) Conductor, shielded with black extruded semi-conducting compound XLPE insulated, core shielded with black extruded semi-conducting compound, copper tape, coloured strips having Red, Yellow & Blue for core identification, shielded cores laid up with fillers, binder taped and **Black extruded PVC (Type ST-2) inner sheath**, single layer of galvanized **flat steel strip armoured** and **Blue extruded PVC (Type ST-2) overall sheathed**, conforming generally to IS:7098(Part-II) and its latest amendments.

7.02 Voltage Grade: 19/33KV (For 33 KV System) 6.35/11KV (For 11 KV System)

7.03	Size of Cable	:	95 sq. mm. 185 sq.mm. 240 sq.mm. 300 sq.mm. 400 sq.mm. 500 sq.mm.	95 sq. mm. 185 sq.mm. 240 sq.mm. 300 sq.mm. 400 sq.mm. 500 sq.mm.
7.04	Service Voltage	:	33 KV	11 KV
7.05	Maxm.Conductor temp.	:	90 degree C at maxm. continuous current.	

7.06	Permissible Maxm. Short Ckt. Current for conductors	***33 K.V System***	***11K.V. System***
		1) 47.1 KA for 1Sec for 33 KV 500 sq.mm	*1)* 47.0 KA(895.47MVA) for 1 sec for 11 KV 500 sq.mm
		2) 37.6 KA for 1Sec for 33 KV 400 sq.mm	2) 37.6 KA (716.37MVA) for 1 sec for 11 KV 400 sq mm
		3)28.2K.A(1612 MVA)for 1Sec for 33 KV 300 Sq mm	*3)28.2K.A(537MVA)for 1Sec for 11KV 300 Sq mm*
		4)22.56 K.A(1289 MVA)for 1Sec for 33 KV 240 Sq mm	*4)22.6 K.A(429MVA)for 1Sec for 11KV 240 Sq mm*
		5)17.39 K.A(994 MVA)for 1Sec for 33KV 185 Sq mm	*5)17.39 K.A(331 MVA)for 1Sec for 11KV 185 Sq mm*
			6) 8.93 KA(170 MVA) for 1 sec. for 11 KV 95 Sq.mm.
	Short Ckt. Current – Single Phase to Earth	*2 KA for 3 Secs for all ratings combined with armour and screen without altering of copper tape thickness as per clause no. 7.12.*	*Combine Earth Fault Current of Screen & Armour (KA for 1 sec.)* *1. 4.85 for 3C x 95 sq. mm.* *2. 5.81 for 3C x 185 sq. mm.* *3. 6.76 for 3C x 300 sq. mm.* *4. 7.32 for 3C x 400 sq. mm.* *Considering **Cu tape width & thickness as 50** and **0.06** mm (**min**)respectively. Steel Strip Armour of Trapezium cross section with dimensions 4.0, 3.4 & 0.8 (distance between parallel sides) mm and 30,37,44 & 47 numbers of strip.* *It is indicative only, bidder shall design for type A armouring with E/F current. **However WBSEDCL also request the bidders to furnish their calculations of Earth Fault current for combined screen & armour considering Cu tape thickness 0.06 mm (min) as mentioned in Cl. No. 7.12***

7.07	Maximum Permissible emergency overload temp. at 25% overload to 100 hrs. per year or 500 hrs. in life of Cable	:	130° C.
7.08	Maxm. Permissible short circuit Temperature	:	250° C
7.09	Conductor Material	:	Material to IS: 8130, H4 Grade Aluminium Conductor, stranded compacted circular
7.10	Conductor screening	:	Extruded, cross linked, semi-conducting compound of **1.0 mm.(minimum)** thickness for 33 KV and thickness of conductor screening shall be **0.5 mm (nominal)** thickness for 11 KV Cable.
7.11	Insulation	:	XLPE of thickness, **8.8 mm. (Nominal)** for 33 KV and **3.6 mm. (Nominal)** for 11 KV.

