

**NOTICE INVITING TENDER (NIT)**  
**FOR**  
**RATE CONTRACT FOR SUPPLY**  
**OF**  
**11KV XLPE POWER CABLES OF VARIOUS SIZES**

**NIT NO: CMC/BY/22-23/RS/SV/4**

**Due Date for Submission: 09.05.2022, 14:00 HRS**

**BSES YAMUNA POWER LIMITED (BYPL)**  
**CONTRACTS & MATERIALS DEPT.,**  
**SHAKTI KIRAN BUILDING, KARKARDOOMA,**  
**DELHI-110032**  
**CIN: U40109DL2001PLC111525**  
**WEBSITE: [www.bsedelhi.com](http://www.bsedelhi.com)**

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## **VOLUME – I: INFORMATION TO BIDDER (ITB)**

**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.

Sl. No.	Item Description	Estimated Cost (₹)	Cost of EMD (₹)	Delivery at
1	RATE CONTRACT FOR SUPPLY OF 11KV XLPE POWER CABLES OF VARIOUS SIZES	15.63 Crore	15.63 Lakh	Delhi Stores

The bidder must qualify the requirements as specified in clause 2.0 stated below.

All envelopes shall be duly super scribed “**BID FOR RATE CONTRACT FOR SUPPLY OF 11KV XLPE POWER CABLES OF VARIOUS SIZES**” “**NIT NO: CMC/BY/22-23/RS/SV/4 DUE ON 09.05.2022, 14:00 Hr.**”

Bid shall be submitted in two (02) parts. Details of part are as follow:

**Part A – Techno Commercial Bid**

**Part B – Price Bid**

- 1.1. The schedule of specifications with detail terms & conditions can be obtained from address given below against submission of non-refundable demand draft of ₹ 1,180/- drawn in favour of BSES Yamuna Power Ltd, payable at Delhi or Online transfer of requisite amount through IMPS/ NEFT/ RTGS. The tender documents & detail terms and conditions can also be downloaded from the website [www.bsesdelhi.com](http://www.bsesdelhi.com) --> **BSES YAMUNA POWER LTD --> Tender --> 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.
- 1.2. Bids will be received up to **09.05.2022, 15:00 Hr.** at the address given below.  
Part A of the Bid shall be opened on **10.05.2022, 14:00 Hr.**

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.

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

- 1.3 BSES Yamuna Power Ltd reserves the right to accept/reject any or all tenders without assigning any reason thereof in the event of following:
- Tender is received after due date and time.
  - Tender fee of requisite value.
  - Earnest Money Deposit (EMD) of requisite value & validity is not deposited in shape of Bank Guarantee drawn in favor of BSES Yamuna Power Ltd, payable at Delhi or Online transfer of requisite amount through NEFT/RTGS.

- d) Price Bid as per the Price Schedule mentioned in Annexure-I.
- e) Incomplete Bids.
- f) Necessary documents against compliance to Qualification Requirements mentioned at Section 1 Clause 2.0 of this Tender Document.
- g) Complete Technical details are not enclosed as per the Technical Bid Submission Checklist.
- h) Filled in Schedule of Deviations as per Annexure.

## 2.00 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.

### 2.01 Technical Criteria:

SI No.	Criteria	Documents to be submitted by bidder
1	The bidder should have own manufacturing facility for 11KV or higher voltage grade Power Cable since last 3 years.	manufacturing and factory incorporation certificate / Undertaking  The details of manufacturing units, locations and works from where supply against this tender shall be proposed to be furnished.
2	<p><b>A) For 11KV 3C X 300 MM<sup>2</sup> and above sizes</b> The bidder should have supplied at least 100km of cable size 11KV 3CX300 MM<sup>2</sup> or higher voltage or higher size &amp; rating in last 5 years to any utilities/ SEB's/ PSU's/ reputed company wherein the end user shall be utilities/ SEB's/ PSU's.</p> <p><b>B) For 11KV 3C X 150 MM<sup>2</sup></b> The bidder should have supplied at least 100km of cable size 11KV 3CX150 MM<sup>2</sup> or higher voltage or higher size &amp; rating in last 5 years to any utilities/ SEB's/ PSU's/ reputed company wherein the end user shall be utilities/ SEB's/ PSU's.</p>	<ul style="list-style-type: none"> <li>i. Summary list of executed Purchase orders</li> <li>ii. Purchase order copies</li> <li>iii Material delivery clearance certificate copy or Delivery completion certificates or Invoice Copies</li> </ul>
3	<p><b>A) For 11KV 3C X 300 MM<sup>2</sup> and above sizes</b> Performance certificate for minimum 2 year satisfactory performance for cable size 11KV 3CX300 MM<sup>2</sup> or higher voltage or higher size &amp; rating supplied in last 5 years from the date of bid opening from at least two utilities/ SEB's/ PSU's/ reputed company wherein the end user shall be utilities/ SEB's/ PSU's.</p> <p><b>B) For 11KV 3C X 150 MM<sup>2</sup></b> Performance certificate for minimum 2 year satisfactory performance for cable size 11KV 3CX150 MM<sup>2</sup> or higher voltage or higher size &amp; rating supplied in last 5 years from the date of bid opening from at least two utilities/</p>	Performance certificates

	SEB's/ PSU's/ reputed company wherein the end user shall be utilities/ SEB's/ PSU's. In case of bidder has a previous association with BRPL/BYPL for similar product and service, the performance feedback for that bidder by BRPL/BYPL shall only be considered irrespective of performance certificate issued by any third organization.	
4	The bidder should have manufacturing capacity of minimum 30 km per month.	Installed Capacity Certificate
5	The Bidder must possess valid ISO 9001:2015 certification and BIS Licence.	Valid copy of Certification

