

TENDER DOCUMENT

RATE CONTRACT FOR SUPPLY

OF

**1.1KV UNARMoured XLPE/PVC INSULATED ALUMINIUM
CONDUCTOR CABLE OF VARIOUS SIZES**

NIT NO CMC/BY/19-20/RB/SV/28

Due Date for Submission: 20.06.2019, 14:30 P.M.

**BSES YAMUNA POWER LIMITED (BYPL)
SHAKTI KIRAN BUILDING,
KARKARDOOMA,
DELHI-110032
CIN: U40109DL2001PLC111525
TEL: 011 3999 7111
WEBSITE: www.bsesdelhi.com**

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SECTION – I: REQUEST FOR QUOTATION

1.00 Event Information

- 1.01 BSES Yamuna Power Ltd (hereinafter referred to as “BYPL”) invites sealed tenders in 2 envelopes for establishing Rate Contract from reputed manufacturers valid for a period of one year. The bidder must qualify the requirements as specified in clause 2.0 stated below. All envelopes shall be duly superscribed as — **“BID FOR RATE CONTRACT FOR SUPPLY OF 1.1KV UNARMoured XLPE/PVC INSULATED ALUMINIUM CONDUCTOR CABLE OF VARIOUS SIZES” “NIT NO CMC/BY/19-20/RB/SV/28 DUE ON 20.06.2019, 14:30 PM”**.

SEE ON 26.06.2017, 11:55 PM :

Sl. No.	Item Description	Technical Specification	Estimated Cost (₹)	Cost of EMD (₹)	Tentative Qty. (KM)
1	CABLE NARM XLPE 1.1KV 1C 630MM2 AL	SP-LTPC-63-R0	2.36 Crore	4.72 Lakh	35
2	CABLE NARM XLPE 1.1KV 1C 300MM2 AL				15
3	CABLE NARM XLPE 1.1KV 1C 95MM2 AL				10
4	CABLE NARM XLPE 1.1KV 1C 25MM2 AL				5
5	CABLE NARM PVC 1.1KV 1C 10MM2 AL	SP-EWLP-02-R0			18
6	CABLE NARM PVC 1.1KV 1C 4MM2 AL				5
7	CABLE NARM PVC 1.1KV 1C 2.5MM2 AL				10
8	CBL,PWR,10MM2;2C;1.1KV;AL;UNARMD	SP-ULTC2C10-75-R0			82

Note: Individual Drum/Roll Quantity may vary \pm 5%. There will be no positive tolerance on the overall total order quantity. However (-) 2% will be allowed on overall order quantity.

- 1.02 The schedule of specifications with detail terms & conditions can be obtained from address given below against submission of non-refundable demand draft of **Rs.1,180/-** drawn in favour of BSES Yamuna Power Ltd, payable at Delhi. The tender papers will be issued on all working days upto **13.06.2019, 17:00 P.M.** The tender documents & detail terms and conditions can also be downloaded from the website www.bsesdelhi.com --> **Tenders** --> **BSES YAMUNA POWER LTD** --> **Open Tenders**. In case tender papers are downloaded from the above website, then the bidder has to enclose a demand draft covering the cost of bid documents.
- 1.03 Offers will be received upto **26.06.2019, 14:30 PM.** at the address given below. Part A of the Bid shall be opened on **20.06.2019, 16:00 PM.** Part B of the Bid will be opened in case of Techno-Commercially qualified Bidders and the date of opening of same shall be intimated in due course. It is the sole responsibility of the bidder to ensure that the bid documents reach this office on or before the last date.
- 1.04 BYPL reserves the right to accept/reject any or all Tenders without assigning any reason thereof and alter the quantity of materials mentioned in the Tender documents by (\pm 50%).

- 1.05 Bid will be summarily rejected if:
- (i) Tender fee of requisite value.
 - (ii) Earnest Money Deposit (EMD) of requisite value & validity.
 - (iii) The offer does not contain "FOR NEW DELHI" prices indicating break-up towards all taxes & duties.
 - (iv) Complete Technical details are not enclosed.
 - (v) Tender is received after due date and time.

2.0 Qualification Criteria:-

The prospective bidder must qualify all of the following requirements and shall be eligible to participate in the bidding who meets following requirements and management has a right to disqualify those bidders who do not meet these requirements:

- a. The bidder must be a manufacturer of LT Power Cables of same or higher voltages.
- b. The bidder should have plant installed capacity to supply of minimum 150-200 km per month.
- c. The bidder should have qualified technical personnel at various stages of manufacture & testing. The bidder should have In-house routine and acceptance testing facilities for acceptance as per relevant IS/IEC. Self-undertaking to be submitted in this regard. BYPL reserves the right to inspect the said manufacturing facility as a proof of compliance to this parameter.
- d. The bidder should have executed at least 500 KM of cable size 1CX10 MM² and 1.1 KV voltage or higher size and rating cable order(s) during last 3 years from the date of opening of technical bid.
- e. The bidder should submit the 2 year satisfactory Performance Certificates for cables of similar or higher ratings from 2 reputed companies.
- f. Bidder should have an Average Annual Sales Turnover of Rs 10.00 Crore or more in last 3 years.
- g. The bidder must possess valid ISO 9001:2000 certification and valid BIS License (If applicable) for working voltage upto 1100V.
- h. An undertaking (self certificate) that the bidder has not been blacklisted/debarred by any central/state government institution including electricity boards. The bidder should also confirm and an undertaking (self certified) to be submitted that there is no pending litigation with government on account of executing similar order.
- i. In case of new bidders (not enlisted in BSES), Factory inspection & evaluation may be carried out to ascertain bidder's manufacturing capabilities and quality procedures.

Notwithstanding anything stated above, BYPL reserves the right to assess the capability and installed capacity of the Bidder for carrying out the supplies.

3.00 Bidding and Award Process

Bidders are requested to submit their offer strictly in line with this tender document. **NO DEVIATION IS ACCEPTABLE.** BYPL shall response to the clarifications raised by various bidders and the same will be distributed to all participating bidders through website.

3.01 BID SUBMISSION

The bidders are required to submit the bids in 2(two) parts and submitted in 1 original + 1 duplicate to the following address:

**Head of Department
Contracts & Materials Deptt.
BSES Yamuna Power Ltd
Ground Floor
Shaktikiran Building, Karkardooma
Delhi 110032**

PART A :: TECHNICAL BID comprising of following:

Sr. No	Descriptions	Type of Documents
Commercial :		
1	Tender Fee - Demand Draft (Rs.1180/-) (Incl GST)	Non-refundable demand draft for Rs 1180/- in case the forms are downloaded from website
2	EMD	In prescribed format
3	Power-of-Attorney / Authorization letter	POA in prescribed stamp paper & format. Proper authorization letter to sign the tender on the behalf of bidder shall accompany the bid.
4	PQR Compliances	Documentary evidence in support of qualifying criteria like : 1. Details of constitution of the company (Proprietary/Limited/etc along with the details), Memorandum of Association of the company 2. Bidders shall submit the certified annual Balance sheets for the last completed three (3) financial years 3. Supportive document on Positive Net worth. Credit rating/solvency certificate from competent authority. 4. Copies of Orders, Execution /Performance Certificate & Other Documents to support qualification Criteria
5	Signed Tender document	Original Tender documents duly stamped & signed on each page as token of acceptance
6	Black listing undertaking	Bidder should submit a Self undertaking signed by its Authorized Signatories that the Bidder or any of their sub contractor has not been blacklisted/barred by any Govt. Organization or Regulatory Agencies in India or abroad.
7	Commercial Terms and Conditions	Acceptance on Commercial Terms and Conditions viz Delivery schedule/period, Payment terms, PBG etc.
8	Acceptance on Reverse Auction	Duly signed Acceptance Form For Participation In Reverse Auction Event as per attached format
9	Bid Form (Unpriced) Duly	Duly Signed Bid Form as per attached format
10	Un price Bid Duly Signed	Duly Signed Un price Bid as per attached format
Technical:		
11	Technical Details/ Filled in GTP/Drawings	Bidder shall submit duly filled GTP with all Technical documents and Drawings.
12	Field Quality and assurance Plan (QAP)	Bidder shall submit the detailed QAP plan in their technical proposal.
13	Type Test Reports	Bidders shall submit the copy of type test reports in their technical bids in support of PQR conditions
14	Testing Facilities	Bidder shall submit the details of testing facilities available at their works/factory.
15	Organization Chart & Manpower Details.	Bidder shall submit the details of Manpower to be deployed for project management with qualification and experience.
16	Checklist	Duly filled in prescribed format

PART B :: FINANCIAL BID comprising of (01 original only)

- Price strictly in the Format enclosed indicating Break up of basic price, taxes & duties, transportation etc

3.02 TIME SCHEDULE

The bidders should complete the following within the dates specified as under:

S.No.	Steps	Due date
1	Last Date of Sale of Bid Documents	13.06.2019
2	Last Date of Queries, if any	13.06.2019
3	Last Date of Receipt of Bid Documents	20.06.2019, 14:30 HRS
4	Date & Time of Opening of PART A - Technical and Commercial Bid	20.06.2019, 16:30 HRS

NOTE: In case last date of submission of bids & date of opening of bids is declared as holiday in BYPL office, the last date of submission will be following working day at the same time.

This is a two part bid process. Bidders are to submit the bids in 2(two) parts

Both these parts should be furnished in separate sealed covers super scribing NIT no. DUE DATE OF SUBMISSION, with particulars as **PART-A TECHNICAL BID & COMMERCIAL TERMS & CONDITIONS** and **Part-B FINANCIAL BID** and these sealed envelopes should again be placed in another sealed cover which shall be submitted before the due date & time specified.

Part – A :: Technical Bid should not contain any cost information whatsoever and shall be submitted within the due date. The technical bid shall be properly indexed.

PART B :: This envelope will be opened after techno-commercial evaluation and only of the qualified bidders.

REVERSE AUCTION CLAUSE :: Purchaser reserves the right to use reverse auction as optional tool through SAP – SRM as an integral part of the entire tendering process. All the bidders who are techno-commercially qualified on the basis of tender requirements shall participate in reverse auction.

Notwithstanding anything stated above, the Purchaser reserves the right to assess bidder's capability to perform the contract, should the circumstances warrant such assessment in the overall interest of the purchaser. In this regard the decision of the purchaser is final.

BIDS RECEIVED AFTER DUE DATE AND TIME MAY BE LIABLE TO REJECTION

4.00 Award Decision

4.01 Purchaser intends to award the business on a lowest bid basis, so suppliers are encouraged to submit the bid competitively. The decision to place purchase order/LOI solely depends on purchaser on the cost competitiveness across multiple lots, quality, delivery and bidder's capacity, in addition to other factors that Purchaser may deem relevant.

4.02 The purchaser reserves the right to distribute the procurable quantity on one or more than one of the eligible tenders.

If the quantity is to be split, quantity distribution shall be in the manner detailed below:

a) If the quantity is to be split among 2 bidders, it will be done in the ratio of 70:30 on L1 price.

b) If the quantity is to be split among 3 bidders, it will be done in the ratio of 50:30:20 on L1 price.

Note: In case quantity needs to be distributed and order splitting is required, distribution of quantity shall be maximum among three (3) bidders.

- 4.03 In the event of your bid being selected by purchaser (and / or its affiliates) and you subsequent DEFAULT on your bid; you will be required to pay purchaser (and / or its affiliates) an amount equal to the difference in your bid and the next lowest bid on the quantity declared in NIT/RFO.
- 4.04 In case any supplier is found unsatisfactory during the delivery process, the award may be cancelled and BYPL reserves the right to award other suppliers who are found fit.
- 4.05 Bidders are requested to quote their lowest No-Regret prices since BYPL would not prefer to negotiate the price further.
- 4.06 **Rate Contract:** The rate contract shall have a validity period of 12 months from the date of LOI/PO issued to the responsive, techno-commercially acceptable and evaluated to be the lowest bidder. Purchase Order (PO) shall be placed as per the requirement of BYPL. Rate shall remain FIRM till the validity of Rate Contract.
- 4.07 **QTY VARIATION:** The purchaser reserves the rights to vary the quantity by (\pm 50%) of the tender quantity during the execution of the rate contract.

5.00 Market Integrity

We have a fair and competitive marketplace. The rules for bidders are outlined in the Terms & Conditions. Bidders must agree to these rules prior to participating. In addition to other remedies available, we reserves the right to exclude a bidder from participating in future markets due to the bidder's violation of any of the rules or obligations contained in the Terms & Condition. A bidder who violates the marketplace rules or engages in behavior that disrupts the fair execution of the marketplace restricts a bidder to length of time, depending upon the seriousness of the violation. Examples of violations include, but are not limited to:

- Failure to honor prices submitted to the marketplace.
- Breach of the terms of the published in Request For Quotation/NIT.

6.00 Supplier Confidentiality

All information contained in this RFQ is confidential and shall not be disclosed, published or advertised in any manner without written authorization from BYPL. This includes all bidding information submitted.

All RFQ documents remain the property of BYPL and all suppliers are required to return these documents to BYPL upon request.

Suppliers who do not honor these confidentiality provisions will be excluded from participating in future bidding events.

7.0 Contact Information

Technical clarification, if any, as regards this RFQ shall be sought in writing and sent by post/courier to following address. The same shall not be communicated through email/phone.

	Technical	Commercial
Contact Person	Mr Ashwani Aggarwal Copy to : Mr. Rakesh Bansal	Mr Rakesh Bansal & Rajesh Srivastava
Address	BSES Yamuna Power Ltd , 3 rd floor, B Block, Shaktikiran Building, Karkardooma, Delhi 110032	C&M Deptt. 3 rd Floor , A-Block, BSES Yamuna Power Ltd Shaktikiran Building, Karkardooma, Delhi 110032
E-Mail ID	ashwani.aggarwal@relianceada.com	rakesh.bansal@relianceada.com rajesh.r.srivastava@relianceada.com

SECTION – II: INSTRUCTION TO BIDDERS

A. GENERAL

- 1.00 BSES Yamuna Power Ltd, hereinafter referred to as “The Purchaser” are desirous of implementing the various Systems Improvement/Repair & Maintenance works at their respective licensed area in Delhi The Purchaser has now floated this tender for procurement of material notified earlier in this bid document.

2.00 SCOPE OF WORK

The scope shall include Design, Manufacture, Testing at works conforming to the Technical Specifications/IS along with Packing, Forwarding, Transportation and Unloading and proper stacking at Purchaser's stores/site.

3.0 DISCLAIMER

- 3.01 This Document includes statements, which reflect various assumptions, which may or may not be correct. Each Bidder/Bidding Consortium should conduct its own estimation and analysis and should check the accuracy, reliability and completeness of the information in this Document and obtain independent advice from appropriate sources in their own interest.
- 3.02 Neither Purchaser nor its employees will have any liability whatsoever to any Bidder or any other person under the law or contract, the principles of restitution or unjust enrichment or otherwise for any loss, expense or damage whatsoever which may arise from or be incurred or suffered in connection with anything contained in this Document, any matter deemed to form part of this Document, provision of Services and any other information supplied by or on behalf of Purchaser or its employees, or otherwise arising in anyway from the selection process for the Supply.
- 3.03 Though adequate care has been taken while issuing the Bid document, the Bidder should satisfy itself that Documents are complete in all respects. Intimation of any discrepancy shall be given to this office immediately.
- 3.04 This Document and the information contained herein are Strictly Confidential and are for the use of only the person(s) to whom it is issued. It may not be copied or distributed by the recipient to third parties (other than in confidence to the recipient's professional advisors).

4 COST OF BIDDING

The Bidder shall bear all cost associated with the preparation and submission of its Bid and Purchaser will in no case be responsible or liable for those costs.

B. BIDDING DOCUMENTS

- 5.01 The Scope of Work, Bidding Procedures and Contract Terms are described in the Bidding Documents. In addition to the covering letter accompanying Bidding Documents, the Bidding Documents include:

- | | |
|--|----------------|
| (a) Request for Quotation (RFQ) | - Section - I |
| (b) Instructions to Bidders (ITB) | - Section - II |
| (c) Terms & Conditions of Contract (T&C) | - Section -III |
| (d) Delivery schedule | - Section IV |
| (e) Price Formats & Summary T&C | - Section V |
| (f) Bid Form | - Section VI |
| (g) Acceptance Format – RA | - Section VII |

- | | |
|-----------------------------------|----------------|
| (h) EMD BG Format | - Section VIII |
| (i) Vendor code of conduct | - Section –IX |
| (j) Appendix | |
| (k) Technical Specifications (TS) | - Section –X |

5.02 The Bidder is expected to examine the Bidding Documents, including all Instructions, Forms, Terms and Specifications. Failure to furnish all information required by the Bidding Documents or submission of a Bid not substantially responsive to the Bidding Documents in every respect will may result in the rejection of the Bid.

6.0 AMENDMENT OF BIDDING DOCUMENTS

6.01 At any time prior to the deadline for submission of Bids, the Purchaser may for any reasons, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Documents by Amendment.

6.02 The Amendment shall be part of the Bidding Documents, pursuant to Clause 5.01, and it will be notified in web site www.bsesdelhi.com and the same will be binding on them.

6.03 In order to afford prospective Bidders reasonable time in which to take the Amendment into account in preparing their Bids, the Purchaser may, at its discretion, extend the deadline for the submission of Bids. The same shall be published as a corrigendum in website www.bsesdelhi.com

6.04 Purchaser shall reserve the rights to following:

- a) extend due date of submission,
- b) modify tender document in part/whole,
- c) cancel the entire tender

6.05 **Bidders are requested to visit website regularly for any modification/clarification/corrigendum/addendum of the bid documents.**

C. PREPARATION OF BIDS

7.0 LANGUAGE OF BID

The Bid prepared by the Bidder, and all correspondence and documents relating to the Bid exchanged by the Bidder and the Purchaser, shall be written in the English Language. Any printed literature furnished by the Bidder may be written in another Language, provided that this literature is accompanied by an English translation, in which case, for purposes of interpretation of the Bid, the English translation shall govern.

8.0 DOCUMENTS COMPRISING THE BID

The Bid prepared and submitted by the Bidder shall comprise the following components:

- (a) Bid Form, Price & other Schedules (STRICTLY AS PER FORMAT) and Technical Data Sheets completed in accordance with Technical Specification.
- (b) All the Bids must be accompanied with the required EMD as mentioned in the Section-I against each tender.
- (c) Tender documents duly stamped and signed on each page by authorized signatory.

9.0 BID FORM

- 9.01 The Bidder shall submit one "Original" and one "Copy" of the Bid Form and the appropriate Price Schedules and Technical Data Sheets duly filled in as per attached specification (Section VIII) enclosed with the Bidding Documents.

9.02 EMD

Pursuant to Clause 8.0(b) above, the bidder shall furnish, as part of its bid, a EMD amounting to as specified in the Section-I. The EMD is required to protect the Purchaser against the risk of Bidder's conduct which would warrant forfeiture.

The EMD shall be denominated in any of the following form:

- (a) Bank Guarantee drawn in favour of BSES Yamuna Power Ltd, payable at Delhi.
- (b) EMD shall be valid for One Hundred Twenty (120) days after due date of submission drawn in favour of BSES Yamuna Power Ltd

The EMD may be forfeited in case of:

- (a) the Bidder withdraws its bid during the period of specified bid validity

or

- (b) the case of a successful Bidder, if the Bidder does not

- (i) Accept the Purchase Order, or

- (ii) Furnish the required performance security BG.

10.0 BID PRICES

- 10.01 Bidders shall quote for the entire Scope of Supply with a break-up of prices for individual items. The total Bid Price shall also cover all the Supplier's obligations mentioned in or reasonably to be inferred from the Bidding Documents in respect of Design, Supply, Transportation to site, all in accordance with the requirement of Bidding Documents. The Bidder shall complete the appropriate Price Schedules included herein, stating the Unit Price for each item & total Price.

- 10.02 The prices offered shall be inclusive of all costs as well as Duties, Taxes and Levies paid or payable during execution of the supply work, breakup of price constituents, should be there.