7.12	Insulation Screening : For 33 KV	::	Combination of black extruded semi-conducting compound & semi-conducting tape as the non-metallic part and annealed copper **0.06 mm (minimum)** thick tape lapping as metallic part. For 1 Core Cable, the non-magnetic metal armour will act as metallic part insulation screening.
	For 11 KV :	:	It is same but semi-conducting tape is not required for 11 KV cable. (**Minimum thickness** of Extruded Semi-Conducting compound shall be **0.3 mm**.)
7.13	Inner Sheathing	:	Black extruded PVC Type ST-2 compound for 33 KV and **Black extruded PVC (Type ST-2) inner sheath** for 11 KV and thickness as per ISS. For 1 Core there will be no inner sheath.
7.14	Armouring	:	Single layer of galvanized flat steel strips for 33 KV (3 Core) and 11 KV (3 core) as per IS. For 1 Core, there will be flat galvanized steel armour made of non-magnetic metal. Armour Coverage Percentage for cables shall be **minimum 90%** as per IS: 7098: (Part-2) 2011 with Amendment no. 1 March 2015.
7.15	Overall Sheathing	:	Coloured PVC Type ST-2 compound to IS:5831, extruded for both 33 KV (**green**) and 11 KV **(blue)**. Thickness shall be as per ISS.
7.16	Approx length of Cable in a Drum & tolerance in quantity.	:	250 meters with a tolerance of $\pm$ 5% per drum for 3-Core. 500 Meters $\pm$5% per drum for 1 Core. However the tolerance shall be restricted upto ±2% on the quantity mentioned per lot in the delivery schedule of purchase order except the last lot. But **overall tolerance limit of the total delivered quantity** shall be **minus (-) 1%** against item wise purchase ordered quantity for each Purchase Order and the same shall be taken care of **while offering last lot of inspection.**
7.17	End Sealing	:	H.S. Caps (See Clause 8.11) (Heat Shrinkable)
7.18 a)	Max. tan-delta at room temp., at nominal Phase to Neutral Voltage (Uo)	:	0.004
b)	Maxm. Increment of tan-delta between 0.5 Uo to 2 Uo at room temp	:	0.002
7.19	Partial Discharge Value	:	10 pc (max.) at 1.73Uo (for routine test)
7.20	Impulse Tests	:	**170 KV for 33 KV** and **75 KV** for **11 KV** as per IS: 7098 (Part-II)/ 2011.
7.21	H.V. Tests between Conductors & Screen/Armour	:	**48 KV (rms)** for 33 KV for 5 minutes and **21 KV (rms)** for 11 KV for 5 minutes as per IS7098 (Part-II): 2011.
7.22	Maximum D.C Resistance per KM	:	As per relevant I.S.S

* N.B. : The above parameters are applicable for 3-Core and 1-Core Cable, if not otherwise specified.

8.0 **CABLE CONSTRUCTION**:

8.1 XLPE Underground Cable is to be manufactured in continuous catenary process at controlled elevated temperature and pressure in inert atmosphere with use of suitable materials for XLPE main insulation with semi-conducting screen. The inner and outer semi-conducting sheaths and main polyethylene insulation between the sheaths are to be simultaneously extruded during the Tripple Extrusion Process of manufacturing and main insulation of the Cable is to be extruded unfilled. The XLPE Cable in this specification does not have any metal sheath and the short circuit rating of the cable will depend on the conductivity and continuity of the strands of the armour wires which shall be ensured by guarding against corrosion.

8.2 **CONDUCTOR SCREEING**:

A semi-conducting cross-linked polyethylene (XLPE) screening shall be extruded over the conductor to act as an electrical shield which together with the elimination of the so called "Strand Effect" prevents to a great extent air ionization on the surface of the conductor.