## 2.02 Commercial Criteria:

SI No.	Criteria	Documents to be submitted by bidder
1	Bidder should have Average Annual Sales Turnover of Rs 150 Crores or more in last three (3) Financial Years (i.e., FY 2018-19, 2019-20 & 2020-21).	Balance Sheet and Duly certified CA certificate to be submitted
2	The Bidder shall submit an undertaking that "No Litigation" is pending with the BYPL or its Group/Associates Companies.	Undertaking
3	An undertaking (self-certificate) that the bidder has not been blacklisted/debarred by any central/state government institution/Electricity utilities	Undertaking
4	The bidder must have valid PAN No., GST Registration Number, in addition to other statutory compliances. The bidder must submit the copy of registrations and submit an undertaking that the bidder shall comply all the statutory compliances as per the laws/rules etc. before the start of the supply/work.	Relevant Statutory Documents Copy/ Undertaking

Notwithstanding anything stated above, BYPL reserves the right to assess bidder's capability to perform the contract, assess the capability and installed capacity of the Bidder for carrying out the supplies, should the circumstances warrant such assessment in the overall interest of the purchaser. In this regard the decision of the purchaser is final.

## 3.00 BIDDING AND AWARD PROCESS

Bidders are requested to submit their offer strictly in line with this tender document. Normally, the deviations to tender terms are not admissible and the bids with deviation are liable for rejection. Hence, the bidders are advised to refrain from taking any deviations on this Tender. Still in case of any deviations, all such deviations shall be set out by the Bidders, clause by clause in the 'Annexure - Schedule of Deviations' and same shall be submitted as a part of the Technical Bid.

### 3.01 BID SUBMISSION

Please mention our NIT Number: - ..... on the Tender and drop the same in our Tender Box placed at:

**BSES Yamuna Power Ltd, Reception, Ground Floor, Shaktikiran Building, Karkardooma, Delhi 110032**

**The bids and the outer envelope shall be addressed to:**

INFORMATION TO BIDDER (ITB) NIT NO: CMC/BY/22-23/RS/SV/4	Page 4 of 17	Bidders seal & Signature
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**Head of Department  
Contracts & Materials Deptt.  
BSES Yamuna Power Ltd, Shaktikiran Building, Karkardooma, Delhi 110032**

Kindly Note:

- Bidder will inform BYPL through mail within 02 hours from the submission or before the due date & time of submission to TPC & Buyer:
  1. Mr Santosh Singh, E-mail: Santosh.Kum.Singh@relianceada.com,
  2. Mr Sumit Verma, E-mail: sumit.ra.verma@@relianceada.com,
- Tender documents shall be submitted at main gate in tender box
- Authorized person of TPC will collect the documents from tender box at scheduled time of tender submission and verify the bid documents with mails received. A confirmation of receipt shall be sent to bidder through mail by TPC on the same day
- Bidder has to ensure that tender copy is dropped in correct box designated for tender submission only
- BYPL shall not be responsible for any wrong placement of tender document by bidder

PART A :: TECHNICAL **BID** comprising of following:

Sr. No	Descriptions	Type of Documents
<b>Commercial :</b>		
1	<b>Tender Fee - Demand Draft (Rs.1180/-) (Incl GST)</b>	Non-refundable demand draft for Rs 1180/- in case the forms are downloaded from website
2	<b>EMD</b>	In prescribed stamp paper & format
3	<b>Power-of-Attorney</b>	In prescribed stamp paper & format
4	<b>PQR Compliances</b>	Documentary evidence in support of qualifying criteria like: <ol style="list-style-type: none"> <li>1. Details of constitution of the company (Proprietary/Limited/etc along with the details), Memorandum of Association of the company</li> <li>2. Bidders shall submit the certified annual Balance sheets for the last completed three (3) financial years</li> <li>3. Supportive document on Positive Net worth. Credit rating/solvency certificate from competent authority.</li> <li>4. Copies of Orders, Execution /Performance Certificate &amp; Other Documents to support qualification Criteria</li> </ol>
5	<b>Signed Tender document</b>	Original Tender documents duly stamped & signed on each page as token of acceptance
6	<b>Black listing undertaking</b>	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	<b>Commercial Terms and Conditions</b>	Acceptance on Commercial Terms and Conditions viz Delivery schedule/period, Payment terms, PBG etc.

Sr. No	Descriptions	Type of Documents
8	<b>Acceptance on Reverse Auction</b>	Duly signed Acceptance Form For Participation In Reverse Auction Event as per attached format
9	<b>Bid Form (Unpriced) Duly Signed</b>	Duly Signed Bid Form as per attached format
10	<b>Un price Bid Duly Signed</b>	Duly Signed Un price Bid as per attached format
<b>Technical:</b>		
11	<b>Technical Details/ Filled in GTP/Drawings</b>	Bidder shall submit duly filled GTP with all Technical documents and Drawings.
12	<b>Type Test Reports</b>	Bidders shall submit the copy of type test reports in their technical bids in support of technical specifications
13	<b>Testing Facilities</b>	Bidder shall submit the details of testing facilities available at their works/factory.
14	<b>Organization Chart &amp; Manpower Details.</b>	Bidder shall submit the details of Organization & Manpower with qualification and experience.