Prices quoted by the Bidder shall be "**Firm**" and not subject to any price adjustment during the performance of the Contract. **A Bid submitted with an adjustable price/ Price Variation Clause will be treated as non -responsive and rejected.**

11.0 BID CURRENCIES

Prices shall be quoted in Indian Rupees Only.

12.0 PERIOD OF VALIDITY OF BIDS

- 12.01 Bids shall remain valid for 120 days from the due date of submission of the Bid.

- 12.02 Notwithstanding Clause 12.01 above, the Purchaser may solicit the Bidder's consent to an extension of the

Period of Bid Validity. The request and the responses thereto shall be made in writing and sent by post/courier

13.0 ALTERNATIVE BIDS

Bidders shall submit Bids, which comply with the Bidding Documents. Alternative Bids will not be considered. The attention of Bidders is drawn to the provisions regarding the rejection of Bids in the terms and conditions, which are not substantially responsive to the requirements of the Bidding Documents.

14.0 FORMAT AND SIGNING OF BID

14.01 The original Bid Form and accompanying documents (as specified in Clause 9.0), clearly marked "Original Bid" plus one copy must be received by the Purchaser at the date, time and place specified pursuant to Clauses 15.0 and 16.0. In the event of any discrepancy between the original and the copies, the original shall govern.

14.02 The original and copy of the Bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to sign on behalf of the Bidder. Such authorization shall be indicated by written Power-of-Authority accompanying the Bid. The Bid submitted on behalf of companies registered with the Indian Companies Act, for the time being in force, shall be signed by persons duly authorized to submit the Bid on behalf of the Company and shall be accompanied by certified true copies of the resolutions, extracts of Articles of Association, special or general Power of Attorney etc. to show clearly the title, authority and designation of persons signing the Bid on behalf of the Company. Satisfactory evidence of authority of the person signing on behalf of the Bidder shall be furnished with the bid. A bid by a person who affixes to his signature the word 'President', 'Managing Director', 'Secretary', 'Agent' or other designation without disclosing his principal will be rejected.

The Bidder's name stated on the Proposal shall be the exact legal name of the firm.

14.03 The Bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by the person or persons signing the Bid.

D. SUBMISSION OF BIDS

15.0 SEALING AND MARKING OF BIDS

15.01 Bid submission: One original & one Copy (hard copies) of all the Bid Documents shall be sealed and submitted to the Purchaser before the closing time for submission of the bid.

15.02 The Technical Documents and the EMD shall be enclosed in a sealed envelope and the said envelope shall be superscribed with —"Technical Bid & EMD". The price bid shall be inside another sealed envelope with superscribed "Financial Bid". Both these envelopes shall be sealed inside another big envelope. All the envelopes should bear the Name and Address of the Bidder and marking for the Original and Copy. The envelopes should be superscribed with —"Tender Notice No. & Due date of opening".

15.03 The Bidder has the option of sending the Bids in person. Bids submitted by Email/Telex/Telegram /Fax will be rejected. No request from any Bidder to the Purchaser to collect the proposals from Courier/Airlines/Cargo Agents etc shall be entertained by the Purchaser.

16.0 DEADLINE FOR SUBMISSION OF BIDS

16.01 The original Bid, together with the required copies, must be received by the Purchaser at the address on

or before the due date & time of submission.

- 16.02 The Purchaser may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents in accordance with Clause 9.0, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended

17.0 ONE BID PER BIDDER

Each Bidder shall submit only one Bid by itself. No Joint Venture is acceptable. A Bidder who submits or participates in more than one Bid will cause all those Bids to be rejected.

18.0 LATE BIDS

Any Bid received by the Purchaser after the deadline for submission of Bids prescribed by the Purchaser, pursuant to Clause 16.0, will be declared "Late" and may be rejected

19.0 MODIFICATIONS AND WITHDRAWAL OF BIDS

- 19.01 The Bidder is not allowed to modify or withdraw its Bid after the Bid's submission subject to any corrigendum/addendum/modifications in the tender documents uploaded in website.

E. EVALUATION OF BID

20.0 PROCESS TO BE CONFIDENTIAL

Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process. Any effort by a Bidder to influence the Purchaser's processing of Bids or award decisions may result in the rejection of the Bidder's Bid.

21.0 CLARIFICATION OF BIDS

To assist in the examination, evaluation and comparison of Bids, the Purchaser may, at its discretion, ask the Bidder for a clarification of its Bid. All responses to requests for clarification shall be in writing and no change in the price or substance of the Bid shall be sought, offered or permitted.

22.0 PRELIMINARY EXAMINATION OF BIDS / RESPONSIVENESS

- 22.01 Purchaser will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order. Purchaser may ask for submission of original documents in order to verify the documents submitted in support of qualification criteria.
- 22.02 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price per item that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price per item will be corrected. If there is a discrepancy between the Total Amount and the sum of the total price per item, the sum of the total price per item shall prevail and the Total Amount will be corrected.
- 22.03 Prior to the detailed evaluation, Purchaser will determine the substantial responsiveness of each Bid to the Bidding Documents including production capability and acceptable quality of the Goods offered. A substantially responsive Bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviation.

- 22.04 Bid determined as not substantially responsive will be rejected by the Purchaser and/or the Purchaser and may not subsequently be made responsive by the Bidder by correction of the non-conformity.

23.0 EVALUATION AND COMPARISON OF BIDS

- 23.01 The evaluation of Bids shall be done based on the delivered cost competitiveness basis.
- 23.02 The evaluation of the Bids shall be a stage-wise procedure. The following stages are identified for evaluation purposes: In the first stage, the Bids would be subjected to a responsiveness check. The Technical & qualifying Proposals and the Conditional ties of the Bidders would be evaluated.

Subsequently, the Financial Proposals along with Supplementary Financial Proposals, if any, of Bidders with Techno-commercially Acceptable Bids shall be considered for final evaluation.

- 23.03 The Purchaser's evaluation of a Bid will take into account, in addition to the Bid price, the following factors, in the manner and to the extent indicated in this Clause:

- (a) Delivery Schedule
- (b) Conformance to Qualifying Criteria
- (c) Deviations from Bidding Documents

Bidders shall base their Bid price on the terms and conditions specified in the Bidding Documents.

The cost of all quantifiable deviations and omissions from the specification, terms and conditions specified in Bidding Documents shall be evaluated. **The Purchaser will make its own assessment of the cost of any deviation for the purpose of ensuring fair comparison of Bids.**

- 23.04 Any adjustments in price, which result from the above procedures, shall be added for the purposes of comparative evaluation only to arrive at an "Evaluated Bid Price". Bid Prices quoted by Bidders shall remain unaltered.

F. AWARD OF CONTRACT

24.0 CONTACTING THE PURCHASER

- 24.01 If any Bidder wishes to contact the Purchaser on any matter related to the Bid, from the time of Bid opening to the time of contract award, the same shall be done in writing only.
- 24.02 Any effort by a Bidder to influence the Purchaser and/or in the Purchaser's decisions in respect of Bid evaluation, Bid comparison or Contract Award, will result in the rejection of the Bidder's Bid.

25.0 THE PURCHASER'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS

Submission of bids shall not automatically construe qualification for evaluation. The Purchaser reserves the right to accept or reject any Bid and to annul the Bidding process and reject all Bids at anytime prior to award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Purchaser's action.

26.0 AWARD OF CONTRACT

The Purchaser will award the Contract to the successful Bidder whose Bid has been Determined to be the lowest-evaluated responsive Bid, provided further that the Bidder has been determined to be qualified to

satisfactorily perform the Contract. Purchaser reserves the right to award order to other bidders in the tender, provided it is required for timely execution of project & provided he agrees to come to the lowest rate. Purchaser reserves the right to distribute the entire tender quantity at its own discretion without citing any reasons thereof.

27.0 THE PURCHASER'S RIGHT TO VARY QUANTITIES

The Purchaser reserves the right to vary the quantity i.e. increase or decrease the numbers/quantities without any change in terms and conditions during the execution of the Order.

28.0 LETTER OF INTENT/ NOTIFICATION OF AWARD

The letter of intent/ Notification of Award shall be issued to the successful Bidder whose bids have been considered responsive, techno-commercially acceptable and evaluated to be the lowest (L1). The successful Bidder shall be required to furnish a letter of acceptance within 7 days of issue of the letter of intent /Notification of Award by Purchaser.

29.0 PERFORMANCE BANK GUARANTEE

Within 15 days of the receipt of Notification of Award/ Letter of Intent from the Purchaser, the successful Bidder shall furnish the Performance Bank Guarantee for an amount of 10% (Ten percent) of the Contract Price. The Performance Bond shall be valid for a period of 24 months from the date of Commissioning or 30 months from the date of last dispatch whichever is earlier plus 3 months claim period. Upon submission of the performance security, the EMD shall be released.

30.0 CORRUPT OR FRAUDULENT PRACTICES

30.01 The Purchaser requires that the Bidders observe the highest standard of ethics during the procurement and execution of the Project. In pursuance of this policy, the Purchaser:

(a) Defines, for the purposes of this provision, the terms set forth below as follows:

(i) "Corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them, or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving, or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and

(ii) "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Purchaser, and includes collusive practice among Bidders (prior to or after Bid submission) designed to establish Bid prices at artificial non-competitive levels and to deprive the Purchaser of the benefits of free and open competition.

(c) Will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question ;

(d) Will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a contract.

30.02 Furthermore, Bidders shall be aware of the provision stated in the Terms and Conditions of Contract.

SECTION – III: TERMS AND CONDITIONS

1.0 General Instructions

- 1.01** All the Bids shall be prepared and submitted in accordance with these instructions.
- 1.02** Bidder shall bear all costs associated with the preparation and delivery of its Bid, and the Purchaser will in no case shall be responsible or liable for these costs.
- 1.03** The Bid should be submitted by the Bidder in whose name the bid document has been issued and under no circumstances it shall be transferred/sold to the other party.
- 1.04** The Purchaser reserves the right to request for any additional information and also reserves the right to reject the proposal of any Bidder, if in the opinion of the Purchaser, the data in support of RFQ requirement is incomplete.
- 1.05** The Bidder is expected to examine all instructions, forms, terms & conditions and specifications in the Bid Documents. Failure to furnish all information required in the Bid Documents or submission of a Bid not substantially responsive to the Bid Documents in every respect may result in rejection of the Bid. However, the Purchaser's decision in regard to the responsiveness and rejection of bids shall be final and binding without any obligation, financial or otherwise, on the Purchaser.

2.0 Definition of Terms

- 2.01** "Purchaser" shall mean BSES Yamuna Power Limited, on whose behalf this bid enquiry is issued by its authorized representative / officers.
- 2.02** "Bidder" shall mean the firm who quotes against this bid enquiry issued by the Purchaser. "Supplier" or "Supplier" shall mean the successful Bidder and/or Bidders whose bid has been accepted by the Purchaser and on whom the "Letter of Acceptance" is placed by the Purchaser and shall include his heirs, legal representatives, successors and permitted assigns wherever the context so admits.
- 2.03** "Supply" shall mean the Scope of Contract as described.
- 2.04** "Specification" shall mean collectively all the terms and stipulations contained in those portions of this bid document known as RFQ, Commercial Terms & Condition, Instructions to Bidders, Technical Specifications and the Amendments, Revisions, Deletions or Additions, as may be made by the Purchaser from time to time.
- 2.05** "Letter of Acceptance" shall mean the official notice issued by the Purchaser notifying the Supplier that his proposal has been accepted and it shall include amendments thereto, if any, issued by the Purchaser. The "Letter of Acceptance" issued by the Purchaser shall be binding on the "Supplier" The date of Letter of Acceptance shall be taken as the effective date of the commencement of contract.
- 2.06** "Month" shall mean the calendar month and "Day" shall mean the calendar day.
- 2.07** "Codes and Standards" shall mean all the applicable codes and standards as indicated in the Specification.
- 2.08** "Offer Sheet" shall mean Bidder's firm offer submitted to BYPL in accordance with the specification.
- 2.09** "Contract" shall mean the "Letter of Acceptance/Purchase Order" issued by the Purchaser.

- 2.10** "Contract Price" shall mean the price referred to in the "Letter of Acceptance/Purchase Order".
- 2.11** "Contract Period" shall mean the period during which the "Contract" shall be executed as agreed between the Supplier and the Purchaser in the Contract inclusive of extended contract period for reason beyond the control of the Supplier and/or Purchaser due to force majeure.
- 2.12** "Acceptance" shall mean and deemed to include one or more of the following as will be stipulated in the specification:
- a) The written acceptance of material by the inspector at suppliers works to ship the materials.
 - b) Acceptance of material at Purchaser site stores after its receipt and due inspection/ testing and release of material acceptance voucher.
 - c) Where the scope of the contract includes supply, acceptance shall mean issue of necessary equipment / material takeover receipt after installation & commissioning and final acceptance.
- 3.0 Contract Documents & Priority**
- 3.01** Contract Documents: The terms and conditions of the contract shall consist solely of these RFQ conditions and the offer sheet.
- 4.0 Scope of Supply -General**
- 4.01** The "Scope of Supply" shall be on the basis of Bidder's responsibility, completely covering the obligations, responsibility and supplies provided in this Bid enquiry whether implicit or explicit.
- 4.02** Bidder shall have to quote for the Bill of quantities as listed in Section – IV of this RFQ.
- 4.03** Quantity variation and additional requirement if any shall be communicated to successful bidder during project execution.
- 4.04** All relevant drawings, data and instruction manuals.
- 5.0 Quality Assurance and Inspection**
- 5.01** Immediately on award of contract, the bidder shall prepare detailed quality assurance plan / test procedure identifying the various stages of manufacture, quality checks performed at each stage, raw material inspection and the Customer hold points. The document shall also furnish details of method of checking, inspection and acceptance standards / values and get the approval of Purchaser before proceeding with manufacturing. However, Purchaser shall have right to review the inspection reports, quality checks and results of suppliers in house inspection department which are not Customer hold points and the supplier shall comply with the remarks made by purchaser or his representative on such reviews with regards to further testing, rectification or rejection, etc.
- 5.02** Witness and Hold points are critical steps in manufacturing, inspection and testing where the supplier is obliged to notify the Purchaser in advance so that it may be witnessed by the Purchaser. Final inspection is a mandatory hold point. The supplier to proceed with the work past a hold point only after clearance by purchaser or a witness waiver letter from BYPL.
- 5.03** The performance of waiver of QA activity by Purchaser at any stage of manufacturing does not relieve the supplier of any obligation to perform in accordance with and meet all the requirements of the procurement documents and also all the codes & reference documents mentioned in the procurement document nor shall it preclude subsequent rejection by the purchaser.
- 5.04** On completion of manufacturing the items can only be dispatched after receipt of dispatch instructions

issued by the Purchaser.

5.05 All in-house testing and inspection shall be done with out any extra cost. The in-house inspection shall be carried out in presence of BSES/BSES authorized third party inspection agency. Cost of Futile/abortive visit(s) shall be debited from the invoices.

5.06 Purchaser reserves the right to send any material being supplied to any recognized laboratory for testing, wherever necessary and the cost of testing shall be borne by the Bidder. In case the material is found not in order with the technical requirement / specification, the charges along with any other penalty which may be levied is to be borne by the bidder. To avoid any complaint the supplier is advised to send his representative to the stores to see that the material sent for testing is being sealed in the presence of bidder's representative.

6.0 INSPECTION & TEST CHARGES:

6.01 GOODS shall be inspected by BUYER and/or third party inspection agency nominated by BUYER. Inspection shall carry out stage wise/final inspection as per agreed QA /QC procedure. In addition, inspection of GOODS shall be carried out at our Site/stores. SELLER shall, however, repair/replace the damaged/rejected GOODS to the satisfaction of BUYER at no extra cost.

6.02 Inspection charges are included in total order value, however BUYER will bear third party inspection charges. In case of futile/abortive visit of BUYER's inspector at SELLER'S works, the cost towards the same shall be debited from the SELLER's invoices.

6.03 GOODS covered by this PURCHASE ORDER shall not be dispatched in whole or in part until SELLER has received a written Release for Shipment Notice from BUYER or their designated representative.

6.04 Inspection call shall be raised minimum 15(fifteen) days in advance from delivery schedule mentioned in PO and duly filled Format issued by BYPL

7.0 HANDLING AND STORAGE:

7.01 Material Safety Data Sheet (MSDS), detail handling & storage instruction sheet/manual, wherever applicable, to be furnished before commencement of supply and one copy is to be submitted in store/site with First Lot.

8.0 Packing, Packing List & Marking

8.01 **Packing:** Supplier shall pack or shall cause to be packed all Commodities in crates/boxes/drums/containers/cartons and otherwise in such a manner as shall be reasonably suitable for shipment by road or rail to BYPL, Delhi/New Delhi stores/site without undue risk of damage in transit.

8.02 **Packing List:** The contents of each package shall be itemized on a detailed list showing the exact weight, extreme outside dimensions (length, width & weight) of each container/box/drum/carton, Item SAP Code, PO No & date. One copy of the packing list shall be enclosed in each package delivered.

9.0 Prices/Rates/Taxes

9.01 Price basis for supply of materials

a) Bidder to quote their prices on Landed Cost Basis and separate price for each item for supply to BYPL Delhi/New Delhi stores inclusive of packing, forwarding, loading at manufacturer's premises, payment of GST, Freight, any other local charges. **Octroi is presently not applicable in Delhi and however if applicable shall be reimbursed at actuals.**

b) The above supply prices shall also include unloading at BYPL Delhi/New Delhi stores/site.

c) Transit insurance will be arranged by Purchaser; however bidder to furnish required details in advance for arranging the same by Purchaser

10.0 TAXES & DUTIES:

- 10.01 Prices for Goods are on Ex- Works basis. For the Goods covered under the GST laws, all taxes that are applicable under CGST, SGST, UGST, IGST and GST Compensation Cess shall be payable extra.
- 10.02 For the Goods not covered in the GST laws, the applicable ED, VAT / CST shall be payable extra at applicable rates.
- 10.03 GSTIN of BSES YAMUNA POWER LTD - 07AABCC8569N1Z0
CST No of BSES YAMUNA POWER LTD -07740254593
TIN NO of BSES YAMUNA POWER LTD - 07740254593
PAN NO of BSES YAMUNA POWER LTD - AABCC8569N
- 10.04 At the end of each month, the SELLER must submit their detail of invoices and amount thereof to the concerned officer in charge, within 07 days after the close of the respective month of which supply relates. Non submission of the said request would be treated as good as that the SELLER has no requirement of reconciliation.

11.0 INVOICING INSTRUCTIONS:

- 11.01 Invoices in triplicate [1) Original for recipient, 2) Duplicate for Transporter, 3) Triplicate for supplier] shall be made out and delivered to the following address: BSES YAMUNA POWER LIMITED, SHAKTI KIRAN BUILDING, KARKARDOOMA, DELHI-110032.
MDCC will be released separately for Capex & Opex. Invoice will be submitted by supplier as per the MDCC.
- 11.02 Vendor shall obtain GST registration in the State from where the supply will be carried out. Vendors supplying Goods to the Purchaser shall have a valid GST registration number and shall submit GST Tax Invoice and other documents as per SGST Act, CGST Act, IGST Act, UTGST Act, GST Compensation Cess Act and Rules made there under. Failure to submit GST Tax Invoice shall be liable for withholding SGST, CGST, IGST, UTGST, GST Compensation Cess amount charged by the vendor while releasing the payment.
- 11.03 Invoice in the name of BSES YAMUNA Power Limited & address of the store/site mentioned in the MDCC. Invoice should contain all information as required under GST Invoice, Debit Note and Credit Rules. The government has notified rules of invoicing under GST along with a template of invoice(GST INV-01) covering the elements such as supplier's details, GSTIN No, HSN Codes, item details, GST tax rates, etc that need to be presented by the supplier.
- 11.04 Vendor to carefully examine and charge relevant CGST / SGST, UGST, IGST and GST compensation cess as applicable to the transactions.
- 11.05 Timely provision of invoices / Debit Notes / Credit Notes:
- 11.05.1 Vendor to timely provide invoice / Debit note / Credit note to enable Purchaser to claim tax benefit on or before stipulated time period. All necessary adjustment entries (Credit Note, Purchase Returns, Debit Notes) shall be made within the time lines prescribed under the GST Laws.
- 11.05.2 In case of receipt of advance, the Vendor undertakes to raise the tax invoice. Purchaser, upon payment of advance, shall issue payment voucher as per applicable GST laws and rules. Four copies of the invoices

need to be provided by suppliers and wherever the law requires, an Electronic Reference Number for each invoice.