8.3 **INSULATION**:

The main insulation of the Cable shall be extruded unfilled, chemically cross-linked polyethylene (XLPE) inert gas cured satisfying the requirement of IS: 7098(Part-II).

8.4 **INSULATING SCREEN**:

The screen shall be made up as given in 7.12. The metal screen eliminates tangential stress of rotating electrostatic field surrounding the conductor and uniform electrical stress in the insulation.

The semi-conducting polyethylene (XLPE) screen shall be extruded over the main polyethylene insulating wall to prevent partial discharge at the surface of the insulation. The copper tape shall be wrapped over the semi conducting tape or extrusion as mentioned earlier for 3 core cables. The metal screen so formed around the cores shall be in contact with one another as the cores are laid up at triangular configuration. For single core cable, Aluminium wire armouring shall constitute the metallic part of insulation screen. Conductor screening, insulation and insulation screening shall be extruded in triple extrusion processes so as to obtain continuously smooth interfaces.

8.5 The mechanical and chemical properties of the materials for semi conducting screens are much more important than their electrical properties, but for obtaining the high overall degree of electrical properties of an E.H.V. cable, the inner and outer semi conducting screens and the main polyethylene insulation between the screens shall be simultaneously extruded during the manufacturing process known as "tripple extrusion". The advantages are:

i) The partial discharge level at the surface of the insulation is brought to a minimum.
ii) There will be no displacement of the semi conducting screen and insulation during expansion and contraction due to load cycles and bending.
iii) The semi conducting screens are easily removable during jointing and termination operations.

8.6 **LAYING UP:**

The phase identification of the cores shall be by colour **strip** as per I.S.S. for 3 core cables only.

Core Colour

Red
Yellow
Blue

The screened cores shall be laid up with interstices filled with PVC fillers and taped with a binder tape as to obtain a reasonably circular cable.

8.7 **INNER SHEATH**:

The cable core shall be supplied with bedding of PVC (inner sheath) in the form of extruded PVC sheath for 33KV cables. **Black extruded PVC (Type ST-2) inner sheath** shall be used for 11 KV Cable and thickness as per Para 7.13 and as per ISS.

8.8 **ARMOUR**:

The cable shall be Steel strip armoured in case of 33 KV and 11 KV, 3 Core cables to ensure an adequate return path for the flow of fault current and also to provide suitable mechanical protection. The Steel Strips of required size in requisite number as per para 7.14 shall be laid closely in the spiral formation to protect the circumference of the cable fully and to provide adequate cross sectional area for flow of maximum fault

current within limits of specified temperature rise and duration of fault. The direction of the lay of the armour shall be opposite to that of the cable cores. In case of Single Core Cable the armour should be of non-magnetic material.
Armour Coverage Percentage for cables shall not be less than 90% as per IS: 7098: (Part-2) 2011 with its Amendment no. 1 March 2015.

8.9 **OUTER SHEATH**:
A reliable serving shall be necessary for maintaining conductivity of the armour particularly under corrosive condition in the form of jacket. The cable shall therefore be finished with an extruded PVC over sheath of thickness as per para 7.15.

The quality of PVC over sheath (Jacket) shall be ensured for service reliability against moisture intrusion and shall conform to type ST-2 of IS:5831.

The colour of the outer sheath shall be as follows :
For 33 KV Cable : **GREEN** & For 11 KV Cable : **BLUE**
The sheaths shall be protected against white ants, vermin and termites by suitable, reliable and durable measures.
The supplier shall suggest suitable materials for use, in the event of damage to the over sheath to prevent passage of moisture along the cable.

8.10 **CABLE IDENTIFICATION**:
The following shall be embossed on the outer sheath for the identification.

a) Manufacturer's Name or Trade Mark.
b) Type of Cable / Cable Code
c) Voltage Grade.
d) Type of insulation i.e. XLPE.
e) Nominal section & Material of conductor and number of crores.
f) Month & Year of manufacture.
g) Inscription for length of cables at 1.0 meter interval on outer sheath by printing/ engraving.
h) Name of the purchaser : WBSEDCL
i) Marking "Electric" shall be embossed throughout the length of the Cable at 1.0 metre spacing.