- 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.	Events	Due date & Time
1	Date of sale/ availability of tender documents from BYPL Website	upto 09.05.2022, 14:00 Hours
2	Date & Time of Pre-Bid Meeting Pre-Bid Meeting will be done online, Register in advance for this meeting, Zoom Meeting link: <a href="https://zoom.us/join/https://zoom.us/meeting/register/tJYlce2vrzoqE9UuooYyLE6dPeTeSojpJctc">https://zoom.us/meeting/register/tJYlce2vrzoqE9UuooYyLE6dPeTeSojpJctc</a> After registering, you will receive a confirmation email containing information about joining the meeting.	19.04.2022, 14:00 Hours
3	Last Date of receipt of pre-bid queries, if any (Queries to be submitted via e-mail)	21.04.2022 up to 17:00 Hours
4	Last Date of replies to all the pre-bid queries as received	28.04.2022 up to 18:00 Hours
5	Last date and time of receipt of Complete Bids (Tender Fees, EMD, Part A & Part B)	09.05.2022, 14:00HRS
6	Date & Time of Opening of PART A – EMD and Technical Bid	10.05.2022, 14:00HRS
7	Date & Time of opening of Price/RA of qualified bids	Will be notified to the qualified bidders through our website / e-mail

**Note :-** In the event of last date specified for submission of bids and date of opening of bids is declared as a closed holiday for Tata Power-DDL's office, the last date of submission of bids and date of opening of bids will be the following working day at appointed times.

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.

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

Bidder has to submit the item wise price bifurcation in bid. Un priced copy must be attached with the Part A (Technical Bid). Reverse Auction will be carried out on individual item wise rates.

**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 techno-commercially qualified bidders 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. Bidder to submit their acceptance as per format attached ANNEXURE-C

**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 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/RFQ.
- 4.03 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 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. Price variation shall be applicable as per PV formulae.
- 4.06 Quantity Variation: The purchaser reserves the rights to vary the quantity by (±) 30% of the tender quantity during the execution of the rate contract.

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- 4.07 Quantity Splitting: 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

## 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 reserve 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. Bidders who violate the marketplace rules or engage 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.

## 7.00 CONTACT INFORMATION

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

Address	Name/ Designation	E-mail Address
<b>Technical</b>		
CES Dept. 3 <sup>rd</sup> Floor, B-Block, BSES Yamuna Power Ltd Shaktikiran Building, Karkardooma, Delhi 110032	Abhishek Vashistha DGM (CES)	abhishek.vashistha@relianceada.com
	Puneet Duggal GM (CES)	puneet.duggal@relianceada.com
	Gaurav Sharma AVP (HOD-CES)	gaurav.a.sharma@relianceada.com
<b>Commercial</b>		
C&M Dept. 3 <sup>rd</sup> Floor, A-Block, BSES Yamuna Power Ltd Shaktikiran Building, Karkardooma, Delhi 110032	Sumit Verma GM (C&M)	sumit.ra.verma@relianceada.com
	Rajesh Srivastava VP (Head-Procurement)	rajesh.r.srivastava@relianceada.com
	Robin Sebastian VP (HOD-C&M)	robin.sebastian@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 any way 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)
- (b) Instructions to Bidders
- (c) General Terms & Conditions of Contract (T&C)
- (d) Delivery schedule
- (e) Price Formats & Summary T&C

- (f) Bid Form
- (g) Acceptance Format – RA
- (h) EMD BG Format
- (i) Vendor code of conduct
- (j) Appendix
- (k) Technical Specifications (TS)

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.bsedelhi.com](http://www.bsedelhi.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.bsedelhi.com](http://www.bsedelhi.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 Bid Form and the appropriate Price Schedules and Technical Data Sheets duly filled in as per attached specification 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.

10.03 Prices quoted by the Bidder shall be "**Variable**".

10.04 Price Variation Formula

THREE CORE ARMoured POWER CABLES:

$P = P_0 + AIF \cdot (AI - AI_0) + XLFAL \cdot (CC - Cc_0) + SMIFS \cdot (SMIF1 - SMIF_0) + FeF \cdot (FeF1 - FeF_0) + CCF AI \cdot (PVCc - PVCc_0)$

SINGLE CORE ARMoured POWER CABLES:

$P = P_0 + AIF \cdot (AI - AI_0) + XLFAL \cdot (CC - Cc_0) + SMIFS \cdot (SMIF1 - SMIF_0) + CCF AI \cdot (PVCc - PVCc_0)$

For unarmored multicore cable, Steel Armour factor (FeF for strip & FeW for wire) = 0

P = Ex-works Price payable as adjusted in accordance with above appropriate formula (in Rs/Km)

Po = Ex-works Price as per RC/PO (in Rs./KM)

Aluminium

AIF = Variation factor for Aluminium as per Table-ALP.

Al = Price of Aluminium in Rs. /MT. This price is as applicable on first working day of the month, one month prior to the date of delivery.

Alo = Price of Aluminium in Rs. /MT. This price is as applicable on first working day of the month, one month prior to the due date of Tender.

XLPE

XLFAL= Variation factor for XLPE compound for Aluminium conductor cable as per Table-H2(b).

CC = Price of XLPE compound Rs. /MT for HV Cable. This price is as applicable on first working day of the month, one month prior to the date of delivery.

Cco = Price of XLPE compound Rs. /MT for HV Cable. This price is as applicable on first working day of the , one month prior to the due date of Tender.

Copper Tape

SMIF= Variation factor for Copper Tape as per Table-H3(b).

SMIF1 = Price of CC Copper Rod. Rs. /MT. This price is as applicable on first working day of the month, one month prior to the date of delivery.

SMIFo = Price of CC Copper Rod. Rs. /MT. This price is as applicable on first working day of the month, one month prior to the due date of Tender.

STEEL

FeF= Variation factor for steel as per Table-H4(b).

Fe = Price of steel strips / steel wire Rs. /MT. This price is as applicable on first working day of the month, one month prior to the date of delivery.

Feo = Price of steel strips / steel wire Rs. /MT. This price is as applicable on first working day of the month, one month prior to the due date of Tender.