Documents and devices to be carried by a person-in-charge of a conveyance under.

12.0 Terms of payment and billing

12.01 For Supply of Equipments:

100% payment shall be made within 45 days from the date of receipt & acceptance of material at store/site on against submission of following documents against dispatch of each consignment at our Vendor Support Cell (VSC):

- a) Signed copy of accepted Purchase Order (for first payment)
- b) LR / RR / BL as applicable
- c) Challan as applicable
- d) Two (02) copies of Supplier's detailed Recipient Invoice showing Commodity description, quantity, unit price, total price and basis of delivery, and being 100% of the value of the consignment claimed.
- e) Two (02) copies of Supplier's transporter invoice duly receipted by BYPL Stores & Original certificate issued by BYPL confirming receipt of the subject material at Stores/Site and acceptance of the same as per the provisions of the contract.
- f) Two (02) copies Packing List / Detailed Packing List
- g) Approved Test certificates / Quality certificates, if applicable
- h) Certificate of Origin, if applicable
- i) Material Dispatch Clearance Certificate (MDCC)
- j) Insurance Policy / Certificate, if applicable
- k) Warranty / Guarantee Certificate, if applicable
- l) Check list for bill submission.

12.02 Purchaser has the right to recover tax loss, interest and penalty suffered due to any non-compliance of tax laws by the Vendor. In the event, Purchaser is not able to avail any tax credit due to any short coming on the part of the Vendor (which otherwise should have been available to Purchaser in the normal course), then the Vendor at his own cost and effort will get the short coming rectified. If for any reason the same is not possible, then the Vendor will make 'good' the loss suffered by Purchaser due to the tax credit it lost . In such event, any amount paid to the Vendors shall be first attributable to the tax (GST) charged in the invoice and the balance shall be considered towards the 'value' of supply of goods/ services.

12.03 Purchaser shall deduct "Tax Deducted at Source" wherever applicable and at the rate prescribed under the GST Laws or any other Indian law and remit the same to the Government. Necessary TDS certificates as per law shall be issued by the purchase to the vendor.

12.04 Any liability arising out of dispute on the tax rate, classification under HSN, calculation and payment of tax to the Government will be to the Vendor's account.

12.05 Where the supply of Goods are liable to GST under reverse charge mechanism, then the supplier should clearly mention the category under which it has been registered and also that "the liability of payment of GST is on the Recipient of Supply".

13.0 TAX INDEMNITY CLAUSE:

13.01 Vendor (along with its affiliates in India or overseas including any agent/ third party contractor or any other person appointed by such affiliates for the purpose of this agreement) agrees that it will be solely responsible for performing all compliances and making payments of all taxes (direct tax or indirect tax including but not limited to income-tax, transfer pricing, value added tax, SGST, CGST, IGST, UTGST, GST Compensation Cess custom duty, excise duty, Research and Development Cess, etc.), cesses,

interest, penalties or any other tax/ duty/ amount/ charge/ liability arising either out of laws/ regulations applicable in India and overseas or because of a demand/ recovery initiated by any revenue authority under laws/ regulations applicable in India or overseas.

- 13.02 In case any tax liability (including but not limited to income-tax, transfer pricing, value added tax, SGST, CGST, IGST, UTGST, GST Compensation Cess custom duty, excise duty, Research and Development Cess, etc.), cesses, interest, penalties or any other tax/ duty/ amount/ charge/ liability becomes payable by Purchaser due to failure of the Vendor, or any of its affiliates in India or overseas including any agent/ third party contractor or any other person appointed by such affiliates for the purpose of this agreement, to comply with the relevant laws/ regulations applicable in India or overseas, Vendor undertakes to indemnify Purchaser for an amount equal to amount payable by Purchaser.
- 13.03 Further, Vendor undertakes to keep Purchaser indemnified at all times against and from all other actions, proceedings, claims, loss, damage, costs and expenses which may be brought against Purchaser or suffered or incurred by Purchaser and which shall have arisen either directly or indirectly out of or in connection with failure of The Vendor, or any of its affiliates in India or overseas including any agent/ third party contractor or any other person appointed by such affiliates for the purpose of this agreement, to comply with relevant obligations/ compliance under any law/ regulations applicable in India and overseas.
- 13.04 The parties agree to follow the following process in case any communication of demand, arising out non-compliance by Vendor (along with its affiliates in India or overseas including any agent/ third party contractor or any other person appointed by such affiliates for the purpose of this agreement), is received by Purchaser :
- 13.04.1 On Purchaser receiving any communication from a competent authority demanding tax liability (including but not limited to income-tax, transfer pricing, value added tax, SGST, CGST, IGST, UTGST, GST Compensation Cess custom duty, excise duty, Research and Development Cess, etc.), cesses, interest, penalties or any other tax/ duty/ amount/ charge/ liability, Purchaser shall, within 5 common working days from the date of receipt of such communication (save where the period to respond to the relevant authority is less than five days, in which case, as soon as reasonably possible) inform Vendor in writing of such communication.
- 13.04.2 Pursuant to receiving communication from Purchaser, Vendor shall suggest to accept the communication and pay the demand amount to the competent authority. In such an event, Vendor shall reimburse such amount paid to Purchaser within 5 working days from the date of payment by Purchaser to the competent authority.
- 13.04.3 If Vendor advises in writing and Purchaser agrees to dispute the demand, then Purchaser shall dispute the matter with competent authority as per due process prescribed under the regulations and Purchaser shall not pay the Tax Demand. In such scenario, cost of litigation including but not limited to Counsel cost, filing fees, other related charges, should be reimbursed by Vendor to Purchaser. Additionally, If any coercive steps of recovery are initiated by the department, then Purchaser would pay such amount (including by way of adjustment of refunds due to it) and the same would be reimbursed by Vendor within 5 working days from date of such recovery from Purchaser. Purchaser will take all necessary steps to avoid such recovery measures.
- 13.04.4 On determination of the demand through an Order issued by a Tribunal or any other similar Authority, by whatever name called, under any law applicable in India or overseas, if the demand or any part thereof becomes payable and is paid by Purchaser, then Vendor undertakes to reimburse such amount to Purchaser within 10 days from the date of payment. Alternatively, if on determination of the demand through an Order, no amount is payable by Purchaser then any refund arising to Purchaser due to such an Order shall be passed on to Vendor within 10 days from the date of receipt of refund.

14.0 The Micro, Small and Medium Enterprises (MSME):

- 14.01 If the SELLERS establishment is covered under the purview of The Micro, Small and Medium Enterprises Development Act, 2006, he shall declare so within the bid of its status failing which it will be presumed that it is a non-MSME unit. Also submit a copy of Udyog Aadhaar (UA) if available.

15.0 Price Validity

- 15.01 All bids submitted shall remain valid, firm and subject to unconditional acceptance by Delhi for 120 days from the due date of submission. For awarded suppliers, the prices shall remain valid and firm till contract completion.

16.0 Performance Guarantee

- 16.01 To be submitted within fifteen (15) days from the date of issuance of the Letter of Award/PO, supplier shall establish a performance bond in favor of BYPL in an amount not less than ten percent (10%) of the total price of the Contract (the "Performance Bond"). The Performance Bond shall be valid for a period of 24 months from the date of Commissioning or 30 months from the date of last dispatch whichever is earlier plus 3 months claim period.
- 16.02 Bank guarantee shall be drawn in favour of BSES Yamuna Power Ltd as applicable. The performance Bank guarantee shall be in the format as specified by BYPL.

17.0 Forfeiture

- 17.01 Each Performance Bond established under Clause 10.0 shall contain a statement that it shall be automatically and unconditionally forfeited without recourse and payable against the presentation by BYPL of this Performance Bond, to the relevant bank referred to above, together with a simple statement that supplier has failed to comply with any term or condition set forth in the Contract.
- 17.02 Each Performance BG established under will be automatically and unconditionally forfeited without recourse if BYPL in its sole discretion determines that supplier has failed to comply with any term or condition set forth in the contract.

18.0 Release

- 18.01 All Performance Bonds will be released without interest within seven (7) days from the last date up to which the Performance Bond has to be kept valid (as defined in Clause 10.0) except for the case set forth in Clause 21.0.

19.0 Defects Liability Period/Guarantee/Warranty

- 19.01 The bidder to Guarantee the materials / items supplied against any defect of failure, which arise due to faulty materials, workmanship or design for the entire defects liability period. The Defect liability period shall be 60 months from the date of commissioning or 66 months from the date of delivery whichever is earlier.
- 19.02 If during the Defects Liability Period any GOODS are found to be defective, they shall be promptly replaced or rectified by BIDDER at its own cost (including the cost of dismantling and (reinstallation) on the instructions of BUYER and if removed from SITE for such purpose, shall be removed and re-delivered to SITE by BIDDER at its own cost.

20.0 Return, Replacement or Substitution.

- 20.01 BYPL shall give Supplier notice of any defective Commodity promptly after becoming aware thereof. BYPL may in its discretion elect to return defective Commodities to Supplier for replacement, free of charge to BYPL, or may reject such Commodities and purchase the same or similar Commodities from any third party. In the latter case BYPL shall furnish proof to Supplier of the cost of such substitute purchase. In

either case, all costs of any replacement, substitution, shipping, labour and other related expenses incurred in connection with the return and replacement or for the substitute purchase of a Commodity hereunder should be for the account of Supplier. BYPL may set off such costs against any amounts payable by BYPL to Supplier. Supplier shall reimburse BYPL for the amount, if any, by which the price of a substitute Commodity exceeds the price for such Commodity as quoted in the Bid. BUYER at its sole discretion shall have the opinion to dispose the material or GOODS so rejected and not taken back within forty-five days from the date of intimation of rejection.

21.0 Effective Date of Commencement of Contract:

- 21.01 The date of the issuance of the Letter of Acceptance/Purchase Order shall be treated as the effective date of the commencement of Contract.

22.0 Time – The Essence Of Contract

- 22.01 The time and the date of completion of the “Supply” as stipulated in the Letter Of Acceptance / Purchase order issued to the Supplier shall be deemed to be the essence of the “Contract”. The Supply has to be completed not later than the aforesaid Schedule and date of completion of supply.

23.0 The Laws and Jurisdiction of Contract:

- 23.01 The laws applicable to this Contract shall be the Laws in force in India.
- 23.02 All disputes arising in connection with the present Contract shall be settled amicably by mutual consultation failing which shall be finally settled as per the rules of Arbitration and Conciliation Act, 1996 at the discretion of Purchaser. The venue of arbitration shall be at Delhi in India

24.0 Events of Default

- 24.01 Events of Default. Each of the following events or occurrences shall constitute an event of default ("Event of Default") under the Contract:
- (a) Supplier fails or refuses to pay any amounts due under the Contract;
 - (b) Supplier fails or refuses to deliver Commodities conforming to this RFQ/ specifications, or fails to deliver Commodities within the period specified in P.O. or any extension thereof
 - (c) Supplier becomes insolvent or unable to pay its debts when due, or commits any act of bankruptcy, such as filing any petition in any bankruptcy, winding-up or reorganization proceeding, or acknowledges in writing its insolvency or inability to pay its debts; or the Supplier's creditors file any petition relating to bankruptcy of Supplier;
 - (d) Supplier otherwise fails or refuses to perform or observe any term or condition of the Contract and such failure is not remediable or, if remediable, continues for a period of 30 days after receipt by the Supplier of notice of such failure from BYPL.

25.0 Consequences of Default.

- (a) If an Event of Default shall occur and be continuing, BYPL may forthwith terminate the Contract by written notice.

(b) In the event of an Event of Default, BYPL may, without prejudice to any other right granted to it by law, or the Contract, take any or all of the following actions;

(i) present for payment to the relevant bank the Performance Bond;

(ii) purchase the same or similar Commodities from any third party; and/or

(iii) recover any losses and/or additional expenses BYPL may incur as a result of Supplier's default.

26.0 Penalty for Delay

26.01 If supply of items / equipments is delayed beyond the supply schedule as stipulated in purchase order then the Supplier shall be liable to pay to the Purchaser as penalty for delay, a sum of 1% (one percent) of the basic (ex-works) price for every week delay of undelivered units or part thereof for individual mile stone deliveries.

26.02 The total amount of penalty for delay under the contract will be subject to a maximum of ten percent (10%) of the basic (ex-works) price of total undelivered units.

26.03 The Purchaser may, without prejudice to any method of recovery, deduct the amount for such damages from any amount due or which may become due to the Supplier or from the Performance Bond or file a claim against the supplier.

22.4 If Penalty is levied as per the Order terms & conditions; BYPL will raise Invoice of the penalty amount along with applicable GST rates. Accordingly, after set off of the penalty Invoice amount, net payment shall be made.

27.0 VARIATION IN TAXES, DUTIES & LEVIES

27.1 The total order value shall be adjusted on account of any variations in Statutory Levies imposed by Competent Authorities by way of fresh notification(s) within the stipulated delivery period only. In case of reduction in taxes, duties and levies, the benefits of the same shall be passed on to BUYER.

27.2 No other Taxes, Duties & Levies other than those specified above will be payable by BUYER except in case of new Levies, Taxes & Duties imposed by the Competent Authorities by way of fresh notification(s) subsequent to the issue of PURCHASE ORDER but within the stipulated delivery period.

27.3 Notwithstanding what is stated above, changes in Taxes, Duties & Levies shall applied only to that portion of PURCHASE ORDER not executed on the date of notification by Competent Authority. Further, changes in Taxes, Duties & Levies after due date of Delivery shall not affect PURCHASE ORDER Terms and Value.

27.4 PURCHASE ORDER value shall not be subject to any variation on account of variation in Exchange rate(s).

28.0 TAXES & DUTIES ON RAW MATERIALS & BOUGHT OUT COMPONENTS:

28.01 Taxes & Duties on raw materials & bought out components are included in Order Value and are not subject to any escalation or variation for any reason whatsoever.

28.02 Taxes & Duties on raw materials & bought out components procured indigenously are included in Order Value and are not subject to any escalation or variation for any reason whatsoever.

29.0 Force Majeure

29.01 General

An "Event of Force Majeure" shall mean any event or circumstance not within the reasonable control directly or indirectly, of the Party affected, but only if and to the extent that:

- (i) Such event or circumstance materially and adversely affects the ability of the affected Party to perform its obligations under this Contract, and the affected Party has taken all reasonable precautions, due care and reasonable alternative measures in order to prevent or avoid the effect of such event on the affected party's ability to perform its obligations under this Contract and to mitigate the consequences thereof.
- (ii) For the avoidance of doubt, if such event or circumstance would not have materially and adversely affected the performance of the affected party had such affected party followed good industry practice, such event or circumstance shall not constitute force majeure.
- (iii) Such event is not the direct or indirect result of the failure of such Party to perform any of its obligations under this Contract.
- (iv) Such Party has given the other Party prompt notice describing such events, the effect thereof and the actions being taken in order to comply with above clause.

29.02 Specific Events of Force Majeure subject to the provisions of above clause, Events of Force Majeure shall include only the following to the extent that they or their consequences satisfy the above requirements :

- (i) The following events and circumstances :
 - a) Effect of any natural element or other acts of God, including but not limited to storm, flood, earthquake, lightning, cyclone, landslides or other natural disasters.
 - b) Explosions or fires
- (ii) War declared by the Government of India, provided that the ports at Mumbai are declared as a war zone.
- (iii) Dangers of navigation, perils of the sea.

29.03 Notice of Events of Force Majeure If a force majeure event prevents a party from performing any obligations under the Contract in part or in full, that party shall:

- i) Immediately notify the other party in writing of the force majeure events within 7(seven) working days of the occurrence of the force majeure event
- ii) Be entitled to suspend performance of the obligation under the Contract which is affected by force majeure event for the duration of the force majeure event.
- iii) Use all reasonable efforts to resume full performance of the obligation as soon as practicable
- iv) Keep the other party informed of all such efforts to resume full performance of the obligation on a regular basis.
- v) Provide prompt notice of the resumption of full performance or obligation to the other party.

29.04 Mitigation of Events of Force Majeure Each Party shall:

- (i) Make all reasonable efforts to prevent and reduce to a minimum and mitigate the effect of any delay occasioned by an Event of Force Majeure including recourse to alternate methods of satisfying its obligations under the Contract;
- (ii) Use its best efforts to ensure resumption of normal performance after the termination of any Event of Force Majeure and shall perform its obligations to the maximum extent practicable as agreed between the Parties; and
- (iii) Keep the other Party informed at regular intervals of the circumstances concerning the event of Force Majeure, with best estimates as to its likely continuation and what measures or contingency planning it is taking to mitigate and or terminate the Event of Force Majeure.

- 29.05 Burden of Proof In the event that the Parties are unable in good faith to agree that a Force Majeure event has occurred to an affected party, the parties shall resolve their dispute in accordance with the provisions of this Agreement. The burden of proof as to whether or not a force majeure event has occurred shall be upon the party claiming that the force majeure event has occurred and that it is the affected party.
- 29.06 Termination for Certain Events of Force Majeure. If any obligation of any Party under the Contract is or is reasonably expected to be delayed or prevented by a Force Majeure event for a continuous period of more than 3 months, the Parties shall promptly discuss in good faith how to proceed with a view to reaching a solution on mutually agreed basis. If a solution on mutually agreed basis cannot be arrived at within a period of 30 days after the expiry of the period of three months, the Contract shall be terminated after the said period of 30 days and neither Party shall be liable to the other for any consequences arising on account of such termination.
- 29.07 Limitation of Force Majeure event. The Supplier shall not be relieved of any obligation under the Contract solely because cost of performance is increased, whether as a consequence of adverse economic consequences or otherwise.
- 29.08 Extension of Contract Period due to Force Majeure event The Contract period may be extended by mutual agreement of Parties by way of an adjustment on account of any period during which an obligation of either Party is suspended due to a Force Majeure event.
- 29.09 Effect of Events of Force Majeure. Except as otherwise provided herein or may further be agreed between the Parties, either Party shall be excused from performance and neither Party shall be construed to be in default in respect of any obligations hereunder, for so long as failure to perform such obligations shall be due to and event of Force Majeure."

30.0 Transfer And Sub-Letting

- 30.01 The Supplier shall not sublet, transfer, assign or otherwise part with the Contract or any part thereof, either directly or indirectly, without prior written permission of the Purchaser.

31.0 Recoveries

- 31.01 When ever under this contract any money is recoverable from and payable by the bidder, the purchaser shall be entitled to recover such sum by appropriating in part or in whole by deducting any sum due to which any time thereafter may become due from the supplier in this or any other contract. Should the sum be not sufficient to cover the full amount recoverable the bidder shall pay to the purchaser on demand the remaining balance.

32.0 Waiver

- 32.01 Failure to enforce any condition herein contained shall not operate as a waiver of the condition itself or any subsequent breach thereof.

33.0 Indemnification

- 33.01 Notwithstanding contrary to anything contained in this RFQ, Supplier shall at his costs and risks make good any loss or damage to the property of the Purchaser and/or the other Supplier engaged by the Purchaser and/or the employees of the Purchaser and/or employees of the other Supplier engaged by the Purchaser whatsoever arising out of the negligence of the Supplier while performing the obligations under this contract.