8.11 **SEALING OF CABLE ENDS** :
The cable ends of cable in the wooden/ steel drum for delivery shall be sealed with heat shrinkable caps.

9.0 **DRUMS**:

The Cable shall be packed in non-returnable wooden. Non-returnable Steel Drum may also be accepted in place of non-returnable Wooden Dum without implication of additional cost.

9.1 The following information shall be marked on each drum.

a) Drum identification No.
b) Manufacturer's Name, Trade Name/Trade Mark, if any.
c) IS reference i.e 7098 (part-II)/2011
d) Nominal sectional area of the conductor of the cable.
e) No. of Cores.
f) Type of Cable and Voltage Grade with Cable Code.
g) Colour of outer sheath
h) Length of the Cable in Cable Drum.
i) Direction of rotation of Drum (by means of an arrow)
j) Approximate Weight : Tare : Gross
k) Month & Year of Manufacture.
l) Purchase Order No. & date
m) Month of Delivery
n) Name of the Purchaser : WBSEDCL

Drums shall be proofed against attack by white ants or termite conforming to IS : 10418. The Drums may also be marked with ISI Certificate Mark, if applicable.

9.2 **Safe Pulling Force:** 30 N/mm2 (for Conductor)

10.0 **Tests to be performed as per IS: 7098 (Part-II)/2011 & IS:8130/1984 and its amendments.**

10.1A Type Test: All the tests mentioned below are to be made as per details given in IS:10810. The party shall submit Type Test report from CPRI or ERDA or Any NABL accredited LAB as per IS:7098/II/2011 and it latest amendment and other relevant IS/ IEC for each offered item of identical type, voltage grade, size, material and design, carried out within 5 years from the due date of opening of tender. Type Test Certificate should bear NABL Logo. Accreditation of NABL LAB should be displayed in the official website of NABL

a) Tests on conductor
   i) Tensile Test (for aluminium) (not applicable for compacted conductor as per IS:8130-1984)
   ii) Wrapping Test (for aluminium) (not applicable for compacted conductor as IS:8130-1984)
   iii) Resistance Test.
b) Tests for armouring Wires strips.

c) Test for thickness of insulation and sheath

d) Physical test for insulation.
   i) Tensile strength and elongation at break.
   ii) Ageing in air oven.
   iii) Hot test.
   iv) Shrinkage test
   v) Water absorption (Gravimetric)

e) Physical tests for outer sheath
   i) Tensile strength and elongation at break.
   ii) Ageing in air oven.
   iii) Shrinkage test.
   iv) Hot deformation.
   v) Heat shock.
   vi) Loss of mass in air oven.
   vii) Thermal stability.

f) Partial discharge test.
g) Bending test.
h) Dielectric power factor test.

   i) As a function voltage.
   3) As a function of temperature.

i) Insulation resistance (Volume resistivity) Test.
j) Heating cycle test.
k) Impulse with stand test.
l) High voltage test.
m) Flammability test.

10.1B The following tests on screened cable shall be performed successively on the same test sample of completed cable, not less than 10m. in length between the test accessories.

a) P.D. Test.
b) Bending Test followed by P.D. Test.

c) Dielectric power factor as a function of voltage.
d) Dielectric power factor as a function of temperature.
e) Heating cycle test followed by dielectric power factor as a function of voltage and P.D.tests.
f) Impulse withstand test and
g) High voltage test as per para 7.21.
If a sample fails in test (g) one more sample shall be taken for this test, preceded by tests (b) & (e).