PVC Compound

CCFAI= Variation factor for PVC compound / Polymer for Aluminium conductor cable as per Table-H5(b).

PVCc = Price of PVC compound Rs. /MT of grade HR-11. This price is as applicable on first working day of the month, one month prior to the date of delivery.

PVCco = Price of PVC compound Rs. /MT of grade HR-11. This price is as applicable on first working day of the month, one month prior to the due date of Tender.

The above prices and indices are as published by IEEMA prevailing as on the first working day of the calendar month, i.e. one month prior to the original date of tender submission e.g. if tender is submitted in May 2022, the applicable prices should be those prevailing as on 1st April, 2022. If the date of delivery in terms of clause given below falls in November 2022, the applicable prices of raw material should be as published by IEEMA prevailing as on 1st October, 2022.

Note:

- a) All prices of raw materials are exclusive of GST amount and exclusive of any other Central, State or Local Taxes etc.
- b) Due Date of Tender is the original due date of tender submission. If due date of tender (bid submission) is extended due to any reason, the base date (original due date) will remain unchanged for the calculation of PV clause.
- c) The date of delivery for PV calculation shall be the date on which the equipment/material is notified as being ready for inspection/dispatch or the contracted delivery date whichever is earlier whenever supplies are effected within contractual delivery period. In case the supplies are effected after the original contractual delivery period, the date of delivery for P.V. purpose would be the one out of original or extended date on which price variation is lower.
- d) Bidder shall submit detailed calculation of revised rate and amount as per the Price Variation Formula along with relevant IEEMA circulars. After approval/clearance from Buyer of revised rates, Invoicing shall be done by the supplier.

**11.0 BID CURRENCIES**

11.01 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**

13.01 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 5.0), clearly marked "Original Bid" plus Duplicate Soft copy in USB flash drive 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-Attorney 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 (hard copies) & One Duplicate Soft copy in USB flash drive 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 6.0, 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**

- 17.01 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**

- 18.01 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 and returned unopened to the Bidder.

**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

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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 GAURANTEE**

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 One percent (1%) of the total price of the Rate Contract (the "Performance Bond"). Bidder shall initially submit the PBG for 1% of RC Value valid till RC validity period plus one month. Thereafter bidder shall submit PBG on Purchase Order (PO) basis for 9% of the PO value valid for a period of 30 months from the date of last receipts whichever is earlier plus 3 months claim period.

**30.0 CORRUPT OR FRADULENT 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 .

- (b) 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;
- (c) 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.

**APPENDIX I**

**(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 its 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

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**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 it's 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 indicated in Price Bid or such other sums as may be determined in accordance with the terms and conditions of the contract. The 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 thereof, 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) .....

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**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

**ANNEXURE - 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:

**Technical Deviations:-**

SL No.	Clause No.	NIT Page No.	NIT Clause descriptions	Details of Clarification/deviation with justifications

**Commercial Deviations:-**

SL No.	Clause No.	NIT Page No.	NIT Clause descriptions	Details of Clarification/deviation with justifications

By signing this document we hereby withdraw all the deviations whatsoever taken anywhere in this bid document and comply to all the terms and conditions, technical specifications, scope of work etc. as mentioned in the standard document except those as mentioned above.

**Seal of the Bidder:**

**Signature:**

**Name:**

## Technical Bid Submission Check List

S. No.	Description	BYPL Requirement	Bidder's Compliance
<b>1</b>	<b>Tender No.</b>	Required	
<b>2</b>	<b>Technical Specification reference number</b>	Required	
<b>3</b>	<b>Communication Details</b>		
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	
<b>4</b>	<b>Document Submission Format</b>		
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	
<b>5</b>	<b>Qualifying Requirement Compliance</b>		
5.1	Summary of compliance of qualifying criteria in tabular form along with summary of documentary proof provided	Required	
5.2	Detailed Documents supporting compliance of qualifying criteria	Required	
<b>6</b>	<b>Drawings/ Documents as per Technical Specification.</b>		
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	
6.5	Detailed Drawings	Required	
6.6	Manufacturer's quality assurance plan	Required	
6.7	Other drawing/ documents mentioned in technical specification	Required	
<b>7</b>	<b>Soft copy of complete technical bid in pen drive</b>	Required	
<b>8</b>	<b>Samples as per technical specification.</b>	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.**

## 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, 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.

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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:

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- . 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

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**GENERAL CONDITIONS OF CONTRACT  
(GCC-SUPPLY)**

## **GENERAL CONDITIONS OF CONTRACT (GCC)-SUPPLY**

The General Condition of Contract shall form a part of specifications, contract document.

### **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 Bidder

**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.

11.06 E Way Bills / transit documents for movement of Goods:

Wherever applicable, the Vendor shall be responsible to issue required transit documents / E Way Bills for movement of Goods and the logistic partner / transporter shall not be liable for any loss arising due to confiscation of goods by government agencies on account of lack of proper documents or any mis-declaration. The Supplier is responsible to comply with rules applicable for E-way bill. Any violation in provision of E-way Bill will attract penalty and seizure of Transit Material. Any Penalty and Pre-Deposit due to violation of rules/provision shall be paid and borne by Supplier. Also, Supplier is responsible for releasing of goods from Authority whether CGST/SGST. Delay in supply from the contractual date due to seizure of goods shall also attract liquidated damages.

**12.0 Terms of payment and billing**

12.01 For Supply of Equipment's:

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 Rate Contract / 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 received 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 and its amendments, 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) & Udyam Registration Number.

#### **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 One percent (1%) of the total price of the Rate Contract (the "Performance Bond"). Bidder shall initially submit the PBG for 1% of RC Value valid till RC validity period plus one month. Thereafter bidder shall submit PBG on Purchase Order (PO) basis for 9% of the PO value valid for a period of 30 months from the date of last receipts 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 66 months from the date of delivery.
- 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.