34.0 Acceptance:

- 34.01 Vendor confirms to have gone through the Policy of BYPL on legal and ethical code required to be followed by vendors encapsulated in the "Vendor Code of Conduct" displayed on the official website of BYPL (www.bsesdelhi.com) also, which shall be treated as a part of the contract/PO/WO.
Vendor undertakes that he shall adhere to the Vendor code of Conduct and also agrees that any violation of the Vendor Code of Conduct shall be treated as breach of the contract/PO/WO.
In event of any such breach, irrespective of whether it causes any loss/damage, Purchaser (BYPL) shall have the right to recover loss/damage from Vendor.
The Contractor/Vendor hereby indemnifies and agrees to keep indemnified the Purchaser (BYPL) against any claim/litigation arising out of any violation of Vendor Code of Conduct by the Contractor/Vendor or its officers, agents & representatives etc.
- 34.02 Acceptance of the CONTRACT implies and includes acceptance of all terms and conditions enumerated in the CONTRACT in the technical specification and drawings made available to Contractor consisting of general conditions, detailed scope of work, detailed technical specification, detailed equipment drawing and complete scope of work.
- 34.03 Contractor and Company contractual obligation are strictly limited to the terms set out in the CONTRACT. No amendments to the concluded CONTRACT shall be binding unless agreed to in writing for such amendment by both the parties

SECTION – IV: QUANTITY AND DELIVERY REQUIREMENT

Sl. No.	Item Description	Technical Specification	Tentative Qty. (KM)	Tentative Schedule Per Month (KM)	Delivery at
1	CABLE NARM XLPE 1.1KV 1C 630MM2 AL	SP-LTPC-63-R0	35,000	Delivery shall be completed within 06 Weeks from the LOI/PO date or completion as per the schedule.	BYPL Stores/ Site, New Delhi
2	CABLE NARM XLPE 1.1KV 1C 300MM2 AL		15,000		
3	CABLE NARM XLPE 1.1KV 1C 95MM2 AL		10,000		
4	CABLE NARM XLPE 1.1KV 1C 25MM2 AL	SP-EWLP-02-R0	5,000		
5	CABLE NARM PVC 1.1KV 1C 10MM2 AL		18,000		
6	CABLE NARM PVC 1.1KV 1C 4MM2 AL		5,000		
7	CABLE NARM PVC 1.1KV 1C 2.5MM2 AL		10,000		
8	CBL,PWR,10MM2;2C;1.1KV;AL; UNARMD	SP-ULTC2C10-75-R0	82,000		

The delivery schedule shown above is tentative. PO(s) will be released as per the actual requirement. However, supplier has to deliver the material within the delivery schedule provided. Schemes may be executed in the phased manner.

SECTION – V: PRICE FORMAT

DESCRIPTION OF GOODS	HSN CODE (8 Digit Mandatory)	QTY	U o M	UNIT BASIC PRICE (₹)	UNIT FREI GHT (₹)	TOTAL TAXABL E UNIT BASIC PRICE (₹)	UNIT GST & CESS AS APPLICABLE		UNIT LANDED COST (₹)	TOTAL LANDED COST (₹)
							CGST & SGST/ IGST/ CESS/ etc			
							%	AMT		
CABLE NARM XLPE 1.1KV 1C 630MM2 AL		35,000	M							
CABLE NARM XLPE 1.1KV 1C 300MM2 AL		15,000	M							
CABLE NARM XLPE 1.1KV 1C 95MM2 AL		10,000	M							
CABLE NARM XLPE 1.1KV 1C 25MM2 AL		5,000	M							
CABLE NARM PVC 1.1KV 1C 10MM2 AL		18,000	M							
CABLE NARM PVC 1.1KV 1C 4MM2 AL		5,000	M							
CABLE NARM PVC 1.1KV 1C 2.5MM2 AL		10,000	M							
CBL,PWR,10MM2; 2C;1.1KV;AL;UNA RMD		82,000	M							

NOTE: Cost of all third party type/special tests as per technical specification is to be quoted separately.

The Un-priced bid should be marked as **“Quoted”** and to be submitted with Part – A

PRINCIPLE ADDRESS OF BUSSINESS FROM WHERE THE SUPPLY WILL BE CARRIED OUT:
GSTIN:

SUMMARY COMMERCIAL TERMS AND CONDITIONS

SI No	Item Description	AS PER BYPL	BIDDER'S CONFIRMATION
1	Validity	120 days from the date of submission of bid	
2	Price basis	a) "Firm" , FOR Delhi store basis. Prices shall be inclusive of all taxes & duties, freight upto Delhi stores. b) Unloading at stores shall be in vendor's scope c) Transit insurance in BYPL scope	
3	Payment terms	100% payment within 45 days after receipt & acceptance of material at stores	
4	Delivery schedule	GTP/Drawings/QAP/etc to be submitted within 07 days to the concern official in BYPL for Transmittal approval. BYPL shall approve/ provide comments on the submitted drawings within 7 days of first submission. Delivery shall be completed within 06 Weeks from the LOI/PO date or completion as per the schedule.	
5	Defect Liability period	60 months after commissioning or 66 months from the last date of despatch, whichever is earlier	
6	Penalty for delay	1% per week of delay of the basic (ex-works) price of undelivered units or part thereof subject to maximum of 10% of total basic (ex-works) price of undelivered units	
7	Performance Bank Guarantee	10% of total PO value valid for 24 months after commissioning or 30 months from the last date of despatch, whichever is earlier plus 3 months towards claim period	

Bidder should furnish the below details for future communication:-

General Information

Full Name of the Company:

Postal Address:

For Technical Clarification(s)

Name:

Designation:

E-Mail:

Mobile No.:

Telephone No.:

For Commercial Clarification(s)/ Reverse Auction

Name:

Designation:

E-Mail:

Mobile No.:

Telephone No.:

SECTION VI

BID FORM

To

Head of Department
Contracts & Material Deptt.
BSES Yamuna Power Ltd
Shaktikiran Building, Karkardooma,
Delhi 110032

Sir,

1 We understand that BYPL is desirous of procuring..... for its licensed distribution network area in Delhi

2 Having examined the Bidding Documents for the above named works, we the undersigned, offer to deliver the goods in full conformity with the Terms and Conditions and technical specifications for the sum of..... (figures.....) or such other sums as may be determined in accordance with the terms and conditions of the contract .The above Amounts are in accordance with the Price Schedules attached herewith and are made part of this bid.

3 If our Bid is accepted, we under take to deliver the entire goods as) as per delivery schedule mentioned in Section IV from the date of award of purchase order/letter of intent.

4 If our Bid is accepted, we will furnish a performance bank guarantee for an amount of 10% (Ten)percent of the total contract value for due performance of the Contract in accordance with the Terms and Conditions.

5 We agree to abide by this Bid for a period of 120 days from the due date of bid submission and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

6 We declare that we have studied the provision of Indian Laws for supply of equipments/materials and the prices have been quoted accordingly.

7 Unless and until Letter of Intent is issued, this Bid, together with your written acceptance there of, shall constitute a binding contract between us.

8 We understand that you are not bound to accept the lowest, or any bid you may receive.

9 There is provision for Resolution of Disputes under this Contract, in accordance with the Laws and Jurisdiction of Contract.

Dated this..... day of..... 20XX

Signature..... In the capacity of

.....duly authorized to sign for and on behalf of

(IN BLOCK CAPITALS)

SECTION VII

ACCEPTANCE FORM FOR PARTICIPATION IN REVERSE AUCTION EVENT

(To be signed and stamped by the bidder)

BSES Yamuna Power Ltd (hereinafter referred to as “BYPL”) intends to use the reverse auction through SAP-SRM tool as an integral part of the entire tendering process. All the bidders who are found as techno commercial qualified based on the tender requirements shall be eligible to participate in the reverse auction event.

The following terms and conditions are deemed as accepted by the bidder on participation in the bid event:

1. BYPL shall provide the user id and password to the authorized representative of the bidder. (Authorization letter in lieu of the same be submitted along with the signed and stamped acceptance form)
2. BYPL will make every effort to make the bid process transparent. However, the award decision by BYPL would be final and binding on the bidder.
3. The bidder agrees to non-disclosure of trade information regarding the purchase, identity of BYPL, bid process, bid technology, bid documentation, bid details, and etc.
4. The bidder is advised to understand the auto bid process to safeguard themselves against any possibility of non-participation in the auction event.
5. In case of bidding through internet medium, bidders are further advised to ensure availability of the entire infrastructure as required at their end to participate in the auction event. Inability to bid due to telephone line glitch, internet response issues, software or hardware hangs; power failure or any other reason shall not be the responsibility of BYPL.
6. In case of intranet medium, BYPL shall provide the infrastructure to bidders, further, BYPL has sole discretion to extend or restart the auction event in case of any glitches in infrastructure observed which has restricted the bidders to submit the bids to ensure fair & transparent competitive bidding. In case of an auction event is restarted, the best bid as already available in the system shall become the start price for the new auction.
7. In case the bidder fails to participate in the auction event due any reason whatsoever, it shall be presumed that the bidder has no further discounts to offer and the initial bid as submitted by the bidder as a part of the tender shall be considered as the bidder's final no regret offer. Any offline price bids received from a bidder in lieu of non-participation in the auction event shall be out rightly rejected by BYPL.
8. The bidder shall be prepared with competitive price quotes on the day of the reverse auction event.
9. The prices as quoted by the bidder during the auction event shall be inclusive of all the applicable taxes, duties and levies and shall be FOR Landed Cost basis at BYPL site.
10. The prices submitted by a bidder during the auction event shall be binding on the bidder.
11. No requests for time extension of the auction event shall be considered by BYPL.
12. The original price bids of the bidders shall be reduced on pro-rata basis against each line item based on the final all inclusive prices offered during conclusion of the auction event for arriving at contract amount.

Signature & seal of the Bidder

SECTION VIII

FORMAT FOR EMD BANK GUARANTEE

(To be issued in a Non Judicial Stamp Paper of Rs.50/-purchased in the name of the bank)

Whereas [*name of the Bidder*] (herein after called the "Bidder") has submitted its bid dated [*date of submission of bid*] for the supply of [*name and/or description of the goods*] (here after called the "Bid").

KNOW ALL PEOPLE by these presents that WE [name of bank] at [*Branch Name and address*], having our registered office at [*address of the registered office of the bank*] (herein after called the "Bank"), are bound unto BSES Yamuna Power Ltd., with it's Corporate Office at Shaktikiran Building, Karkardooma, Delhi -110032, (herein after called —the "Purchaser") in the sum of Rs..... (Rupees..... only) for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents.

Sealed with the Common Seal of the said Bank this _____ day of _____ 20_____.

THE CONDITIONS of this obligation are:

- 1 If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form ;
or
2. If the Bidder, having been notified of the acceptance of its Bid by the Purchaser during the period of bid validity:
 - (a) fails or refuses to execute the Contract Form ,if required; or
 - (b) fails or refuses to furnish the performance security, In accordance with the Instructions to Bidders/ Terms and Conditions;

We undertake to pay to the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that is its demand the purchaser will note that amount claimed by it is due to it, owing to the occurrence of one or both of the two condition(s), specifying the occurred condition or condition(s).

This guarantee will remain in force up to and including One Hundred Twenty (120) days after the due date of submission bid, and any demand in respect thereof should reach the Bank not later than the above date.

(Stamp & signature of the bank)

Signature of the witness

SECTION IX

VENDOR CODE OF CONDUCT

Purchaser is committed to conducting its business in an ethical, legal and socially responsible manner. To encourage compliance with all legal requirements and ethical business practices, Purchaser has established this Vendor Code of Conduct (the "Code") for Purchaser's Vendors. For the purposes of this document, "Vendor" means any company, corporation or other entity that sells, or seeks to sell goods or services, to Purchaser, including the Vendor's employees, agents and other representatives.

Fundamental to adopting the Code is the understanding that a business, in all of its activities, must operate in full compliance with the laws, rules and regulations of the countries in which it operates. This Code encourages Vendors to go beyond legal compliance, drawing upon internationally recognized standards, in order to advance social and environmental responsibility.

I. Labour and Human Rights

Vendors must uphold the human rights of workers, and treat them with dignity and respect as understood by the international community.

- . Fair Treatment - Vendors must be committed to a workplace free of harassment. Vendors shall not threaten workers with or subject them to harsh or inhumane treatment, including sexual harassment, sexual abuse, corporal punishment, mental coercion, physical coercion, verbal abuse or unreasonable restrictions on entering or exiting company provided facilities.

- . Antidiscrimination - Vendors shall not discriminate against any worker based on race, colour, age, gender, sexual orientation, ethnicity, disability, religion, political affiliation, union membership, national origin, or marital status in hiring and employment practices such as applications for employment, promotions, rewards, access to training, job assignments, wages, benefits, discipline, and termination. Vendors shall not require a pregnancy test or discriminate against pregnant workers except where required by applicable laws or regulations or prudent for workplace safety. In addition, Vendors shall not require workers or potential workers to undergo medical tests that could be used in a discriminatory way except where required by applicable law or regulation or prudent for workplace safety.

- . Freely Chosen Employment - Forced, bonded or indentured labour or involuntary prison labour is not to be used. All work will be voluntary, and workers should be free to leave upon reasonable notice. Workers shall not be required to hand over government-issued identification, passports or work permits as a condition of employment.

- . Prevention of Under Age Labor - Child labor is strictly prohibited. Vendors shall not employ children. The minimum age for employment or work shall be 15 years of age, the minimum age for employment in that country, or the age for completing compulsory education in that country, whichever is higher. This Code does not prohibit participation in legitimate workplace apprenticeship programs that are consistent with Article 6 of ILO Minimum Age Convention No. 138 or light work consistent with Article 7 of ILO Minimum Age Convention No. 138.

- . Juvenile Labor - Vendors may employ juveniles who are older than the applicable legal minimum age for employment but are younger than 18 years of age, provided they do not perform work likely to jeopardize their health, safety, or morals, consistent with ILO Minimum Age Convention No. 138.

- . Minimum Wages - Compensation paid to workers shall comply with all applicable wage laws, including those relating to minimum wages, overtime hours and legally mandated benefits. Any Disciplinary wage deductions are to conform to local law. The basis on which workers are being paid is to be clearly conveyed to them in a timely manner.

- . Working Hours - Studies of good manufacturing practices clearly link worker strain to reduced productivity, increased turnover and increased injury and illness. Work weeks are not to exceed maximum set by local law. Further, a work week should not be more than 60 hours per week, including overtime, except in emergency or unusual situations. Workers should be allowed at least one day off per seven-day week.

. Freedom of Association - Open communication and direct engagement between workers and management are the most effective ways to resolve workplace and compensation issues. Vendors are to respect the rights of workers to associate freely and to communicate openly with management regarding working conditions without fear of reprisal, intimidation or harassment. Workers' rights to join labour unions seek representation and or join worker's councils in accordance with local laws should be acknowledged.

II. Health and Safety

Vendors must recognize that in addition to minimizing the incidence of work-related injury and illness, a safe and healthy work environment enhances the quality of products and services, consistency of production and worker retention and morale. Vendors must also recognize that ongoing worker input and education is essential to identifying and solving health and safety issues in the workplace.

The health and safety standards are:

. Occupational Injury and Illness - Procedures and systems are to be in place to prevent, manage, track and report occupational injury and illness, including provisions to: a) encourage worker reporting; b) classify and record injury and illness cases; c) provide necessary medical treatment; d) investigate cases and implement corrective actions to eliminate their causes; and e) facilitate return of workers to work.

. Emergency Preparedness - Emergency situations and events are to be identified and assessed, and their impact minimized by implementing emergency plans and response procedures, including: emergency reporting, employee notification and evacuation procedures, worker training and drills, appropriate fire detection and suppression equipment, adequate exit facilities and recovery plans.

. Occupational Safety - Worker exposure to potential safety hazards (e.g., electrical and other energy sources, fire, vehicles, and fall hazards) are to be controlled through proper design engineering and administrative controls, preventative maintenance and safe work procedures (including lockout/tagout), and ongoing safety training. Where hazards cannot be adequately controlled by these means, workers are to be provided with appropriate, well-maintained, personal protective equipment. Workers shall not be disciplined for raising safety concerns.

. Machine Safeguarding - Production and other machinery is to be evaluated for safety hazards. Physical guards, interlocks and barriers are to be provided and properly maintained where machinery presents an injury hazard to workers.

. Industrial Hygiene - Worker exposure to chemical, biological and physical agents is to be identified, evaluated, and controlled. Engineering or administrative controls must be used to control overexposures. When hazards cannot be adequately controlled by such means, worker health is to be protected by appropriate personal protective equipment programs.

. Sanitation, Food, and Housing - Workers are to be provided with ready access to clean toilet, facilities potable water and sanitary food preparation, storage, and eating facilities. Worker dormitories provided by the Participant or a labour agent are to be maintained clean and safe, and provided by the Participant or a labour agent with hot water for bathing and showering, and adequate heat and ventilation and reasonable personal space along with reasonable entry and exit privileges.

. Physically Demanding Work - Worker exposure to the hazards of physically demanding tasks, including manual material handling and heavy or repetitive lifting, prolonged standing and highly repetitive or forceful assembly tasks is to be identified, evaluated and controlled.

III. Environmental

Vendors should recognize that environmental responsibility is integral to producing world class products. In manufacturing operations, adverse effects on the environment and natural resources are to be minimized while safeguarding the health and safety of the public.

The environmental standards are:

- . Product Content Restrictions - Vendors are to adhere to applicable laws and regulations regarding prohibition or restriction of specific substances including labeling laws and regulations for recycling and disposal. In addition, Vendors are to adhere to all environmental requirements specified by Purchaser.
- . Chemical and Hazardous Materials - Chemical and other materials posing a hazard if released to the environment are to be identified and managed to ensure their safe handling, movement storage, recycling or reuse and disposal.
- . Air Emissions - Air emissions of volatile organic chemicals, aerosols, corrosives, particulates, ozone depleting chemicals and combustion by-products generated from operations are to be characterized, monitored, controlled and treated as required prior to discharge.
- . Pollution Prevention and Resource Reduction - Waste of all types, including water and energy, are to be reduced or eliminated at the source or by practices such as modifying production, maintenance and facility processes, materials substitution, conservation, recycling and re-using materials.
- . Wastewater and Solid Waste - Wastewater and solid waste generated from operations industrial processes and sanitation facilities are to be monitored, controlled and treated as required prior to discharge or disposal.
- . Environmental Permits and Reporting - All required environmental permits (e.g. discharge monitoring) and registrations are to be obtained, maintained and kept current and their operational and reporting requirements are to be followed.

IV. Ethics

Vendors must be committed to the highest standards of ethical conduct when dealing with workers, Vendors, and customers.

- . Corruption, Extortion, or Embezzlement - Corruption, extortion, and embezzlement, in any form, are strictly prohibited. Vendors shall not engage in corruption, extortion or embezzlement in any form and violations of this prohibition may result in immediate termination as an Vendor and in legal action.
- . Disclosure of Information - Vendors must disclose information regarding its business activities, structure financial situation, and performance in accordance with applicable laws and regulations and prevailing industry practices.
- . No Improper Advantage - Vendors shall not offer or accept bribes or other means of obtaining undue or improper advantage.
- . Fair Business, Advertising, and Competition - Vendors must uphold fair business standards in advertising, sales, and competition.
- . Business Integrity - The highest standards of integrity are to be expected in all business interactions. Participants shall prohibit any and all forms of corruption, extortion and embezzlement. Monitoring and enforcement procedures shall be implemented to ensure conformance.
- . Community Engagement - Vendors are encouraged to engage the community to help foster social and economic development and to contribute to the sustainability of the communities in which they operate.
- . Protection of Intellectual Property - Vendors must respect intellectual property rights; safeguard customer information; and transfer of technology and know-how must be done in a manner that protects intellectual property rights.

V. Management System

Vendors shall adopt or establish a management system whose scope is related to the content of this Code. The management system shall be designed to ensure (a) compliance with applicable laws, regulations and customer requirements related to the Vendors' operations and products; (b) conformance with this Code; and (c) identification and mitigation of operational risks related to this Code. It should also facilitate continual improvement.

The management system should contain the following elements:

- . Company Commitment - Corporate social and environmental responsibility statements affirming Vendor's commitment to compliance and continual improvement.