10.2 **Acceptance Test**: The following shall constitute Acceptance Tests:
a) Tensile test (for aluminium)
b) Wrapping test (for aluminium)
c) Conductor resistance test.
d) Test for thickness of insulation and sheath.
e) Hot set test for insulation.
f) Tensile strength and elongation at break test for insulation and outer sheath.
g) P.D. test (for screened cables) only on full drum length.
h) High Voltage test, and
i) Insulation resistance (VOLUME RESISTIVITY) TEST

10.3 **ROUTINE TESTS**:

The routine test shall be carried out on all cables manufactured in accordance with this specification.

The following routine tests shall be made on cable length as specified in the ISS.
a) Conductor resistance test.
b) Partial discharge test on full drum length.
c) High voltage test as per para 7.21

10.4 **TEST WITNESS**:

1. All Tests shall be performed in presence of Purchaser's representative if so desired by the Purchaser.
2. The contractor, shall give at least fifteen (15) days advance notice for witnessing such tests.

11. **TEST CERTIFICATE**:

11.1 Certified copies of all routine tests carried out at Works shall be furnished in Six (6) copies for approval of the purchaser.
11.2 The cables shall be dispatched from Works only after receipt of Purchaser's written approval of shop test reports.
11.3 Type Test Certificates of the Cable offered shall be furnished. Otherwise the cable shall have to be type tested on similar rating as per Clause – 10 free of any charges to prove the design.

12. **DESCRIPTIVE LITERATURES, TEST RESULTS ETC.**:

The following details for the cable shall be submitted with bid.
a) Manufacturer's Catalogue giving cable construction details and characteristics.
b) Manufacturing process in detail for cables highlighting the steps to control.
i) Contamination.
ii) Formation of water trees.
iii) Effects of byproducts of cross-linking.
iv) Stress control etc.
c) Cross section drawing of the cable.
d) Cable current ratings for different types of installation inclusive of all de rating factors due to ambient temperature, grouping etc.

e) Over-Load characteristics of the cable without endangering the normal life and electrical quality of the insulation.

f) Complete technical data of the cables.

g) List of Customers to whom the Cable of similar rating have been supplied.

h) Copy of Type Test Report carried out within last 5 years from the due date of opening of Tender on similar type of Cable in a NABL accredited/Govt. approved Test House or Laboratory is to be submitted along with the tender otherwise tender may be rejected.

Type Test (after placement of order) : Besides submission of Type Test Report carried out within last 5 years as per tender specification, type test at the discretion of the ordering authority shall have to be arranged by the successful contractor from any lot offered for inspection sample chosen at random after successful routine test by our inspection team as per relevant ISS from CPRI/NABL accredited/Govt. recognized Test House or Laboratory in presence of WBSEDCL's representative.

However the necessary cost of the type test charges will be reimbursed to the party on production of necessary supporting documents.

i) Valid Calibration Certificate of instruments/equipment used for Testing purpose conducted by NABL accredited Laboratory provided the certificate bears an accreditation body logo. For testing equipment where NABL accreditation is not available, calibration certificate from educational institutions like IIT's, NIT's, J.U., C.U., B.H.U. only can be accepted provided they demonstrate traceability.

j) Documents to be submitted at the time of physical delivery at consignee stores :

The following documents are to be submitted by the venders to the consignee stores at the time of dispatch to stores by the venders :

a) Copy of Purchase Order
b) Copy of dispatch instruction
c) Inspection Test certificate
d) Guarantee certificate
e) Proforma Invoice
f) Calculation Sheet for price variation on the basis of IEEMA or CACMAI as applicable with base date of order
g) Seal list and packing list
h) Challan in triplicate

k) Way Bill, if applicable

SCHEDULE OF GUARANTEED TECHNICAL PARTICULARS FOR 11 KV or 33 KV ARMOURED ALUMINIUM XLPE CABLES (To be filled in by the Supplier)