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- 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 Whenever 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 detecting 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.

**34.00 Documentation**

- 34.01 The Bidder shall procure all equipment from BYPL approved sources as per attached specifications. The Bidder's shall submit 5 copies of Material/Type Test Certificates, O&M Manuals, and Approved & As-built drawings, related to various equipment. The Bidder's shall ensure for the strict compliance to the specifications and Field Quality Procedures issued by BYPL Engineer in-charge.

**35.0 Transit Insurance**

- 35.01 Transit Insurance shall be arranged by the Bidder.
- 35.02 DAMAGE / LOSS OF CARGO IN TRANSIT: Vendor shall be solely responsible for coordinating with the concerned insurance company for procuring insurance for material and/or Goods, processing

<p>GENERAL CONDITIONS OF CONTRACT          (GCC-SUPPLY)          NIT NO: CMC/BY/22-23/RS/SV/4</p>	<p>Page <b>13</b> of <b>17</b></p>	<p>Bidders seal &amp; Signature</p>
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claim lodgment and settlement. Notwithstanding the insurance cover, in case of loss / damage to material and/or Goods, in any manner and for any cause whatsoever, Vendor shall cause the damaged cargo to be replaced and delivered to the Purchaser with new material and/or Goods within 30 days of such loss / damage. The Vendor shall be solely responsible for all expenses in relation to the replacement and delivery in such circumstances.

### **36.0 Limitation of Liability**

**36.01** Except as provided otherwise in the Contract and except for willful misconduct or gross negligence, neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or any other indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract. The total liability of the Supplier to the Purchaser under the Contract shall not exceed the Contract Value. Except that this Clause shall not limit the liability of the Supplier:

- (a) Under any other provisions of the Contract which expressly impose a greater liability,
- (b) In cases of fraud, willful misconduct or illegal or unlawful acts, or
- (c) In cases of acts or omissions of the Supplier which are contrary to the most elementary rules of diligence which a conscientious Supplier would have followed in similar circumstances.

### **37.0 Liability of Suppliers**

37.1 Subject to the due discharge of its obligations under the Contract and except in case of gross negligence or willful misconduct on the part of the Supplier or on the part of any person acting on behalf of the Supplier, with respect to any loss or damage caused by the Supplier to the Purchaser's property or the Site, the Supplier shall not be liable to the Purchaser for the following:

- (a) For any indirect or consequential loss or damage; and
- (b) For any direct loss or damage that exceeds:
  - (i) The total payments made and expected to be made to the Supplier under the Contract including reimbursements, if any; or
  - (ii) The insurance claim proceeds which the Supplier may be entitled to receive from any insurance purchased by the Supplier to cover such a liability, whichever is higher.

37.2 This limitation of liability shall not affect the Supplier's liability, if any, for damage to any third party, caused by the Supplier or any Person or firm acting on behalf of the Supplier in executing the Works.

37.3 Notwithstanding anything contained in the Contract, the Supplier shall not be liable for any gross negligence or willful misconduct on the part of the Purchaser or any of its affiliates, any vendor, or any party, other than Supplier and/or, its directors, officers, agents or representatives or its affiliates, or SubSupplier, or the vendor or any third party engaged by it.

37.4 Notwithstanding anything contained in the Contract, including but not limited to approval by the Purchaser of any drawings, documents, vendor list, supply of information or data or the participation of the Purchaser in any meeting and/or discussion or otherwise, shall not absolve the Supplier from any of its liabilities or responsibilities arising in relation to or under the Contract.

### **38.0 Intellectual Property Rights and Royalties**

38.1 The Supplier shall indemnify the Purchaser and the Purchaser's Representative from and against all claims and proceedings on account of infringement (or alleged infringement) of any patent rights, registered designs, copyright, design, trademark, trade name, know-how or other intellectual property rights (hereinafter collectively referred to as "**Intellectual Property Rights**") in respect of the Works, Supplier's Equipment, machines, Works method, Plant, Materials, or anything whatsoever required for the execution of the Works and from and against all claims, demands,

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proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto. In the event of infringement of any Intellectual Property Rights of any third party as a result of the execution of the Works (or any part thereof) by the Supplier, the Supplier shall rectify, modify or replace, at its own cost, the Works, Plant or Materials or anything whatsoever required for the Works so that infringement ceases to exist or, in the alternative, the Supplier shall procure necessary rights/ licenses from the affected third party so that there is no infringement of Intellectual Property Rights.