- . Management Accountability and Responsibility - Clearly identified company representative[s] responsible for ensuring implementation and periodic review of the status of the management systems.
- . Legal and Customer Requirements - Identification, monitoring and understanding of applicable laws, regulations and customer requirements.
- . Risk Assessment and Risk Management - Process to identify the environmental, health and safety and labour practice risks associated with Vendor's operations. Determination of the relative significance for each risk and implementation of appropriate procedural and physical controls to ensure regulatory compliance to control the identified risks.
- . Performance Objectives with Implementation Plan and Measures - Areas to be included in a risk assessment for health and safety are warehouse and storage facilities, plant/facilities support equipment, laboratories and test areas, sanitation facilities (bathrooms), kitchen/cafeteria and worker housing /dormitories. Written standards, performance objectives, and targets an implementation plans including a periodic assessment of Vendor's performance against those objectives.
- . Training - Programs for training managers and workers to implement Vendor's policies, procedures and improvement objectives.
- . Communication - Process for communicating clear and accurate information about Vendor's performance, practices and expectations to workers, Vendors and customers.
- . Worker Feedback and Participation - Ongoing processes to assess employees' understanding of and obtain feedback on practices and conditions covered by this Code and to foster continuous improvement.
- . Audits and Assessments - Periodic self-evaluations to ensure conformity to legal and regulatory requirements, the content of the Code and customer contractual requirements related to social and environmental responsibility.
- . Corrective Action Process - Process for timely correction of deficiencies identified by internal or external assessments, inspections, investigations and reviews.
- . Documentation and Records - Creation of documents and records to ensure regulatory compliance and conformity to company requirements along with appropriate confidentiality to protect privacy.

The Code is modeled on and contains language from the Recognized standards such as International Labour Organization Standards (ILO), Universal Declaration of Human Rights (UDHR), United Nations Convention against Corruption, and the Ethical Trading Initiative (ETI) were used as references in preparing this Code and may be useful sources of additional information

CHECK LIST

SI No	Item Description	YES/NO
1	INDEX	YES/NO
2	COVERING LETTER	YES/NO
3	BID FORM (UNPRICED) DULY SIGNED	YES/NO
4	BILL OF MATERIAL (UNPRICED)	YES/NO
5	TECHNICAL BID	YES/NO
6	ACCEPTANCE TO COMMERCIAL TERMS AND CONDITIONS	YES/NO
7	FINANCIAL BID (IN SEALED ENVELOPE)	YES/NO
8	EMD IN PRESCRIBED FORMAT	YES/NO
9	DEMAND DRAFT OF RS 1,180/- DRAWN IN FAVOUR OF	BSES YAMUNA POWER LTD
10	POWER OF ATTORNEY/AUTHORISATION LETTER FOR SIGNING THE BID	YES/NO

APPENDIX

A. FORMAT OF PERFORMANCE BANK GUARANTEE

(To be executed on a Non-Judicial Stamp Paper of appropriate value)

This Guarantee made at _____ this [____] day of [____] 20XX

1. WHEREAS M/s BSES Yamuna Power Limited, a Company incorporated under the provisions of Companies Act, 1956 having its Registered Office at Shaktikiran Building, Karkardooma, Delhi 110032, India hereinafter referred to as the " Owner ", (which expression shall unless repugnant to the context or meaning thereof include its successors, administrators, executors and assigns).
2. AND WHEREAS the Owner has entered into a contract for _____ (Please specify the nature of contract here) vide Contract No. _____ dated _____ (hereinafter referred to as the "Contract") with M/s. _____, (hereinafter referred to as "the Supplier", which expression shall unless repugnant to the context or meaning thereof be deemed to mean and include each of their respective successors and assigns) for providing services on the terms and conditions as more particularly detailed therein.
3. AND WHEREAS as per clause ____ of conditions of Contract, the Suppliers are obliged to provide to the Owners an unconditional bank guarantee for an amount equivalent to ten percent (10%) of the total Contract Value for the timely completion and faithful and successful execution of the Contract from [_____] *pl. specify the name of Bank* having its head/registered office at [_____] through its branch in _____ *(pl. specify the name of Branch through which B.G is issued)* hereinafter referred to as "the Bank", (which expression shall unless it be repugnant to the context or meaning thereof be deemed to include its successors and permitted assigns).
4. NOW THEREFORE, in consideration inter alia of the Owner granting the Suppliers the Contract, the Bank hereby unconditionally and irrevocably guarantees and undertakes, on a written demand, to immediately pay to the Owner any amount so demanded (by way of one or more claims) not exceeding in the aggregate [Rs.]..... *(in words)* without any demur, reservation, contest or protest and/or without reference to the Supplier and without the Owner needing to provide or show to the Bank ,grounds or reasons or give any justification for such demand for the sum/s demanded.
5. The decision of the Owner to invoke this Guarantee and as to whether the Supplier has not performed its obligations under the Contract shall be binding on the Bank. The Bank acknowledges that any such demand by the Owner of the amounts payable by the Bank to the Owner shall be final, binding and conclusive evidence in respect of the amounts payable by the Supplier to the Owner. Any such demand

made by the Owner on the Bank shall be conclusive and binding, notwithstanding any difference between the Owner and the Supplier or any dispute raised, invoked, threatened or pending before any court, tribunal, arbitrator or any other authority.

6. The Bank also agrees that the Owner at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor without proceeding against the Suppliers notwithstanding any other security or other guarantee that the Owner may have in relation to the Supplier's liabilities.
7. The Bank hereby waives the necessity for the Owner first demanding the aforesaid amounts or any part thereof from the Suppliers before making payment to the Owner and further also waives any right the Bank may have of first requiring the Owner to use its legal remedies against the Suppliers, before presenting any written demand to the Bank for payment under this Guarantee.
8. The Bank's obligations under this Guarantee shall not be reduced by reason of any partial performance of the Contract. The Bank's obligations shall not be reduced by any failure by the Owner to timely pay or perform any of its obligations under the Contract.
9. The Bank further unconditionally and unequivocally agrees with the Owner that the Owner shall be at liberty, without the Bank's consent and without affecting in any manner its rights and the Bank's obligation under this Guarantee, from time to time, to:
 - (i) vary and/or modify any of the terms and conditions of the Contract;
 - (ii) Forebear or enforce any of the rights exercisable by the Owner against the Suppliers under the terms and conditions of the Contract; or
 - (iii) Extend and/or postpone the time for performance of the obligations of the Suppliers under the Contract;and the Bank shall not be relieved from its liability by reason of any such act or omission on the part of the Owner or any indulgence shown by the Owner to the Suppliers or any other reason whatsoever which under the law relating to sureties would, but for this provision, have the effect of relieving the Bank of its obligations under this Guarantee.
10. This Guarantee shall be a continuing bank guarantee and shall not be discharged by any change in the constitution or composition of the Suppliers, and this Guarantee shall not be affected or discharged by the liquidation, winding-up, bankruptcy, reorganisation, dissolution or insolvency of the Suppliers or any of them or any other circumstances whatsoever.

11. This Guarantee shall be in addition to and not in substitution or in derogation of any other security held by the Owner to secure the performance of the obligations of the Suppliers under the Contract.
12. NOTWITHSTANDING anything herein above contained, the liability of the BANK under this Guarantee shall be restricted to _____ *(insert an amount equal to ten percent (10%) of the Contract Value)* and this Guarantee shall be valid and enforceable and expire on _____ *(pl. specify date)* or unless a suit or action to enforce a claim under this Guarantee is filed against the Bank on or before the date of expiry.
13. On termination of this Guarantee, all rights under the said Guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities hereunder.
14. The Bank undertakes not to revoke this Guarantee during its validity except with the prior written consent of the Owner and agrees that any change in the constitution of the Bank or the Suppliers shall not discharge our liability hereunder.
15. Owner may assign this Guarantee to any Person or body whether natural, incorporated or otherwise under intimation to the Bank. The Bank shall be discharged of its obligations hereunder by performance in accordance with the terms hereof to such assignee without verifying the validity / legality / enforceability of the assignment.
16. This Guarantee shall be governed by the laws of India. Any suit, action, or other proceeding arising out of, connected with, or related to this Guarantee or the subject matter hereof shall be subject to the exclusive jurisdiction of the courts of **Delhi**, India.

Dated this day of 20XX at

(Signature)

.....

(Name)

.....

(Designation with Bank Stamp)

Attorney as per

Power of Attorney No.....

Date.....

Vendor has to fill this form & submit along with the PERFORMANCE BANK GUARANTEE

1. Bank Email ID----- Bank Phone No-----

2. Where to Dispatched the BG -Local Address of bank -----

3. Where to Dispatch the BG Head Office Address -----

B. BENEFICIARY'S BANK DETAIL WITH IFSC CODE:

- | | |
|--------------------------------|---|
| 1. Name of the Bank: | Axis Bank Limited |
| 2. Branch Name & Full Address: | C-58, Basement & Ground Floor, Preet Vihar, Main Vikas Marg, New Delhi 110092 |
| 3. Branch Code: | 055 |
| 4. Bank Account No: | 911020005246567 |
| 5. IFSC Code: | UTIB0000055 |

C. FORMAT OF WARRANTY/GUARANTEE CERTIFICATE

BSES YAMUNA POWER LIMITED Shaktikiran Building, Karkardooma, Delhi -110032.

Ref. Purchase Order No. :

Dear Sir,

We hereby confirm that the.....dispatched to BSES YAMUNA POWER LTD vide invoice no.....
DT.....is exactly of the same nature and description as per above mentioned Purchase Order.

We further confirm that we will replace/repair our.....free of cost If found any manufacturing defect
during.....months from the date of dispatch of material or.....months from the data of commissioning whichever
is earlier.

Vendors Name & Signature

D. UNDERTAKING GST

The Vendor shall give an undertaking in the following words on each invoice in the absence of which tax payment
as on the Vendor's invoice may be withheld.

"The tax component as mentioned in the invoice shall be deposited with GST Department as per law by way of
actual payment or by way of legal set off as per law. The turnover billed shall be duly declared in my GST
returns a copy of which shall be filed with the Purchaser. Should the input tax credit to the Purchaser be denied
by way of any lapse on the part of the Vendor, the same shall be paid on demand and in any case the Purchaser
is authorized to deduct the tax equivalent amount from the amount payable to the Vendor"

E. SCHEDULE OF DEVIATIONS

Vendor shall refrain from taking any deviations on this TENDER. Still in case of any deviations, all such deviations from this tender shall be set out by the Bidder, Clause by Clause in this schedule and submit the same as a part of the Technical Bid.

Unless **specifically** mentioned in this schedule, the tender shall be deemed to confirm the BYPL's specifications:

SL NO	Clause No.	Details of deviation with justifications

Technical Bid Submission Check List

S. No.	Description	BYPL Requirement	Bidder's Compliance
1	Tender No.	Required	
2	Technical Specification reference number	Required	
3	Communication Details		
3.1	Name of the Bidder	Required	
3.2	Name of Authorized contact person	Required	
3.3	Contact No. of Authorized contact person	Required	
3.4	E-mail id of Authorized contact person	Required	
4	Document Submission Format		
4.1	Documents shall be submitted in Box file/spiral binding. Any other format is not acceptable	Required	
4.2	Index of documents with page numbers for each document	Required	
4.3	Separator with document description shall be provided before each document	Required	
5	Qualifying Requirement Compliance		
5.1	Summary of compliance of qualifying criteria in tabular form along with summary of documentary proof provided	Required	
5.2	Deatiled Documents supporting compliance of qualifying criteria	Required	
6	Drawings/ Documents as per Technical Specification.		
6.1	Signed copy of technical specification	Required	
6.2	Type Test reports of offered model/ type/ rating	Required	
6.3	Guaranteed Technical particulars (GTP)	Required	
6.4	Deviation Sheet	Required	

S. No.	Description	BYPL Requirement	Bidder's Compliance
6.5	Detailed Drawings	Required	
6.6	Manufacturer's quality assurance plan	Required	
6.7	Other drawing/ documents mentioned in technical specification	Required	
7	Soft copy of complete technical bid in pen drive	Required	
8	Samples as per technical specification.	Required	

Note: Submission of Technical bid check list along with all items mentioned in the check list is mandatory. Order of documents shall be strictly as per the technical bid check list. Bids with incomplete/ wrong information are liable for rejection.

**TECHNICAL SPECIFICATION
FOR
LT POWER CABLE
(Single & Multi-Core)**

Specification No. : SP-LTPC-63-R0

PREPARED BY	REVIEWED BY	APPROVED BY	REV	00
Ankita Arora	Gaurav Sharma	Devender Sharma	DATE	August 19, 2015
			PAGE	1 of 35

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TECHNICAL SPECIFICATION FOR LT POWER CABLE**1.0 SCOPE OF SUPPLY**

The specification covers design, manufacture, shop testing, packing and delivery of 1100 Volts grade, Aluminium conductor, and XLPE insulated multi core power cables.

2.0 CODES & STANDARDS

The cables shall be designed, manufactured and tested in Accordance with the following Indian & IEC standards.

2.1	IS- 7098 (Part-1)	Cross linked polyethylene insulated PVC sheathed cables for working voltages upto and including 1100V.
2.2	IS- 6474	Polyethylene insulation & sheath of electric cables.
2.3	IS- 5831	PVC insulation and sheath of electrical cables.
2.4	IS : 10810	Methods of tests for cables.
2.5	IS : 8130	Conductors for insulated electrical cables and flexible cords.
2.6	IS : 3975	Low carbon galvanized steel wires, formed wires and tapes for armouring of cables.
2.7	IS- 4026	Aluminum ingots, billets and wire bars (EC grade)
2.8	IS-5484	EC Grade aluminium rod produced by continuous casting and rolling
2.9	IS : 10418	Specification for drums for electric cables.
2.10	IS : 3961	Recommended current ratings for cables.
2.11	IS:1255	Installation and Maintenance of power cables upto and including 33 kV rating.
2.12	IS:4826	Specification for hot-dipped galvanized coatings on round steel wires
2.13	IS:1717	Metallic Materials – Wire – Simple torsion test
2.14	IEC 60228	Conductors of insulated cables. Guide to the dimensional limits of circular conductors.
2.15	IEC 60331	Fire resisting characteristics of electric cables.
2.16	IEC 60332 - 3	Tests on electric cables under fire conditions. Part 3: Tests on bunched wires or cables.

TECHNICAL SPECIFICATION FOR LT POWER CABLE

2.17	IEC 60502	Extruded solid dielectric insulated power cables for rated voltages from 1kV to 30 kV.
2.18	IEC 60754 - 1	Test on gases evolved during combustion of materials from cables. Part 1: Determination of the amount of halogen acid gas evolved during combustion of polymeric material taken from cables.
2.19	IEC 60811	Common test methods for insulating and sheathing materials of electric cables.
2.20	IEC 60885	Electric test methods for electric cables.
2.21	IEC 60304	Standard colours for insulation for low frequency cables and wires.
2.22	IEC 60227	PVC insulated cables of rated voltages up to and including 450/750 V.
2.23	IEC 1034	Measurement of smoke density of electric cables burning under defined conditions.

3.0 CABLE DESIGN

Description of each item mentioned in the specification (the text, BOQ, GTP or any site specific requirement) shall be followed along with IS:7098 – P1

3.1	Conductor	<ul style="list-style-type: none">a) Electrolytic Grade Stranded Aluminium Conductorb) Grade: H2 as per IS:8130/1984c) Class 2d) Chemical composition as per IS 4026e) Shape :<ul style="list-style-type: none">i) Compacted Circular for sizes up to 16 sqmm and for Single core cables.ii) Sector shaped for sizes above 25Sqmm
3.2	Insulation	Extruded XLPE Insulation as per IS:7098 Part-1
3.3	Core Identification	As per Cl.10 of IS 7098 Part-1

TECHNICAL SPECIFICATION FOR LT POWER CABLE

3.4	Inner Sheath	Extruded Inner Sheath of Black PVC type ST-2 (IS:5831-1984)
3.5	Armour	<ul style="list-style-type: none">a) For 2CX10Sqmm - Galvanized Steel Wireb) For all sizes above 10Sqmm – Galvanized Steel Strip.c) Not applicable for Single core cables of sizes i.e. 500 & 630 sqmmd) Minimum area of coverage of armouring shall be 90%e) The breaking load of armour joint shall not be less than 95% of that of armour wire/strip.f) Zero negative tolerance for thickness of armour strip shall be as per IS:3975.g) Zinc rich paint shall be applied on strip/wire and its joint surface.
3.6	Outer Sheath	<ul style="list-style-type: none">a) Extruded outer sheath of PVC (ST-2) shall be as per IS:5831.b) Colour : Yellow (For Multi core cables) Black (For Single core 500 /630 Sqmm)c) Outer sheath of all the LT cables shall be UV resistant; as these cables are laid in air exposed to sun. Bidder to ensure the same for these requirements supported by required test.d) Shape of the cable over the outer sheath shall be circular, when manufactured /completed. <p>Regular Ovality check shall be carried out at Factory, to detect any abnormality. Manufacturing quality shall be such that cable will retain its circular shape, even after it is laid at site.</p>

TECHNICAL SPECIFICATION FOR LT POWER CABLE

		<p>e) The Outer Sheath shall be embossed with following minimum text:</p> <p>(i) The voltage designation</p> <p>(ii) Type of construction / cable code (for e.g. A2XFY)</p> <p>(iii) Manufacturers Name / Trade mark</p> <p>(iv) Number of Cores and nominal cross sectional area of conductor.</p> <p>(v) Progressive (Sequential) length of cable at every meter, starting from zero for every drum. Colour filled in for the progressive marking, shall be with proper contrast in colouring.</p> <p>(vi) Name of buyer i.e. BYPL (BSES Yamuna Power Limited)</p> <p>(vii) Month & Year of Manufacturing</p> <p>(viii) IS reference, i.e. IS:7098</p> <p>(ix) P.O No. and Date</p> <p>(x) Font size shall be 5/5mm</p> <p>(xi) ISI mark</p> <p>The embossing shall be progressive, automatic, in line and marking shall be legible and indelible.</p>
3.7	Bending Radius	Bending Radius of cable shall comply to IS:1255.
3.8	Sealing of Cable end	Both ends of the cable shall be sealed by means of non-hygroscopic heat shrinkable HDPE caps.

4.0 CABLE DRUM

4.1	Reference Standard	Cable drums shall comply with IS: 10418.
4.2	Type of Drum	Wooden drums with anti termite treatment. (The drums shall be provided with M.S. spindle plate and nut-bolts arrangement as per IS:10418).

TECHNICAL SPECIFICATION FOR LT POWER CABLE

4.3	Drum Length & Tolerance	500 +/- 5% Mtr
4.4	Overall Tolerance	+/-2 % for the total cable length for the entire order.
4.5	Short Length of Cables	<p>a) Minimum acceptable short length shall be 1% of the total ordered quantity and no length shall be less than 250Mtrs. Manufacturer shall be required to take prior approval from Engineering for any short length supply. Short length will be accepted in last lot.</p> <p>b) Manufacturer shall not be allowed to put two cable pieces of different short lengths in same cable drum.</p>
4.6	Preventive Measure for Cable Drum	<p>a) The surface of the drum and the outer most cable layer shall be covered with water proof layer.</p> <p>b) Ferrous part of wooden drum shall be treated with suitable rust preventive paint/coating to minimize rusting during storage.</p>
4.7	Drum Identification Labels	<p>a) Drum identification number</p> <p>b) Cable voltage grade</p> <p>c) Cable code (eg. A2XFY/A2XWY)</p> <p>d) Number of cores and cross sectional area</p> <p>e) Cable quantity i.e. cable length (Meters)</p> <p>f) Purchase order number, date and SAP item code</p> <p>g) Total weight of cable and drum (kg)</p> <p>h) Manufacturer's and Buyer's name</p> <p>i) Month & year of manufacturing</p> <p>j) Direction of rotation of drum; An arrow and suitable accompanying wording shall be marked on one end of the reel indicating the direction in which it should be rolled.</p> <p>k) Cable length final end-markings (i.e. reading at the inner end and reading at the outer end, just before packing shall be marked on the drum).</p>

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5.0 Packing, Shipping, Handling & Storage

5.1	Shipping Information	The seller shall give complete shipping information concerning the weight, size of each package.
5.2	Transit Damage	The seller shall be held responsible for all transit damage due to improper packing.
5.3	Cable Drum Handling	The drums shall be with M.S spindle plate (with nut-bolts) of adequate size to suit the spindle rods, normally required for handling the drums, according to expected weight of the cable drums as per IS:10418

6.0 Quality Assurance, Testing & Inspection

All the tests shall be carried out in accordance with IEC / IS standards.