1	**NAME OF MANUFACTURER & ADDRESS**	:				
2	Voltage Grade.	:	6.35/11 KV	6.35/11 KV	6.35/11 KV	6.35/11 KV
3	Core & Cross Section No x sq. mm.	:	3 x 400	3 x 300	3 x 185	3 x 95
4	Type & Designation (as per ISS)	:	A2XFY	A2XFY	A2XFY	A2XFY
5	List of Standards applicable with latest amendment	:	**IS: 7098(PT-2) 2011,** IS: 8130 - 1984, IS:5831 – 1984, IS:3975 – 1999, IS: 10810 – 1984 & IS: 10418 - 1982	**IS: 7098(PT-2) 2011,** IS: 8130 -1984, IS:5831 – 1984, IS:3975 – 1999, IS: 10810 – 1984 & IS: 10418 - 1982	**IS: 7098(PT-2) 2011,** IS: 8130 - 1984, IS:5831 – 1984, IS:3975 – 1999, IS: 10810 – 1984 & IS: 10418 - 1982	**IS: 7098(PT-2) 2011,** IS: 8130 -1984, IS:5831 – 1984, IS:3975 – 1999, IS: 10810 – 1984 & IS: 10418 - 1982
6	System suitable for					
a	Service Voltage	:	11KV	11KV	11KV	11KV
b	Neutral Earthing	:	6.35KV	6.35KV	6.35KV	6.35KV
7	Maximum. Conductor temperature	:				
a	Continuous (in Deg. C)	:				
b	Short time (in Deg.C)	:				
8	Conductor	:				
a	Material to IS-8130(Class/Grade)	:	H4 Grade Aluminium of Class-2	H4 Grade Aluminium of Class-2	H4 Grade Aluminium of Class-2	H4 Grade Aluminium of Class-2
B	Size (Sq.mm.)	:	400	300	185	95
c	No./Nominal diameter of wires in each.	:				
	Conductor (no./mm.)	:				
D	Shape of conductor(Circuler/ other shaped)	:	Stranded Circular Compacted	Stranded Circular Compacted	Stranded Circular Compacted	Stranded Circular Compacted
9	Shielding/screening on Conductor	:				
a	Material	:	Semi-conducting compound	Semi-conducting compound	Semi-conducting compound	Semi-conducting compound
b	Type	:	Extruded	Extruded	Extruded	Extruded
C	Whether thermosetting?	:				
d	Thickness					
10	Insulation	:				
a	Material	:				
b	Type	:	Extruded	Extruded	Extruded	Extruded
c	Thickness (mm)	:				
11	Shielding / screening on insulation	:				
a	Material	:	Semi-conducting compound	Semi-conducting compound	Semi-conducting compound	Semi-conducting compound
b	Type	:	Extruded	Extruded	Extruded	Extruded
c	Thickness (mm)	:				
	i) Non-metallic	:				
	ii) Metallic	:				

12	Inner – sheath	:				
A	Material	:				
B	Type	:				
C	Minimum Thickness of sheath (mm)	:				
D	Extruded/Wrapped	:				
E	Approx. outside diameter	:				
13	Armouring	:				
A	Material	:	Galvanised Steel Strip	Galvanised Steel Strip	Galvanised Steel Strip	Galvanised Steel Strip
B	Size	:				
C	D.C. resistance at 20 deg.C (Ohm/Km.)	:				
D	Armour Coverage Percentage	:	90%(Min)	90%(Min)	90%(Min)	90%(Min)
14	Overall Sheath	:				
A	Material	:	PVC (Blue Colour)	PVC (Blue Colour)	PVC (Blue Colour)	PVC (Blue Colour)
B	Type	:	ST-2	ST-2	ST-2	ST-2
C	Thickness (mm.)					
D	Colour of Sheath	:				
15	Approx. overall diameter of the Cable (mm.)	:				
16	Continuous current rating for standard condition, laid direct	:				
A	In ground at temp 30 deg.C	:				
B	In duct at temp 30 deg.C	:				
C	In air at temp40 deg.C	:				
17	Charging current attracted system voltage A/KM	:				
18	Short Circuit Current in KA (Maxm.)	:				
a	for 1 sec	:				
b	for 0.5 sec	:				
19	Combine Earth Fault Current for Screen and Armour in KA for 1 sec					
20	Electrical Parameters	:				
a	Maxm. D.C. resistance/km	:				
	of conductor at 20 deg.C (Ohm/Km)	:				
b	AC resistance/kilometer of	:				