- 38.2 The Supplier shall be promptly notified of any claim made against the Purchaser. The Supplier shall, at its cost, conduct negotiations for the settlement of such claim, and any litigation or arbitration that may arise from it. The Purchaser or the Purchaser's Representative shall not make any admission which might be prejudicial to the Supplier, unless the Supplier has failed to take over the conduct of the negotiations, litigation or arbitration within a reasonable time after having been so requested. In the event of Supplier failing to act at the Purchaser's Representative's notice, the Purchaser shall be at full liberty to deduct any such amount of pending claim from any amount due to the Supplier under the Contract or any other contract and the balance portion of claim shall be treated as debt due from the Supplier.
- 38.3 All Intellectual Property Rights in respect of any Plant, Materials, Drawings and Designs, plans, documents, specifications, data, materials, know how, charts, information, etc., provided to the Supplier by the Purchaser pursuant to this Contract for the execution of the Works, belongs to and shall continue to belong to the Purchaser and the Supplier shall not have any rights in the same other than the limited right for its use for the purpose of execution of the Works.
- 38.4 Intellectual Property Rights in respect of any Plant, Materials, Drawings and Designs, plans, calculations, drawings, documents, know-how and information relating to the Works which are proprietary to the Supplier and/ or its third party licensors ("**Supplier's IPR**") shall continue to vest with the Supplier and/ or its third party licensors and the Supplier shall grant and/ or procure from its third party licensors, at its own cost, a worldwide, perpetual, royalty free, non-exclusive license (along with the right to sub-license) to use and reproduce such Supplier's IPR for the use, operation, maintenance and repair of the Works.
- 38.5 If any patent, trademark, trade name, registered design or software is developed by the Supplier or its SubSupplier specifically for the execution of the Works, then all Intellectual Property Rights in respect of such design, trademark, trade name or software shall be the absolute property of the Purchaser and shall not be utilized or retained by the Supplier (or its SubSuppliers) for any purpose other than with the prior written consent of the Purchaser.
- 38.6 If the Supplier uses proprietary software (whether customized or off the shelf) for the purpose of storing or utilizing records in relation to the Works, the Supplier shall obtain at its own expense, the grant of a worldwide, royalty-free, perpetual licence or sublicense (including the right to sublicense) to use such software, in favour of the Purchaser provided that the use of such software under the licence or the sublicense may be restricted to use any such software only for the design, construction, reconstruction, manufacture, installation, completion, reinstatement, extension, repair and operation of the Works or any part thereof.
- 38.7 If any software is used by the Supplier for the execution of the Works over which the Supplier or a third party holds pre-existing title or other rights, the Supplier shall obtain for the Purchaser, a worldwide, royalty free, perpetual license for the right to use and apply that software (together with any modifications, improvements and developments thereof).

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**39.0 Acceptance**

- 39.01 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](http://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.
- 39.02 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.
- 39.03 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
- 39.04 We expect your services and supplies are aligned to our Vision, Mission and Values. Please refer to the following link to know about our Vision, Mission and Values; <https://www.bsesdelhi.com/web/bypl/about-bses>

**QUANTITY AND DELIVERY REQUIREMENTS**

Sl. No.	BYPL SAP Code	Item Description	Specification	Total Qty. (Meter)	Tentative Delivery Schedule	Destination
1	2100004708	Supply of 11KV Grade XLPE Insulated Aluminium Conductor Power Cable Of Size 3Cx150 MM <sup>2</sup>	BSES-TS-15-HTC-R0	3,000	1 km per month	BYPL Stores Delhi
2	2100004707	Supply of 11KV Grade XLPE Insulated Aluminium Conductor Power Cable Of Size 3Cx300 MM <sup>2</sup>		55,000	8 km per month	
3		Supply of 11KV Grade XLPE Insulated Aluminium Conductor Power Cable Of Size 3Cx400 MM <sup>2</sup>		15,000	8 km per month	
4		Supply of 11KV Grade XLPE Insulated Unarmoured Aluminium Conductor Power Cable Of Size 1Cx1000 MM <sup>2</sup>		3,000	3 km per month	
5	2100004725	Supply of 11KV Grade XLPE Insulated Armoured Aluminium Conductor Power Cable Of Size 1Cx1000 MM <sup>2</sup>		1,000	1 km per month	

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.

Delivery shall be commencing within 02 Month from the PO and completion as per the schedule

**APPENDIX II**

**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.....

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**BYPL 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: 911030003596085
5. IFSC Code: UTIB0000055



**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

**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"

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**SUMMARY OF 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) <b>"Variable"</b> , 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 Bidders scope	
3	Payment terms	100% payment shall be made within 45 days from the date of receipt & acceptance of material at store/site against submission documents	
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 08 Weeks from the LOI/PO date or completion as per the schedule.	
5	Defect Liability period	66 months from the date of delivery.	
6	Penalty for delay	1% (One) of the basic value (ex-works value) of undelivered units per week of delay or part thereof, subject to maximum of 10% (Ten) of the total basic value (ex-works value) of undelivered units.	
7	Performance Bank Guarantee	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 One percent (1%) of the total price of the Rate Contract (the "Performance Bond"). Bidder shall initially submit the PBG for 1% of RC Value valid till RC validity period plus one month. Thereafter bidder shall submit PBG on PO basis for 9% of the PO value valid for a period of 30 months from the date of last receipt plus 3 months claim period.	

**VOLUME – II**

**PRICE BID FORMAT**

**ALL PRICES IN INR (₹)**

S. No.	DESCRIPTION OF GOODS	HSN CODE (8 Digit Mandatory)	U o M	QTY (A)	UNIT BASIC PRICE INCL FREIGHT (₹) (B)	UNIT GST & CESS AS APPLICABLE (CGST & SGST/UTGST or IGST) (₹) (C)		UNIT LANDED RATE (All Inclusive) (₹) (D = B+C)	TOTAL LANDED VALUE (₹) (E = DXA)
						%	AMT		
1	Supply of 11KV Grade XLPE Insulated Aluminium Conductor Power Cable Of Size 3Cx150 mm <sup>2</sup>		M	3,000					
2	Supply of 11KV Grade XLPE Insulated Aluminium Conductor Power Cable Of Size 3Cx300 mm <sup>2</sup>		M	55,000					
3	Supply of 11KV Grade XLPE Insulated Aluminium Conductor Power Cable Of Size 3Cx400 mm <sup>2</sup>		M	15,000					
4	Supply of 11KV Grade XLPE Insulated Unarmoured Aluminium Conductor Power Cable Of Size 1Cx1000 MM <sup>2</sup>		M	3,000					
5	Supply of 11KV Grade XLPE Insulated Armoured Aluminium Conductor Power Cable Of Size 1Cx1000 MM <sup>2</sup>		M	1,000					

GRAND TOTAL LANDED VALUE (₹)

In words .....