6.1	Quality Assurance Plan	As per Annexure – E. In event of order Manufacturer has to submit the signed copy of QAP.
6.2	Inspection hold points	AS per QAP
6.3	Routine Test	<ul style="list-style-type: none"> a) Measurement of Electrical Resistance b) HV test with power frequency AC voltage
6.4	Type Test	<ul style="list-style-type: none"> a) Cables must be of type tested quality. Type test reports shall be submitted for the type, size and rating of cable offered along with bid. Type test shall not be more than 5 years old. In event of type test being older than 5 years, bidder has to conduct the same at CPRI/ERDA, NABL approved Lab without commercial implication to BSES. b) Bidder supplying cable to BSES for the first time shall have to conduct type test on sample randomly selected from lot in event of order from CPRI/ERDA. c) UV resistance test to be carried out on one sample from CPRI/ERDA as per ASTM standard (sample shall meet minimum 80% retention after exposure of 21 days as per ASTM standard).

TECHNICAL SPECIFICATION FOR LT POWER CABLE

6.5	Acceptance Test (Shall be conducted as per Cl.15.2 of IS 7098 Part-1 for each lot of cable)	<ul style="list-style-type: none">a) For cable sizes upto 50sqmm – one sample for chemical composition and purity test of aluminium shall be conducted per 100km of ordered quantity and multiple thereof.b) For cable sizes above 50sqmm – one sample for chemical composition and purity test of aluminium shall be conducted per 50km of ordered quantity and multiple thereof.c) Chemical composition and purity test of aluminium shall be conducted from the lot offered to BSES on each size involved in the purchase order. Test shall be carried out at NABL accredited third party laboratory without any price implication to BSES.d) The sample will be selected either during acceptance test or after receipt of cable in BSES stores.
6.6	Inspection	<ul style="list-style-type: none">a) The buyer reserves the right to witness all tests specified on completed cables.b) The buyer reserves the right to inspect cables at the seller's works at any time prior to dispatch either in finished form or during manufacturing, to prove compliance with the specifications.c) In-process and final inspection call intimation shall be given in advance to purchaser/CES.
6.7	Test Certificates	Complete test certificates (routine & acceptance tests) need to be submitted along with the delivery of cables.

7.0 Drawing, Data & Manuals

7.1	To be submitted along with bid	The vendor has to submit: <ul style="list-style-type: none">a) Cross section drawing of cableb) Completely filled GTPc) Type test certificatesd) Complete cable catalogue and manual along with the bide) Copy of BIS licence
7.2	After award of contract	Within 7 days, the seller has to submit four sets of above mentioned drawings for buyer's approval along with the signed copy of QAP (Annexure – E).

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7.3	Final As Built	6 sets hardcopy + One Soft copy of all documents including type test certificates
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8.0 Progress Reporting

8.1	Outline Document	To be submitted for purchaser approval for outline of production-inspection, testing-inspection, packing, dispatch, documentation programme.
8.2	Detailed Progress Report	To be submitted to purchaser once a month containing <ul style="list-style-type: none"> (i) Progress on material procurement (ii) Progress on fabrication (As applicable) (iii) Progress on assembly (As applicable) (iv) Progress on internal stage inspection (v) Reason for any delay in total programme (vi) Details of test failures if any in manufacturing stages (vii) Progress on final box up constraints/forward path

9.0 Deviation

Deviations from this Specification shall be stated in writing with the tender by reference to the Specification clause/GTP/Drawing and a description of the alternative offer. In absence of such a statement, it will be assumed that the bidder complies fully with this specification. No deviation will be acceptable post order.

10.0 Technical Particulars

- a. GTP - As per Annexure-B for Multi-core cables.
- b. GTP - As per Annexure-C for Single-core cables (500sqmm and 630sqmm cables).
- c. Armour Coverage Percentage – As per Annexure-D.
- d. Quality Assurance Plan – As per Annexure-E.
- e. List of sub-vendors for Raw Material – As per Annexure-F.

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Annexure – A

Scope & Project Specific Details

1.0.0 Scope

1.0.0	Scope	Design, manufacture, testing & supply of L.T Power Cables
2.0.0	Delivery Schedule	To be filled up as per purchase requisition.

2.0.0 Document Submission

Submission of drawings, calculations, catalogues, manuals, test reports shall be as follows

	Along with offer	For Approval after award of contract	Final after approval	Remarks
Drawings	2 copies (Typical Drawings)	2 Copies	2 Copies + 1 soft copy in CD	See Clause 7.0 for details of required drawings
Calculations	2 Copies (Typical)	2 Copies		
Catalogues	1 Copy			
Type Test Report	2 Copies			Type test and sample routine test reports

TECHNICAL SPECIFICATION FOR LT POWER CABLE**ANNEXURE – B****GUARANTEED TECHNICAL PARTICULARS (Multi-core)**

(Standard Cable sizes are 2cx10, 2c x25, 4cx25, 4cx95 4c x50, 4c x150, 4c x 300)

For each size /rating separate GTP need to be furnished

S.No.	Description	Buyer's Requirement	Seller's data
	Purchase Req. No.	....
	Guarantee Period: (Min)	60 Months (from date of commissioning) / 66 months (from date of receipt at purchaser's store) whichever is earlier	
	Applicable IS / IEC Standard followed by vendor	IS 7098 Part -1 / IEC 60502	
1	Make	....
2	Type (as required by purchaser)		
A	For 2CX10Sqmm	A2XWY	
B	For Sizes above 10Sqmm	A2XFY	
3	Voltage Grade (kV)	1.1	
4	Maximum Conductor temperature		
A	Continuous	90°C	
B	Short time	250°C	
5	Conductor		
A	Material and Grade	As per Cl.3.1	

TECHNICAL SPECIFICATION FOR LT POWER CABLE

B	Make of Al	Ref Annexure E	
C	Size (mm ²)	..... sq mm	
D	Min no. of wires in each conductor (Nos.)	As per Manufacturer Standard	
E	Min Dia. of wires in each conductor before compaction (mm)	As per Manufacturer Standard	
F	Shape of Conductor	As per Cl.3.1 (e)	
G	Diameter over conductor (mm)	.....
H	Maximum Conductor resistance at 20 ° C (Ohm/Km)	As per Table 2 of IS 8130	
6	Insulation		
A	Insulation Material	As per Cl. 3.2	
B	Nominal thickness (mm)	As per Table 3 of IS 7098 Part-1	
C	Diameter over Insulation (mm) Approx.	.....
D	Make of insulation compound	Ref: Annexure E	
7	Inner Sheath		
A	Material and Type	As per Cl. 3.4	
B	Minimum thickness	As per Table 5 of IS 7098 Part-1	
C	Approx. dia. Over sheath (mm)	.....
8	Galvanized Steel Armour	As per manufacturer's standard and as per purchaser's site - specific condition	
A	Material		
a)	For 2CX10Sqmm	G.I.Wire	
(i)	Wire Dia (mm)	1.4+/-0.040	

TECHNICAL SPECIFICATION FOR LT POWER CABLE

(ii)	No. of wires	As per Manufacturer Standard	
b)	For sizes above 10Sqmm	G.I.Strip	
(i)	Strip size (Width and Thickness)	4x0.8 (Zero negative tolerance for thickness)	
(ii)	No. of Strips	As per Manufacturer Standard	
B	Area covered by Armour	Min 90% and calculations shall be strictly as per Annexure D	
C	Dia. over Armour – Approx.	.....
9	Outer Sheath		
A	Material and Type	As per Cl. 3.6	
B	Minimum Thickness	As per Table 8 of IS 7098 Part-1	
C	Colour	Yellow	
D	Embossing Details	As per Cl.3.6 (f)	
10	Approx. overall dia. (mm)	.....
11	Overall order tolerance	± 2 % for the total cable length for the entire order	
12	Cable Drum		
A	Type of Drum	Wooden	
B	Drum Length & tolerance	As per Spec.Cl. 4.3 & 4.4	
C	Marking on Drum	As per Spec.Cl. 4.7	
D	Drums provide with MS Spindle plate & nut-bolts arrangement (as per IS:10418)	Required	

TECHNICAL SPECIFICATION FOR LT POWER CABLE

13	End Cap	Required	
14	Weights	.....
a)	Net Weight of cable (Kg/Km.) – Approx		
b)	Weight of empty drum	Kg	
c)	Weight of cable with drum	Kg	
15	Continuous current rating for standard I.S condition laid direct		
a)	In ground 30° C	Amps	
b)	In duct 30° C	Amps	
c)	In Air 40° C	Amps	
16	Short circuit current for 1 sec of Conductor (kAmp)	.....
17	Electrical Parameters at Maximum operating temperature:		
A	AC Resistance	Ohm/Km	
B	Reactance at 50 C/s	Ohm/Km	
C	Impedance	Ohm/Km	
D	Capacitance	Micro farad / Km	
18	Recommended minimum bending radius	..... x O/D	
19	Derating factor for following Ambient temperature in	Ground / Air	
a)	At 30° C		
b)	At 35° C		
c)	At 40° C		

TECHNICAL SPECIFICATION FOR LT POWER CABLE

d)	At 45° C		
e)	At 50° C		
20	Group factor for following Nos. of cables laid	Touching / Trefoil	
a)	3 Nos.		
b)	4 Nos.		
c)	5 Nos.		
d)	6 Nos.		
21	Process of Cross linking of Polyethylene	Dry cure	
22	Type test	Is copy of latest valid TTR for respective sizes enclosed? Yes / No	

TECHNICAL SPECIFICATION FOR LT POWER CABLE**Annexure- C****GUARANTEED TECHNICAL PARTICULARS (Single Core)****(Separate GTP needs to be furnished for 500 & 630 sq mm cables)**

S.No.	Description	Buyer's Requirement	Seller's data
	Purchase Req. No.	-	
	Guarantee Period: (Min)	60 Months (from date of commissioning) / 66 months (from date of receipt at purchaser's store) whichever is earlier	
	Applicable IS / IEC Standard followed by vendor	IS 7098 Part -1 / IEC 60502	
1	Make	.....
2	Type	A2XY (Unarmoured)	
3	Voltage Grade (kV)	1.1 kV	
4	Maximum Conductor temperature		
A	Continuous	90°C	
B	Short time	250°C	
5	Conductor		
A	Material and Grade	As per Cl.2.1.1	
B	Size (mm ²)	500 / 630 sq mm	
C	Min no. of wires in each conductor (Nos.)	As per Manufacturer Standard	

TECHNICAL SPECIFICATION FOR LT POWER CABLE

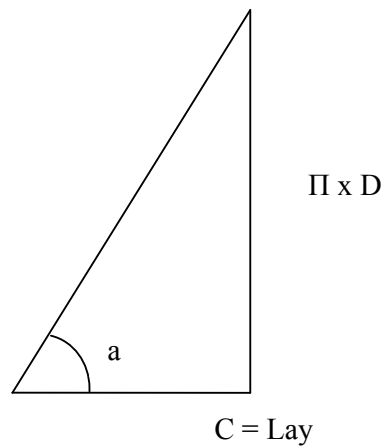
D	Min Dia. of wires in each conductor before compaction (mm)	As per Manufacturer Standard	
E	Shape of conductor	Compacted Circular	
F	Diameter over conductor	.....
G	Maximum Conductor resistance at 20 ° C (Ohm/Km)	As per Table 2 of IS 8130	
H	Make of Al	Ref Annexure E	
6	Insulation	As per Table 3 of IS 7098 Part-1	
A	Insulation Material	As per Cl. 3.2	
B	Nominal thickness		
(i)	For 1Cx500sqmm	2.2mm	
(ii)	For 1Cx630sqmm	2.4mm	
C	Diameter over Insulation (mm) Approx.	.....
D	Make of insulation compound	Refer Annexure E	
7	Inner Sheath	Not applicable	
8	Armour	Not applicable	
9	Outer Sheath		
A	Material and Type	As per Cl. 3.6	
B	Minimum Thickness	As per Table 8 of IS 7098 Part-1	
C	Colour	Yellow	
D	Embossing Details	As per Cl.3.6 (f)	

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10	Approx. overall dia. (mm)	
11	Overall order tolerance	± 2 % for the total cable length for the entire order	
12	Cable Drum		
A	Type of Drum	Wooden	
B	Drum Length & tolerance	As per Spec.Cl. 4.3 & 4.4	
C	Marking on Drum	As per Spec.Cl. 4.7	
D	Drums provide with MS Spindle plate & nut-bolts arrangement (as per IS:10418)	Required	
13	End Cap	Required	
14	Weights	....
a)	Net Weight of cable (Kg/Km.) – Approx		
b)	Weight of empty drum	Kg	
c)	Weight of cable with drum	Kg	
15	Continuous current rating for standard I.S condition laid direct		
a)	In ground 30° C	Amps	
b)	In duct 30° C	Amps	
c)	In Air 40° C	Amps	
16	Short circuit current for 1 sec of Conductor (kAmp)	.....
17	Electrical Parameters at Maximum operating temperature:		
A	AC Resistance	Ohm/Km	

TECHNICAL SPECIFICATION FOR LT POWER CABLE

B	Reactance at 50 C/s	Ohm/Km	
C	Impedance	Ohm/Km	
D	Capacitance	Micro farad / Km	
18	Recommended minimum bending radius	..... x O/D	
19	Derating factor for following Ambient temperature in	Ground / Air	
a)	At 30° C		
b)	At 35° C		
c)	At 40° C		
d)	At 45° C		
e)	At 50° C		
20	Group factor for following Nos. of cables laid	Touching / Trefoil	
a)	3 Nos.		
b)	4 Nos.		
c)	5 Nos.		
d)	6 Nos.		
21	Process of Cross linking of Polyethylene	Dry cure	
22	Type test	Is copy of latest valid TTR for respective sizes enclosed? Yes / No	

Annexure – D**ARMOUR COVERAGE PERCENTAGE**

$$\text{Percent coverage} = \frac{N \times d}{W} \times 100$$

Where

N = number of parallel wires / Strips

d = diameter of wire / width of formed wires

W = $\pi \times D \times \cos a$,

D = diameter under armour

a = angle between armouring wire / formed wires and axis of cable

$\tan a = \pi \times D/C$, and

C = lay length of armouring wires / formed wires.

Min 90% armour coverage shall be provided both in case of wires and strips.

The gap between armour wires / formed wires shall not exceed one armour wire / formed wire space and there shall be no cross over / over-riding of armour wire / formed wire. So, the minimum area of coverage of armouring shall be 90%.



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TECHNICAL SPECIFICATION FOR LT POWER CABLE

Annexure – E
Quality Assurance Plan

QUALITY ASSURANCE PLAN FOR XLPE INSULATED 1.1KV LT POWER CABLE

Sl. No.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REF. DOCUMENT	ACCEPTANCE STANDARDS	FORMAT OF RECORD	AGENCY		REMARKS
									M	B	
1	2	3	4	5	6	7	8	9	10	11	12
A)	Raw Material										
1)	Aluminum Rod	a) Make / Type / Grade	Maj.	Vis.	100%	BSES Approved Documents/ Specifications	BSES Approved Documents/ Specifications	Reg./Sheet	P	V	
		b) Tensile strength	Cri.	Physical	1 Sample/lot	IS:5484	IS:5484	Int. Test Records	P	V	
		c) Elongation	Cri.	Physical	----do---	-- do --	-- do --	-- do --	P	V	
		d) Resistivity/Conductivity	Cri.	Elec.	----do---	-- do --	-- do --	-- do --	P	V	On drawn Wire
		e) Diameter	Cri.	Physical	100%	-- do --	-- do --	-- do --	P	V	
		f) Purity	Cri.	Chemical	1 Sample/lot	-- do --	-- do --	-- do --	V	V	Manufacturer's test certificate
		g) Surface Finish	Cri.	Vis.	100%	Smooth Surface	Smooth Surface	T.C	P	V	

TECHNICAL SPECIFICATION FOR LT POWER CABLE

2)	XLPE Compound	a) Visual checks on packing	Maj.	Vis.	100%	BSES Approved Documents /Specifications	BSES Approved Documents/ Specifications	Reg./Sheet	P	V	
		b) Hot set	Maj.	Physical	1sample/lot	IS:7098-1/88	IS:7098-1/88	-- do --	P	V	
		c) Tensile strength	Maj.	Physical	-- do --	-- do --	-- do --	-- do --	P	V	
		d) Elongation	Maj.	Physical	-- do --	-- do --	-- do --	-- do --	P	V	
		e) Volume resistivity	Maj.	Electrical	-- do --	-- do --	-- do --	-- do --	P	V	
		f) Specific gravity	Maj.	Physical	-- do --	-- do --	-- do --	-- do --	P	V	
3)	Armour Wires / Strips (G.S)	a) Dimension	Maj.	Physical	1sample / lot	IS:3975 & Data Sheet	IS:3975 & Data Sheet	Reg./Sheet	P	V	
		b) T.S & Elongation	Maj.	Physical	-- do --	IS:3975	IS:3975	-- do --	P	V	
		c) Mass & Uniformity of zinc coating	Maj.	Chemical	-- do --	IS:3975 / IS:4826	IS:3975 / IS:4826	-- do --	P	V	
		d) Torsion / winding test	Maj.	Physical	-- do --	IS:3975	IS:3975	-- do --	P	V	
		e) Wrapping test	Maj.	Physical	-- do --	IS:3975	IS:3975	-- do --	P	V	



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TECHNICAL SPECIFICATION FOR LT POWER CABLE

4)	PVC Compound	a) Make / Type / Grade	Maj.	Physical	100%	BSES Approved Documents/ Specifications	BSES Approved Documents/ Specifications	Reg./Sheet	P	V	
		b) T.S & Elongation	Maj.	Physical	1sample / lot	IS:5831/84	IS:5831/84	-- do --	P	V	
		c) Thermal Stability	Maj.	Physical	-- do --	IS 5831 & IS 10810 (Part-60)	IS 5831 & IS 10810 (Part-60)	-- do --	P	V	
		d) Specific Gravity	Maj.	Chemical	-- do --	IS:5831/84	IS:5831/84	-- do --	P	V	
5)	Wooden Drum	a) Dimension	Maj.	Physical	1sample / lot	IS:10418	IS:10418	Reg./Sheet	P	V	
		b) Anti-termite treatment	Maj.	Chemical	Plant standard	Plant standard	Plant standard	-- do --	P	V	
B)	Process & Stage Inspection										
1)	Wire Drawing	a) Diameter	Maj.	Physical	Sample	IS:8130/84	IS:8130/84	Reg./Sheet	P	V	
		b) Surface Finish	Maj.	Vis.	100%	Smooth Surface	Smooth Surface	T.C	P	V	
		c) Tensile Strength	Maj.	Physical	1sample / lot	IS:8130/84	IS:8130/84	Reg./Sheet	P	V	

TECHNICAL SPECIFICATION FOR LT POWER CABLE

		d) Elongation test	Maj.	Physical	-- do --	IS:8130/84	IS:8130/84	-- do --	P	V	
		e) Wrapping Test	Maj.	Physical	-- do --	IS:8130/84	IS:8130/84	-- do --	P	V	
2)	Stranding	a) No. / dia of wires	Maj.	Count	At the time of m/c setting	IS:8130/84	IS:8130/84	Reg./Sheet	P	V	
		b) Diameter of conductor	Maj.	Physical	At the time of m/c setting and once in each shift	-- do --	-- do --	-- do --	P	V	
		c) Lay Length	Maj.	Physical	During m/c setting	-- do --	-- do --	-- do --	P	V	
		d) Direction of Lay	Maj.	Physical	One sample/Set ting of each size	-- do --	-- do --	-- do --	P	V	
		e) Weight	Maj.	Physical	Each unloaded reel	-- do --	-- do --	-- do --	P	V	