	conductor at 90 deg.C(approx.) (Ohm/Km)	:				
c	Reactance/kilometer(approx.) (Ohm/Km)	:				
d	Capacitance/Kilometer(approx.) (um/Km)	:				
e	Di-electric losses at rated	:				
	(Uo/U) system KV, 50 cycles/sec	:				
	in Watts/KV/Phase)	:				
f	i) tan-delta at 0.5 Uo	:				
	ii) tan-Delta at Uo	:				
	iii) tan-Delta at 1.5 Uo	:				
	iv) tan-Delta at 2 Uo	:				
21	Vol. Resistivity at 27 deg.C(ohm/Cm)	:				
22	Recommended minimum bending radius	:				
23	Derating factor for following ambient	:				
	temperature in Air/Ground	:				
a	at30 deg. C	:				
b	at35 deg. C	:				
c	at45 deg. C	:				
d	at 50 deg.C	:				
24	Cable Drums	:				
a	Standard Length of Cable/Drum (Mtrs)		250±5%	250±5%	250±5%	250±5%
b	Net weight of cable/Drum (kg)					
c	Dimension of Drum		Generally as per IS: 10418-1982	Generally as per IS: 10418-1982	Generally as per IS: 10418-1982	Generally as per IS: 10418-1982
d	Shipping weight (Kg)					
25	Safe pulling force (Kg.)	:				
26	Partial discharge value	:				
27	Details of the protective measures against attack by white ante varmints etc. to be XLPE's outer sheath during manufacture	:				
28	Type of curing of XLPE insulations	:	Inert Gas (Nitrogen) curing through CCV Line	Inert Gas (Nitrogen) curing through CCV Line	Inert Gas (Nitrogen) curing through CCV Line	Inert Gas (Nitrogen) curing through CCV Line
29	Cut ends of the Cable shall be sealed	:	Heat shrinkable and caps	Heat shrinkable and caps	Heat shrinkable and caps	Heat shrinkable and caps
30	Cable identification shall be made as per class 8.10 (Yes/No)	:				
31	Cable Drums shall be marked with the with the informations	:				

	of Clauses 9.1 conspicuously (Yes/No)					
32	Embossing	:	Name of Manufacturer, ELECTRIC, WBSEDCL (Project Name- on Cable as well as on Drum) , 11 KV XLPE Armoured Cable, Size, Cable Type, Month & Year of Manufacturing, Sequential length Marking by printing in each meter interval	Name of Manufacturer, ELECTRIC, WBSEDCL (Project Name- on Cable as well as on Drum), 11 KV XLPE Armoured Cable, Size, Cable Type, , Month & Year of Manufacturing, Sequential length Marking by printing in each meter interval	Name of Manufacturer, ELECTRIC, WBSEDCL (Project Name- on Cable as well as on Drum), 11 KV XLPE Armoured Cable, Size, Cable Type, , Month & Year of Manufacturing, Sequential length Marking by printing in each meter interval	Name of Manufacturer, ELECTRIC, WBSEDCL (Project Name- on Cable as well as on Drum), 11 KV XLPE Armoured Cable, Size, Cable Type, , Month & Year of Manufacturing, Sequential length Marking by printing in each meter interval
33	Drum Marking (Information shall be stencilled on each drum)		As per TS	As per TS	As per TS	As per TS

Signature with Designation & Seal
With Name of the Firm

Signature Not Verified
Digitally signed by PRASUN BHAUMIK
Date: 2022.03.23 15:15:46 IST
Location: West Bengal-WB