**NOTE: Cost of all tests as per technical specification is to be included.**

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

We declare that the following are our quoted prices in INR for the entire packages.

Date:

Bidders Name:

Place:

Bidders Address:

Signature: .....

Designation: .....

Printed Name: .....

Common Seal: .....

**VOLUME – III**

**TECHNICAL SPECIFICATIONS**



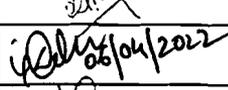
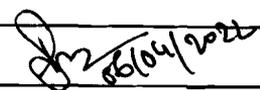
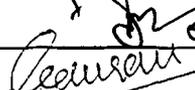
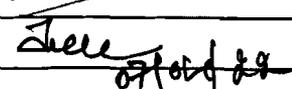
## Technical Specification for

### 11 kV Cables

Conventional - 1CX1000, 3Cx400, 3CX300 and 3CX150 sqmm

Cable in Co-Extruded Duct – 3Cx400 & 3Cx300 sq mm

Specification No: BSES-TS-15-HTC-R0

Rev:		0
Date:		6 Apr 2022
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## General Specification

### 1.0.0 Codes & Standards

The cables shall be designed, manufactured and tested in accordance with the following National Standards and IEC Standards.

#### National Standards

IS 7098 Part-2	Cross linked polyethylene (XLPE) insulated PVC sheathed cables for working voltages from 3.3 kV up to and including 33 kV.
IS 5831 : 1984	PVC insulation & sheath of electric cables.
IS 10810 : 1984	Methods of test for cables.
IS 8130 : 1984	Conductors for insulated electric cables and flexible cords.
IS 3975 : 1999	Mild steel wires, formed wires and tapes for armouring of cables.
IS 0462 (Part 1) / 1983	Fictitious Calculation Method for determination of dimensions of protective covering of cables

#### International Standards

IEC 60183	Guide to the selection of high voltage cables
IEC 60228	Conductors of insulated cables. Guide to the dimensional limits of circular conductors.
IEC 60332 – 3	Tests on electric cables under fire conditions. Part 3: Tests on bunched wires or cables.
IEC 60502 – 2	Power cables for rated voltages from 6 kV ( $U_m = 7.2$ kV) up to 30 kV ( $U_m = 36$ kV)
IEC 60811 Pts 1 through 5	Common test methods for insulating and sheathing materials of electric cables.
IEC 885 Pts 1 through 3	Electric test methods for electric cables.
IEC 28	International Standard of Resistance for Copper
IEC 332	Test on Electric Cables under fire conditions

### 2.0.0 Cable Construction Features

This Specification generally covers following types / sizes of TR-XLPE H. T. Cables used in BSES network in Delhi area, mostly under-ground (buried, with chances of flooding by water) or for laying on racks, in ducts, trenches, conduits, and so on.

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Note: (Ref.: Table stating Cable sizes given below.)

Cable Code:

As per IS, cable designations comprise of following codes / options, as applicable for this Specification:

(N.A. - Not applicable for Specification)

- (with Copper conductor) (N.A.)

A Aluminium conductor

-----  
 2X XLPE insulation  
 -----

W Steel round Wire armour (N.A.)

WW Double steel round Wire armour (N.A.)

Wa Non-magnetic round Wire armour

F Steel formed wire (strip) armour

FF Double steel formed wire (strip) armour (N.A.)

Fa Non-magnetic formed wire (strip) armour (N.A.)

- ("un-armoured" or without armour) (N.A.)  
 -----

Y PVC outer sheath

Sr. No.	Description	Conductor Material	Cable Code
1.	11 kV, 3c x 150 sq. mm.	Al	A 2X F Y
2.	11 kV, 3c x 300 sq. mm. (conventional)	Al	A 2X F Y
3	11 kV, 3c x 300 sq. mm. cable in co-extruded Duct	Al	A 2X F 2Y 2Y
4	11 kV, 3c x 400 sq. mm. (conventional)	Al	A 2X F Y
5	11 kV, 3c x 400 sq. mm. cable in co-extruded Duct	Al	A 2X F 2Y 2Y
6.	11 kV, 1c x 1000 sq. mm.	Al	A 2X Wa Y

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 Description of each item mentioned in the Specification (the text, BOQ, GTP or any site specific requirement) shall be followed, along with IS: 7098 – Part 2.

2.1.1	<b>Conductor</b>	<ul style="list-style-type: none"> <li>a) Electrolytic Grade Stranded Aluminium Conductor</li> <li>b) Grade: H2 as per IS: 8130 / 1984 (For Al)</li> <li>c) Stranded, compacted and circular in shape</li> <li>d) Class 2</li> <li>e) “Longitudinal Water-Blocking Arrangement” (or water-tight construction or water barrier protection) shall be provided within the Conductor.               <ul style="list-style-type: none"> <li>i) As per manufacturer’s procedures, 100 % water-tight conductor shall be achieved.</li> <li>iii) Make &amp; Type of materials to be used (i.e. Water-swellable tapes / yarn / powder, etc.) shall also be stated in the List of Sub-Vendors for pre-order approval.</li> </ul> </li> <li>f) All detailed constructional features shall be shown in the cross-sectional drawing.</li> </ul>
2.1.2	<b>Conductor Screen</b>	<p>Extruded semi-conducting material.          (Also refer Cl. 2.1.3.)          (Tapes are not acceptable)</p>
2.1.3	<b>Insulation</b>	<ul style="list-style-type: none"> <li>a) Extruded XLPE (Cross-Linked Poly-Ethylene) Insulation, with water-tree retardant (WTR) property</li> <li>b) The required compound used shall be from BSES-approved sub-vendors and not from any other (refer Annexure – C).</li> <li>c) Uniform thickness of insulation shall be within</li> </ul>