TECHNICAL SPECIFICATION FOR LT POWER CABLE

		f) Surface Finish	Maj.	Vis.	100%	No surface defects and free from sharp edges, scratches, grease, oil etc.		T.C	P	V	
		g) Resistance	Cri.	Physical	1 sample from starting & finishing end of each length	IS:8130/84	IS:8130/84	-- do --	P	V	
3)	Insulation	a) Material	Maj.	Physical	During m/c setting	IS:7098-1/88	IS:7098-1/88	Reg./Sheet	P	V	
		b) Thickness	Cri.	Physical	During m/c setting and at standard length	-- do --	-- do --	-- do --	P	V	
		c) Surface Finish	Maj.	Vis.	100%	Surface shall be smooth and free from defects		T.C	P	V	
		d) Spark Testing	Cri.	Electrical	100%	IS:7098-1/88	IS:7098-1/88	Reg./Sheet	P	V	

TECHNICAL SPECIFICATION FOR LT POWER CABLE

		e) Colour of Cores	Maj.	Vis.	100%	-- do --	-- do --	-- do --	P	V	
		f) Thermal Stability	Cri.	Chemical	One sample/Set ting of each size	-- do --	-- do --	-- do --	P	V	
		g) Core Identification	Maj.	Vis.	10%	-- do --	-- do --	-- do --	P	V	
		h) Hot set test	Maj.	Physical	1sample / lot	-- do --	-- do --	-- do --	P	V	
		i) Diameter	Maj.	Physical	-- do --	-- do --	-- do --	-- do --	P	V	
		j) Resistance	Cri.	Physical	-- do --	-- do --	-- do --	-- do --	P	V	
		k) Curing	Maj.	Vis.	100%	-- do --	-- do --	-- do --	P	V	
4)	Laying up	a) Identification of cores	Maj.	Vis.	During m/c setting	IS:7098-1/88	IS:7098-1/88	Reg./Sheet	P	V	
		b) Direction of lay & core sequence	Maj.	Vis.	-- do --	-- do --	-- do --	-- do --	P	V	
		c) Lay length	Minor	Vis.	-- do --	Once in a shift.	Once in a shift.	-- do --	P	V	
		d) Shape of laid up assembly	Minor	Vis.	-- do --	Reasonable circular	Reasonable circular	-- do --	P	V	
		e) Dia. Over laid up assembly	Maj.	Physical	-- do --	Once in a shift.	Once in a shift.	-- do --	P	V	

TECHNICAL SPECIFICATION FOR LT POWER CABLE

5)	Innersheath	a) Material & type	Maj.	Vis.	During m/c setting	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	Reg./Sheet	P	V	
		b) Thickness	Maj.	Physical	During m/s setting & at std. length	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	-- do --	P	V	
		c) Dia. Over sheath	Maj.	Physical	During m/c setting	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	-- do --	P	V	
		d) Surface finish	Minor	Vis.	100%	Surface shall be smooth and free from defects		T.C	P	V	
6)	Armouring	a) Dimension of armour wires/strips	Maj.	Physical	At the time of m/c setting	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	Reg./Sheet	P	V	
		b) No. of wires/strips	Maj.	Count	At the time of m/c setting	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	-- do --	P	V	

TECHNICAL SPECIFICATION FOR LT POWER CABLE

		c) Direction of lay	Maj.	Vis.	One sample/Set ting of each size	IS:7098-1/88	IS:7098-1/88	-- do --	P	V	
		d) Surface finish	Maj.	Vis.	100%	Surface shall be smooth and free from defects		T.C	P	V	
		e) Lay Length	Minor	Vis.	At the time of m/c setting	IS:7098-1/88	IS:7098-1/88	Reg./Sheet	P	V	
		f) Coverage & quality of armouring	Maj.	Vis.	100%	IS:7098-1/88 and IS:3975	IS:7098-1/88 and IS:3975	-- do --	P	V	
7)	Outer Sheath	a) Material & type	Maj.	Vis.	During m/c setting	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	Reg./Sheet	P	V	
		b) Thickness	Maj.	Physical	During m/s setting & at std. length	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	-- do --	P	V	
		c) Overall diameter	Maj.	Physical	During m/s setting & at std. length	Measurement	Measurement	-- do --	P	V	



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		d) Surface finish	Maj.	Vis.	100%	Surface shall be smooth and free from defects		T.C	P	V	
		e) Embossing/Marking quality	Maj.	Vis.	100%	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	Reg./Sheet	P	V	
		f) Colour of sheath	Maj.	Vis.	During m/c setting	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	-- do --	P	V	
		g) Sequential marking	Maj.	Vis.	Full Length	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	-- do --	P	V	
C)	Final Inspection										
1)	Routine Tests	a) Conductor Resistance	Maj.	Elec.	100%	IS:7098-1/88	IS:7098-1/88	Test Report	P	V	
		b) High Voltage Test	Maj.	Elec.	100%	IS:7098-1/88	IS:7098-1/88	Test Report	P	V	

TECHNICAL SPECIFICATION FOR LT POWER CABLE

2)	Acceptance Tests										
	Acceptance test shall be carried out for each type and size of the cables on the cable drums randomly selected as per sampling plan mentioned in IS:7098 Part-1.										
i)	For Conductor	a) Tensile Test (for Aluminium)	Cri.	Elec.	As per IS:7098-1/88	As per IS:7098- 1/88	As per IS:7098- 1/88	Test Certificate	P	W	
		b) Wrapping Test (for Aluminium)	Cri.	Elec.	-- do --	-- do --	-- do --	-- do --	P	W	
		c) Resistance Test	Cri.	Elec.	-- do --	-- do --	-- do --	-- do --	P	W	
ii)	For armour wire/formed wire (as applicable)	a) Measurement of Dimensions	Cri.	Measurem ent	One sample of each offered lot of all offered sizes	As per IS:7098- 1/88 and IS:3975	As per IS:7098- 1/88 and IS:3975	Test Certificate	P	W	
		b) Tensile Test	Cri.	Physical	-- do --	-- do --	-- do --	-- do --	P	W	
		c) Elongation Test	Cri.	Physical	-- do --	-- do --	-- do --	-- do --	P	W	
		d) Torsion Test (for round wires only)	Cri.	Physical	-- do --	-- do --	-- do --	-- do --	P	W	
		e) Wrapping Test	Cri.	Physical	-- do --	-- do --	-- do --	-- do --	P	W	
		f) Resistance Test	Cri.	Electrical	-- do --	-- do --	-- do --	-- do --	P	W	
		g) Mass of zinc coating	Cri.	Chemical	-- do --	-- do --	-- do --	-- do --	P	W	
		h) Uniformity of zinc coating	Cri.	Chemical	-- do --	-- do --	-- do --	-- do --	P	W	

TECHNICAL SPECIFICATION FOR LT POWER CABLE

		l) Adhesion Test	Cri.	Physical	-- do --	-- do --	-- do --	-- do --	P	W	
		j) Freedom from defects	Cri.	Visual	-- do --	-- do --	-- do --	-- do --	P	W	
iii)	For XLPE Insulation and PVC sheath	a) Test for thickness	Cri.	Measurement	One sample of each offered lot of all offered sizes	As per IS:7098-1/88 and IS:1554-1/88	As per IS:7098-1/88 and IS:1554-1/88	Test Report	P	W	
		b) Hot set test (for insulation)	Cri.	Electrical	-- do --	-- do --	-- do --	-- do --	P	W	
		c) Tensile strength and Elongation at break	Cri.	Physical	-- do --	-- do --	-- do --	-- do --	P	W	
		d) Thermal Stability Test (for PVC sheath)	Cri.	Chemical	-- do --	-- do --	-- do --	-- do --	P	W	
iv)	For Completed Cables	a) High Voltage Test	Cri.	Electrical	-- do --	As per IS:7098-1/88 and IS:1554-1/88	As per IS:7098-1/88 and IS:1554-1/88	-- do --	P	W	
		b) Insulation Resistance Test (Volume Resistivity Method)	Cri.	Electrical	-- do --	-- do --	-- do --	-- do --	P	W	
		c) Flammability Test	Cri.	Electrical	-- do --	As per IEC-332 (Part-3) (Category-B) and IS:7098-1/88	As per IEC-332 (Part-3) (Category-B) and IS:7098-1/88	-- do --	P	W	

TECHNICAL SPECIFICATION FOR LT POWER CABLE

		d) Surface Finish	Maj.	Physical	One length of each size	Surface shall be smooth and free from defects		T.C	P	W	
		e) Length Measurement (Rewinding)	Maj.	Physical	1 drum per lot	BSES specifications/ IS:7098-1/88	BSES specifications/ I S:7098-1/88	-- do --	P	W	
		f) Armour Coverage	Maj.	Physical	-- do --	BSES specifications/ IS:7098-1/88	BSES specifications/ I S:7098-1/88	-- do --	P	W	
3)	Type Tests	As per IS:7098-1/88							Review and verification of type test clearance from BSES Engg.		
D	Packing & Marking	a) End Sealing	Maj.	Visual	100%	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	_____	P	_____	
		b) Stenciling/Marking	Minor	Visual	100%	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	_____	P	_____	
		c) Packing	Maj.	Visual	100%	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	_____	P	_____	



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TECHNICAL SPECIFICATION FOR LT POWER CABLE

Note:-

1. BSES may witness raw material and in process inspection in addition to routine / acceptance / type test at any time or stage of manufacturing.
2. Checks specified above for Raw material, In process and Final inspection shall be as relevant to the specific cable construction.

Abbreviations used in the above Quality Plan :-

M	Manufacturer	P	Perform
B	BSES	V	Verification
Vis.	Visual	W	Witness
Maj.	Major	T.C	Test Certificates
Cri.	Critical	Reg.	Register
Elec.	Electrical		

BSES	SP-LTPC-63-R0
TECHNICAL SPECIFICATION FOR LT POWER CABLE	






Annexure - F
List of Sub-Vendors
For critical items

S. No.	Description of Material	Sub-Vendors
1	E.C Grade Aluminium Rod	Bharat Aluminium Co. Ltd. (BALCO) Hindustan Aluminium Co. Ltd. (HINDALCO) National Aluminium Co. Ltd. (NALCO)
2	XLPE Compound	Kalpena Industries Ltd. KLJ Polymers and Chemicals Ltd. Dow Chemical, U.S.A Borealis, Sweden Hanwha, Seoul, South Korea

Technical specification for LT PVC wire

(Aluminum or copper conductor)

Specification no – SP-EWLP-02-R0

Prepared by		Checked by		Approved by	Rev	Date
PG	MK	PSD	BB	DG		
					R0	24 th Oct'07

Technical Specification for LT PVC wire

The PVC wire shall conform to all technical details mentioned in the format for guaranteed technical particular given below -

Scope of supply of PVC wire includes Design, Manufacture, Tests at manufacturers works before dispatch, Packing, Delivery and submission of documents to purchaser

Specification & Guaranteed Technical Particulars

Bidder to submit hard copy of following GTP duly filled & signed along with techno commercial offer.

Bidder to submit separate GTP for each type of LT PVC wire viz. Al or copper, size of conductor & color of PVC sheath –

Sr No	Item description	Specification requirement	Data by Vendor
1	Manufacturer	Name	
1.1		Address	
1.2		Contact person	
1.3		Contact telephone no	
1.4	LT PVC wire brand name	Mfg. catalogue reference	
2	Reference standard	IS 694, IS 8130 & IS 5831	
3	Continuous operation of PVC wire	With maximum ambient temperature of 50 ⁰ C	Yes / No
4	Rated voltage	1100 volt	
5	LT PVC wire conductor material as per IS 8130	As per purchase enquiry Copper wire code – Y Aluminum wire code - AYY	
5.1	Shape of conductor	Circular	Yes / No
5.2	Conductor construction	Single core stranded or flexible (as per enquiry)	Yes / No
5.3	Size of conductor in mm ²	1.5 / 2.5 / 4 / 6 / 10 mm ²	
5.4	No of strands / conductor	As per table 2 of IS 8130	
	Size of each strand	in mm	
5.5	Current rating of wire	As per IS: 3961 part 5, Table No -1 & 6	
5.6	Maximum resistance of conductor at 20 ⁰ C in Ω / km	As per table 2 of IS 8130	
6	PVC insulation compound	Extruded Type A as per IS 5831	Yes / No
6.1	PVC insulation thickness & tolerance	As per table 2 / 3 / 5 of IS694	
6.2	Diameter of wire with	in mm	

Sr No	Item description	Specification requirement	Data by Vendor
	insulation		
7	PVC outer sheath	Type ST2 as per IS 5831, extruded	Yes / No
7.1	PVC outer sheath for Al wire (thickness in mm)	As per table 5 of IS694	
7.2	Overall diameter of wire	in mm	
7.3	Color of PVC insulation & outer sheath	As per purchase enquiry Red, yellow, blue, black or white	
8	Standard length of wire coil	100m +/- 2%	
9	Net weight of PVC wire	Kg / km	
10	Marking on wire by printing with indelible ink	IS number / ISI mark	Yes / No
		Manufacturer name	Yes / No
		Month & Year of manufacture, Coil Sr No	Yes / No
		Cable voltage grade & type	Yes / No
		Sequential length marking	Yes / No
11	Type test as per table 8 of IS 694 (Only type tested LT PVC WIRE shall be accepted)	Test reports from CPRI/ ERDA or Govt. approved laboratory only	
12	Type test report validity	valid for last 5 years	
13	Inspection test witness by purchaser	On samples selected from lot	
14	Acceptance & routine test	As per IS 694 on each lot	
15	Inspection by Purchaser	On 15 days advance notice	
16	Packing protection for PVC coils	Against shocks, vibration & corrosion	
17	Packing identification labels to show	Purchaser name, PO number, Number of PVC coils, Total PVC wire length Manufacturer Sr number.	
18	Handling instruction	To be marked on packing	
19	Copy of Type test report	Submitted with GTP?	YES / NO
20	Copy of LT PVC WIRE catalogue	Submitted with GTP?	YES / NO
21	Deviation sheet	Submitted with GTP?	YES / NO
22	Sample of PVC wire – 10m	Submitted with GTP?	YES / NO

Name, Address & contact details of Vendor - _____

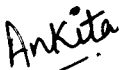
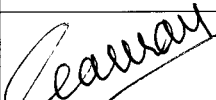
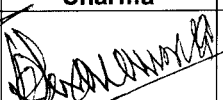
Vendor contact person & signature - _____

BSES

SP-ULTC2C10-75-R0

TECHNICAL SPECIFICATION FOR LT POWER CABLE – 2Cx10sqmm UNARMoured CABLE

**TECHNICAL SPECIFICATION
FOR
LT POWER CABLE
(2Cx10sqmm-UNARMoured CABLE)
Specification No. : SP-ULTC2C10-75-R0**

PREPARED BY	REVIEWED BY	APPROVED BY	REV	00
Ankita Arora	Gaurav Sharma	Devender Sharma	DATE	March 28, 2016
			PAGE	1 of 24

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TECHNICAL SPECIFICATION FOR LT POWER CABLE – 2Cx10sqmm UNARMoured CABLE**1.0 SCOPE OF SUPPLY**

The specification covers design, manufacture, shop testing, packing and delivery of 1100 Volts grade, Aluminium conductor, and XLPE insulated multi core power cables.

2.0 CODES & STANDARDS

The cables shall be designed, manufactured and tested in Accordance with the following Indian & IEC standards.

2.1	IS- 7098 (Part-1)	Cross linked polyethylene insulated PVC sheathed cables for working voltages upto and including 1100V.
2.2	IS- 6474	Polyethylene insulation & sheath of electric cables.
2.3	IS- 5831	PVC insulation and sheath of electrical cables.
2.4	IS : 10810	Methods of tests for cables.
2.5	IS : 8130	Conductors for insulated electrical cables and flexible cords.
2.6	IS- 4026	Aluminum ingots, billets and wire bars (EC grade)
2.7	IS-5484	EC Grade aluminium rod produced by continuous casting and rolling
2.8	IS : 10418	Specification for drums for electric cables.
2.9	IS : 3961	Recommended current ratings for cables.
2.10	IS:1255	Installation and Maintenance of power cables upto and including 33 kV rating.
2.11	IS:1717	Metallic Materials – Wire – Simple torsion test
2.12	IEC 60228	Conductors of insulated cables. Guide to the dimensional limits of circular conductors.
2.13	IEC 60331	Fire resisting characteristics of electric cables.
2.14	IEC 60332 - 3	Tests on electric cables under fire conditions. Part 3: Tests on bunched wires or cables.
2.15	IEC 60502	Extruded solid dielectric insulated power cables for rated voltages from 1kV to 30 kV.
2.16	IEC 60754 - 1	Test on gases evolved during combustion of materials from cables. Part 1: Determination of the amount of halogen acid gas evolved during combustion of polymeric material taken from cables.

BSES	SP-ULTC2C10-75-R0
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2.17	IEC 60811	Common test methods for insulating and sheathing materials of electric cables.
2.18	IEC 60885	Electric test methods for electric cables.
2.19	IEC 60304	Standard colours for insulation for low frequency cables and wires.
2.20	IEC 1034	Measurement of smoke density of electric cables burning under defined conditions.

3.0 CABLE DESIGN

Description of each item mentioned in the specification (the text, BOQ, GTP or any site specific requirement) shall be followed along with IS:7098 – P1

3.1	Conductor	a) Electrolytic Grade Stranded Aluminium Conductor b) Grade: H2 as per IS:8130/1984 c) Class 2 d) Chemical composition as per IS 4026 e) Shape : Compacted Circular for size - 10 sqmm
3.2	Insulation	Extruded XLPE Insulation as per IS:7098 Part-1
3.3	Core Identification	As per Cl.10 of IS 7098 Part-1

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3.4	Outer Sheath	<p>a) Extruded outer sheath of PVC (ST-2) shall be as per IS:5831.</p> <p>b) Colour : Black</p> <p>c) Outer sheath of all the LT cables shall be UV resistant; as these cables are laid in air exposed to sun. Bidder to ensure the same for these requirements supported by required test.</p> <p>d) Shape of the cable over the outer sheath shall be circular, when manufactured /completed.</p> <p>Regular Ovality check shall be carried out at Factory, to detect any abnormality. Manufacturing quality shall be such that cable will retain its circular shape, even after it is laid at site.</p> <p>e) The Outer Sheath shall be embossed with following minimum text:</p> <p>(i) The voltage designation</p> <p>(ii) Type of construction / cable code (for e.g. A2XFY)</p> <p>(iii) Manufacturers Name / Trade mark</p> <p>(iv) Number of Cores and nominal cross sectional area of conductor.</p> <p>(v) Progressive (Sequential) length of cable at every meter, starting from zero for every drum. Colour filled in for the progressive marking, shall be with proper contrast in colouring.</p> <p>(vi) Month & Year of Manufacturing</p> <p>(vii) IS reference, i.e. IS:7098</p> <p>(viii) Font size shall be 5/5mm</p> <p>(ix) ISI mark</p> <p>The embossing shall be progressive, automatic, in line and marking shall be legible and indelible.</p>
3.5	Bending Radius	Bending Radius of cable shall comply to IS:1255.
3.6	Sealing of Cable end	Both ends of the cable shall be sealed by means of non-hygroscopic heat shrinkable HDPE caps.

TECHNICAL SPECIFICATION FOR LT POWER CABLE – 2Cx10sqmm UNARMoured CABLE**4.0 CABLE DRUM**

4.1	Reference Standard	Cable drums shall comply with IS: 10418.
4.2	Type of Drum	Wooden drums with anti termite treatment. (The drums shall be provided with M.S. spindle plate and nut-bolts arrangement as per IS:10418).
4.3	Drum Length & Tolerance	1000 +/- 5% Mtr
4.4	Overall Tolerance	+/- 2 % for the total cable length for the entire order.
4.5	Short Length of Cables	<ul style="list-style-type: none">a) Minimum acceptable short length shall be 1% of the total ordered quantity and no length shall be less than 250 Mtrs. Manufacturer shall be required to take prior approval from Engineering for any short length supply. Short length will be accepted in last lot.b) Manufacturer shall not be allowed to put two cable pieces of different short lengths in same cable drum.
4.6	Preventive Measure for Cable Drum	<ul style="list-style-type: none">a) The surface of the drum and the outer most cable layer shall be covered with water proof layer.b) Ferrous part of wooden drum shall be treated with suitable rust preventive paint/coating to minimize rusting during storage.
4.7	Drum Identification Labels	<ul style="list-style-type: none">a) Drum identification numberb) Cable voltage gradec) Cable code (eg. A2XFY/A2XWY)d) Number of cores and cross sectional areae) Cable quantity i.e. cable length (Meters)f) Purchase order number, date and SAP item codeg) Total weight of cable and drum (kg)h) Manufacturer's and Buyer's namei) Month & year of manufacturingj) Direction of rotation of drum; An arrow and suitable accompanying wording shall be marked on one end of the reel indicating the direction in which it should

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		be rolled.
		k) Cable length final end-markings (i.e. reading at the inner end and reading at the outer end, just before packing shall be marked on the drum).

5.0 Packing, Shipping, Handling & Storage

5.1	Shipping Information	The seller shall give complete shipping information concerning the weight, size of each package.
5.2	Transit Damage	The seller shall be held responsible for all transit damage due to improper packing.
5.3	Cable Drum Handling	The drums shall be with M.S spindle plate (with nut-bolts) of adequate size to suit the spindle rods, normally required for handling the drums, according to expected weight of the cable drums as per IS:10418

6.0 Quality Assurance, Testing & Inspection

All the tests shall be carried out in accordance with IEC / IS standards.

6.1	Quality Assurance Plan	As per Annexure – E. In event of order Manufacturer has to submit the signed copy of QAP.
6.2	Inspection hold points	AS per QAP
6.3	Routine Test	a) Measurement of Electrical Resistance b) HV test with power frequency AC voltage
6.4	Type Test	a) Cables must be of type tested quality. Type test reports shall be submitted for the type, size and rating of cable offered along with bid. Type test shall not be more than 5 years old. In event of type test being older than 5 years, bidder has to conduct the same at CPRI/ERDA, NABL approved Lab without commercial implication to BSES. b) Bidder supplying cable to BSES for the first time shall have to conduct type test on sample randomly selected from lot in event of order from CPRI/ERDA.

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6.5	Acceptance Test (Shall be conducted as per IS 7098 Part-1 for each lot of cable)	<ul style="list-style-type: none">a) One sample for chemical composition and purity test of aluminium shall be conducted per 100km of ordered quantity and multiple thereof.b) Chemical composition and purity test of aluminium shall be conducted from the lot offered to BSES on each size involved in the purchase order. Test shall be carried out at NABL accredited third party laboratory without any price implication to BSES.c) The sample will be selected either during acceptance test or after receipt of cable in BSES stores.
6.6	Inspection	<ul style="list-style-type: none">a) The buyer reserves the right to witness all tests specified on completed cables.b) The buyer reserves the right to inspect cables at the seller's works at any time prior to dispatch either in finished form or during manufacturing, to prove compliance with the specifications.c) In-process and final inspection call intimation shall be given in advance to purchaser/CES.
6.7	Test Certificates	Complete test certificates (routine & acceptance tests) need to be submitted along with the delivery of cables.

7.0 Drawing, Data & Manuals

7.1	To be submitted along with bid	The vendor has to submit: <ul style="list-style-type: none">a) Cross section drawing of cableb) Completely filled GTPc) Type test certificatesd) Complete cable catalogue and manual along with the bide) Copy of BIS licence
7.2	After award of contract	Within 7 days, the seller has to submit four sets of above mentioned drawings for buyer's approval along with the signed copy of QAP (Annexure – E).
7.3	Final As Built	6 sets hardcopy + One Soft copy of all documents including type test certificates

8.0 Progress Reporting

8.1	Outline Document	To be submitted for purchaser approval for outline of production-inspection, testing-inspection, packing, dispatch, documentation programme.
8.2	Detailed Progress Report	To be submitted to purchaser once a month containing <ul style="list-style-type: none">(i) Progress on material procurement(ii) Progress on fabrication (As applicable)(iii) Progress on assembly (As applicable)(iv) Progress on internal stage inspection(v) Reason for any delay in total programme(vi) Details of test failures if any in manufacturing stages(vii) Progress on final box up constraints/forward path

9.0 Deviation

Deviations from this Specification shall be stated in writing with the tender by reference to the Specification clause/GTP/Drawing and a description of the alternative offer. In absence of such a statement, it will be assumed that the bidder complies fully with this specification. No deviation will be acceptable post order.

10.0 Technical Particulars

- a. GTP - As per Annexure-B
- b. Quality Assurance Plan – As per Annexure-C.
- c. Approved Makes for Raw Material – As per Annexure-D.

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Annexure – A

Scope & Project Specific Details

1.0.0 Scope

1.0.0	Scope	Design, manufacture, testing & supply of L.T Power Cables
2.0.0	Delivery Schedule	To be filled up as per purchase requisition.

2.0.0 Document Submission

Submission of drawings, calculations, catalogues, manuals, test reports shall be as follows

	Along with offer	For Approval after award of contract	Final after approval	Remarks
Drawings	2 copies (Typical Drawings)	2 Copies	2 Copies + 1 soft copy in CD	See Clause 7.0 for details of required drawings
Calculations	2 Copies (Typical)	2 Copies		
Catalogues	1 Copy			
Type Test Report	2 Copies			Type test and sample routine test reports

TECHNICAL SPECIFICATION FOR LT POWER CABLE – 2Cx10sqmm UNARMoured CABLE**ANNEXURE – B****GUARANTEED TECHNICAL PARTICULARS****Standard Cable size - 2cx10sqmm Unarmoured Cable**

S.No.	Description	Buyer's Requirement	Seller's data
	Purchase Req. No.	....
	Guarantee Period: (Min)	60 Months (from date of commissioning) / 66 months (from date of receipt at purchaser's store) whichever is earlier	
	Applicable IS / IEC Standard followed by vendor	IS 7098 Part -1 / IEC 60502	
1	Make	....
2	Type (as required by purchaser)		
A	For 2CX10Sqmm	A2XY	
3	Voltage Grade (kV)	1.1	
4	Maximum Conductor temperature		
A	Continuous	90°C	
B	Short time	250°C	
5	Conductor		
A	Material and Grade	As per Cl.3.1	
B	Make of Al	Ref Annexure D	
C	Size (mm ²) sq mm	

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D	Min no. of wires in each conductor (Nos.)	As per Manufacturer Standard	
E	Min Dia. of wires in each conductor before compaction (mm)	As per Manufacturer Standard	
F	Shape of Conductor	As per Cl.3.1 (e)	
G	Diameter over conductor (mm)	.....
H	Maximum Conductor resistance at 20 ° C (Ohm/Km)	As per Table 2 of IS 8130	
6	Insulation		
A	Insulation Material	As per Cl. 3.2	
B	Nominal thickness (mm)	As per Table 3 of IS 7098 Part-1	
C	Diameter over Insulation (mm) Approx.	.....
D	Make of insulation compound	Ref: Annexure D	
7	Outer Sheath		
A	Material and Type	As per Cl. 3.6	
B	Minimum Thickness	As per Table 8 of IS 7098 Part-1	
C	Colour	Black	
D	Embossing Details	As per Cl.3.6 (f)	
8	Approx. overall dia. (mm)	.....
9	Overall order tolerance	± 2 % for the total cable length for the entire order	
10	Cable Drum		
A	Type of Drum	Wooden	
B	Drum Length & tolerance	As per Spec.Cl. 4.3 & 4.4	

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C	Marking on Drum	As per Spec.Cl. 4.7	
D	Drums provide with MS Spindle plate & nut-bolts arrangement (as per IS:10418)	Required	
11	End Cap	Required	
12	Weights	.....
a)	Net Weight of cable (Kg/Km.) – Approx		
b)	Weight of empty drum	Kg	
c)	Weight of cable with drum	Kg	
13	Continuous current rating for standard I.S condition laid direct		
a)	In ground 30° C	Amps	
b)	In duct 30° C	Amps	
c)	In Air 40° C	Amps	
14	Short circuit current for 1 sec of Conductor (kAmp)	.....
15	Electrical Parameters at Maximum operating temperature:		
A	AC Resistance	Ohm/Km	
B	Reactance at 50 C/s	Ohm/Km	
C	Impedance	Ohm/Km	
D	Capacitance	Micro farad / Km	
16	Recommended minimum bending radius	As per IS:1255	
17	Derating factor for following Ambient temperature in	Ground / Air	
a)	At 30° C		



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b)	At 35° C		
c)	At 40° C		
d)	At 45° C		
e)	At 50° C		
18	Group factor for following Nos. of cables laid	Touching / Trefoil	
a)	3 Nos.		
b)	4 Nos.		
c)	5 Nos.		
d)	6 Nos.		
19	Process of Cross linking of Polyethylene	Dry cure	
20	Type test	Is copy of latest valid TTR for respective sizes enclosed? Yes / No	



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Annexure – C
Quality Assurance Plan

QUALITY ASSURANCE PLAN FOR XLPE INSULATED 1.1KV LT POWER CABLE

Sl. No.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REF. DOCUMENT	ACCEPTANCE STANDARDS	FORMAT OF RECORD	AGENCY		REMARKS
									M	B	
1	2	3	4	5	6	7	8	9	10	11	12
A)	Raw Material										
1)	Aluminum Rod	a) Make / Type / Grade	Maj.	Vis.	100%	BSES Approved Documents/ Specifications	BSES Approved Documents/ Specifications	Reg./Sheet	P	V	
		b) Tensile strength	Cri.	Physical	1 Sample/lot	IS:5484	IS:5484	Int. Test Records	P	V	
		c) Elongation	Cri.	Physical	----do---	-- do --	-- do --	-- do --	P	V	
		d) Resistivity/Conductivity	Cri.	Elec.	----do---	-- do --	-- do --	-- do --	P	V	On drawn Wire
		e) Diameter	Cri.	Physical	100%	-- do --	-- do --	-- do --	P	V	
		f) Purity	Cri.	Chemical	1 Sample/lot	-- do --	-- do --	-- do --	V	V	Manufacturer's test certificate
		g) Surface Finish	Cri.	Vis.	100%	Smooth Surface	Smooth Surface	T.C	P	V	

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2)	XLPE Compound	a) Visual checks on packing	Maj.	Vis.	100%	BSES Approved Documents /Specifications	BSES Approved Documents/ Specifications	Reg./Sheet	P	V	
		b) Hot set	Maj.	Physical	1sample/lot	IS:7098-1/88	IS:7098-1/88	-- do --	P	V	
		c) Tensile strength	Maj.	Physical	-- do --	-- do --	-- do --	-- do --	P	V	
		d) Elongation	Maj.	Physical	-- do --	-- do --	-- do --	-- do --	P	V	
		e) Volume resistivity	Maj.	Electrical	-- do --	-- do --	-- do --	-- do --	P	V	
		f) Specific gravity	Maj.	Physical	-- do --	-- do --	-- do --	-- do --	P	V	
3)	PVC Compound	a) Make / Type / Grade	Maj.	Physical	100%	BSES Approved Documents/ Specifications	BSES Approved Documents/ Specifications	Reg./Sheet	P	V	
		b) T.S & Elongation	Maj.	Physical	1sample / lot	IS:5831/84	IS:5831/84	-- do --	P	V	
		c) Thermal Stability	Maj.	Physical	-- do --	IS 5831 & IS 10810 (Part-60)	IS 5831 & IS 10810 (Part-60)	-- do --	P	V	
		d) Specific Gravity	Maj.	Chemical	-- do --	IS:5831/84	IS:5831/84	-- do --	P	V	
4)	Wooden Drum	a) Dimension	Maj.	Physical	1sample / lot	IS:10418	IS:10418	Reg./Sheet	P	V	
		b) Anti-termite treatment	Maj.	Chemical	Plant	Plant standard	Plant standard	-- do --	P	V	

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					standard						
B)	Process & Stage Inspection										
1)	Wire Drawing	a) Diameter	Maj.	Physical	Sample	IS:8130/84	IS:8130/84	Reg./Sheet	P	V	
		b) Surface Finish	Maj.	Vis.	100%	Smooth Surface	Smooth Surface	T.C	P	V	
		c) Tensile Strength	Maj.	Physical	1sample / lot	IS:8130/84	IS:8130/84	Reg./Sheet	P	V	
		d) Elongation test	Maj.	Physical	-- do --	IS:8130/84	IS:8130/84	-- do --	P	V	
		e) Wrapping Test	Maj.	Physical	-- do --	IS:8130/84	IS:8130/84	-- do --	P	V	
2)	Stranding	a) No. / dia of wires	Maj.	Count	At the time of m/c setting	IS:8130/84	IS:8130/84	Reg./Sheet	P	V	
		b) Diameter of conductor	Maj.	Physical	At the time of m/c setting and once in each shift	-- do --	-- do --	-- do --	P	V	
		c) Lay Length	Maj.	Physical	During m/c setting	-- do --	-- do --	-- do --	P	V	
		d) Direction of Lay	Maj.	Physical	One sample/Set ting of each	-- do --	-- do --	-- do --	P	V	

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					size						
		e) Weight	Maj.	Physical	Each unloaded reel	-- do --	-- do --	-- do --	P	V	
		f) Surface Finish	Maj.	Vis.	100%	No surface defects and free from sharp edges, scratches, grease, oil etc.		T.C	P	V	
		g) Resistance	Cri.	Physical	1 sample from starting & finishing end of each length	IS:8130/84	IS:8130/84	-- do --	P	V	
3)	Insulation	a) Material	Maj.	Physical	During m/c setting	IS:7098-1/88	IS:7098-1/88	Reg./Sheet	P	V	
		b) Thickness	Cri.	Physical	During m/c setting and at standard length	-- do --	-- do --	-- do --	P	V	

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		c) Surface Finish	Maj.	Vis.	100%	Surface shall be smooth and free from defects		T.C	P	V	
		d) Spark Testing	Cri.	Electrical	100%	IS:7098-1/88	IS:7098-1/88	Reg./Sheet	P	V	
		e) Colour of Cores	Maj.	Vis.	100%	-- do --	-- do --	-- do --	P	V	
		f) Thermal Stability	Cri.	Chemical	One sample/Set ting of each size	-- do --	-- do --	-- do --	P	V	
		g) Core Identification	Maj.	Vis.	10%	-- do --	-- do --	-- do --	P	V	
		h) Hot set test	Maj.	Physical	1sample / lot	-- do --	-- do --	-- do --	P	V	
		i) Diameter	Maj.	Physical	-- do --	-- do --	-- do --	-- do --	P	V	
		j) Resistance	Cri.	Physical	-- do --	-- do --	-- do --	-- do --	P	V	
		k) Curing	Maj.	Vis.	100%	-- do --	-- do --	-- do --	P	V	
4)	Laying up	a) Identification of cores	Maj.	Vis.	During m/c setting	IS:7098-1/88	IS:7098-1/88	Reg./Sheet	P	V	
		b) Direction of lay & core sequence	Maj.	Vis.	-- do --	-- do --	-- do --	-- do --	P	V	
		c) Lay length	Minor	Vis.	-- do --	Once in a shift.	Once in a shift.	-- do --	P	V	

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		d) Shape of laid up assembly	Minor	Vis.	-- do --	Reasonable circular	Reasonable circular	-- do --	P	V	
		e) Dia. Over laid up assembly	Maj.	Physical	-- do --	Once in a shift.	Once in a shift.	-- do --	P	V	
7)	Outer Sheath	a) Material & type	Maj.	Vis.	During m/c setting	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	Reg./Sheet	P	V	
		b) Thickness	Maj.	Physical	During m/s setting & at std. length	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	-- do --	P	V	
		c) Overall diameter	Maj.	Physical	During m/s setting & at std. length	Measurement	Measurement	-- do --	P	V	
		d) Surface finish	Maj.	Vis.	100%	Surface shall be smooth and free from defects		T.C	P	V	
		e) Embossing/Marking quality	Maj.	Vis.	100%	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	Reg./Sheet	P	V	
		f) Colour of sheath	Maj.	Vis.	During m/c setting	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	-- do --	P	V	

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		g) Sequential marking	Maj.	Vis.	Full Length	BSES specifications/ IS:7098-1/88	BSES specifications /IS:7098-1/88	-- do --	P	V	
C)	Final Inspection										
1)	Routine Tests	a) Conductor Resistance	Maj.	Elec.	100%	IS:7098-1/88	IS:7098-1/88	Test Report	P	V	
		b) High Voltage Test	Maj.	Elec.	100%	IS:7098-1/88	IS:7098-1/88	Test Report	P	V	
2)	Acceptance Tests										
	Acceptance test shall be carried out for each type and size of the cables on the cable drums randomly selected as per sampling plan mentioned in IS:7098 Part-1.										
i)	For Conductor	a) Tensile Test (for Aluminium)	Cri.	Elec.	As per IS:7098-1/88	As per IS:7098- 1/88	As per IS:7098- 1/88	Test Certificate	P	W	
		b) Wrapping Test (for Aluminium)	Cri.	Elec.	-- do --	-- do --	-- do --	-- do --	P	W	
		c) Resistance Test	Cri.	Elec.	-- do --	-- do --	-- do --	-- do --	P	W	
ii)	For XLPE Insulation and PVC sheath	a) Test for thickness	Cri.	Measurem ent	One sample of each offered lot of all offered sizes	As per IS:7098- 1/88 and IS:1554-1/88	As per IS:7098- 1/88 and IS:1554-1/88	Test Report	P	W	

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		b) Hot set test (for insulation)	Cri.	Electrical	-- do --	-- do --	-- do --	-- do --	P	W	
		c) Tensile strength and Elongation at break	Cri.	Physical	-- do --	-- do --	-- do --	-- do --	P	W	
		d) Thermal Stability Test (for PVC sheath)	Cri.	Chemical	-- do --	-- do --	-- do --	-- do --	P	W	
iii)	For Completed Cables	a) High Voltage Test	Cri.	Electrical	-- do --	As per IS:7098-1/88 and IS:1554-1/88	As per IS:7098-1/88 and IS:1554-1/88	-- do --	P	W	
		b) Insulation Resistance Test (Volume Resistivity Method)	Cri.	Electrical	-- do --	-- do --	-- do --	-- do --	P	W	
		c) Flammability Test	Cri.	Electrical	-- do --	IS:7098-1/88	IS:7098-1/88	-- do --	P	W	
		d) Surface Finish	Maj.	Physical	One length of each size	Surface shall be smooth and free from defects		T.C	P	W	
		e) Length Measurement (Rewinding)	Maj.	Physical	1 drum per lot	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	-- do --	P	W	
3)	Type Tests	As per IS:7098-1/88							Review and verification of type test clearance from BSES		

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									Engg.		
D	Packing & Marking	a) End Sealing	Maj.	Visual	100%	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	_____	P	_____	
		b) Stenciling/Marking	Minor	Visual	100%	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	_____	P	_____	
		c) Packing	Maj.	Visual	100%	BSES specifications/ IS:7098-1/88	BSES specifications/ IS:7098-1/88	_____	P	_____	

Note:-

1. BSES may witness raw material and in process inspection in addition to routine / acceptance / type test at any time or stage of manufacturing.
2. Checks specified above for Raw material, In process and Final inspection shall be as relevant to the specific cable construction.

Abbreviations used in the above Quality Plan :-

M	Manufacturer	P	Perform
B	BSES	V	Verification
Vis.	Visual	W	Witness
Maj.	Major	T.C	Test Certificates
Cri.	Critical	Reg.	Register
Elec.	Electrical		

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Annexure - D

Approved Make for Raw Material

For critical items

S. No.	Description of Material	Sub-Vendors
1	E.C Grade Aluminium Rod	Bharat Aluminium Co. Ltd. (BALCO) Hindustan Aluminium Co. Ltd. (HINDALCO) National Aluminium Co. Ltd. (NALCO)
2	XLPE Compound	Kalpena Industries Ltd. KLJ Polymers and Chemicals Ltd. Dow Chemical, U.S.A Borealis, Sweden Hanwha, Seoul, South Korea