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		the permissible values as per IEC Standards; eccentricity check shall be carried out to ensure this. d) Insulation Color : natural
2.1.4	<b>Insulation Screen</b>	a) Freely-strippable semi-conducting screen, which should not require application of heat for its removal. (Refer Cl. 2.1.3.) b) Text “Do not Heat - Freely Strippable” to be printed on insulation screen (at every 600 mm interval). c) Round shape over the outer semi-con shall be within the permissible limits as per IEC standards; Ovality (2% max) check shall be carried out to ensure this. d) Compound used shall be suitable for the operating temperature of the Cable and shall be compatible with the insulation used.
2.1.4A	<b>XLPE Process</b>	
2.1.4A-1	11 kV	Dry Cure and Dry Cool process only.
2.1.4A-2	Not in use	
2.1.4A-3	Extrusion	It is mandatory that Conductor Screen, Insulation and Insulation Screen shall be extruded simultaneously, in a Single One-Time Process (i.e. as a triple-head extrusion) to ensure homogeneity of layers over the conductor, and absence of voids.
2.1.4A-4	Make of Compounds for Insulation and Semi-conducting	Any deviation from Approved Makes mentioned in Annexure-C shall not be acceptable, unless the deviation has been specifically approved by BSES during tendering stage
2.1.5	<b>Water-Swell able Tape</b>	a) Semi-Conducting Water-Sellable Tape shall be provided, under the copper tape, on each core.

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		<ul style="list-style-type: none"> <li>b) Nominal thickness : 0.3 mm</li> <li>c) Weight: 118 gm / sq. m approx.</li> <li>d) Swell height: <math>\geq 12</math> mm in 1 min.</li> <li>e) Compatible to strippable / non-strippable semi-con, over which it is applied.</li> </ul>
2.1.6	<b>Core Identification</b>	<ul style="list-style-type: none"> <li>a) For 3-core cables, cores shall be identified by coloured strips (Red, Yellow, Blue), applied helically / longitudinally below the copper tape.</li> </ul> <p>The coloured strips shall carry the name of cable manufacturer permanently printed at 1 meter intervals; this is to provide additional identification of manufacturer of the cable.</p>
2.1.6A	<b>Copper Tape</b>	Copper Tape shall be applied helically over the layer formed after application of insulation screen, water-swell able tape and identification strip. Zero negative tolerance in thickness of copper tape
2.1.7	<b>Filler</b>	<ul style="list-style-type: none"> <li>a) All interstices, including center interstices shall be filled by PP filler.</li> <li>b) PP Filler shall be non-hygroscopic, not having any effect on other compounds used, stable at cable temperatures, etc.</li> <li>c) PVC filler is not acceptable.</li> <li>d) Filler is not applicable for single-core cables.</li> </ul>
2.1.8	<b>Binder Tape</b>	As per manufacturer's standard
2.1.9	<b>Inner Sheath</b>	Extruded Inner Sheath of Black PVC type ST-2 (IS 5831)
2.1.10	<b>Armour</b>	<ul style="list-style-type: none"> <li>a) For 3-core Cables : Galvanised Steel flat strip armour</li> <li>b) For 1-core Cables :</li> </ul>

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		<p>Non-magnetic round wire armour (hard-drawn aluminium wire)</p> <p>c) Minimum area of coverage of armouring shall be 90 % (min.). At any time, the gap between any two adjacent armour strips / wires shall not be more than the width of strip / diameter of wire.</p> <p>d) Zero negative tolerance is for :</p> <ul style="list-style-type: none"> <li>• Thickness of armour strip</li> <li>• Diameter of armour wire</li> </ul>
2.1.11	<b>Binder Tape</b>	Rubberised cotton tape
2.1.12	<b>Outer Sheath</b>	
2.1.12.1	<b>For Conventional cable</b>	<p>a) Extruded outer sheath of PVC (ST-2 as per IS 5831) with termite-repellant and anti-rodent properties. Color - Blue (Outer Sheath shall be FRLS-type, if chosen by purchaser.)</p>
2.1.12.2	<b>For 3Cx300 &amp; 3Cx400 sq mm CCD cable (Cable in Co-extruded duct)</b>	<p>a) Inner Layer- Extruded PE compound Type HDPE ST7 (Black)- Thickness 3.00 mm</p> <p>b) Outer Layer- Extruded PE compound Type HDPE ST7 ; Thickness 2 mm, color Orange (IS 557) or other color as per Tender requirement</p>
		<p>b) Shape of the cable over the outer sheath shall be circular, when manufactured / completed. 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>c) The Outer Sheath shall be embossed as well as laser printed with following minimum text at a interval of 1 mtr:</p> <ol style="list-style-type: none"> <li>1. The voltage designation</li> <li>2. Type of construction / cable code</li> </ol>

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		<p>(e.g. A2XFY)</p> <ol style="list-style-type: none"> <li>3. Manufacturer's Name and Trade-mark</li> <li>4. Number of cores and nominal cross-sectional area of conductor</li> <li>5. Name of buyer / purchaser,</li> <li>6. Month &amp; Year of manufacturing</li> <li>7. IS reference, i.e. IS : 7098</li> <li>8. Batch No. / Lot No.</li> </ol> <p>(For traceability purpose, in case of any, in case of any manufacturing defect or otherwise arising in the cable in future.)</p> <ol style="list-style-type: none"> <li>9. Purchase Order Number &amp; date</li> <li>10. Word ' FRLSH ', in case the cable is of FRLSH type.</li> </ol> <p>Note:</p> <ol style="list-style-type: none"> <li>a) Drum No. &amp; Progressive (sequential) length marking shall be provided by Laser Printing at every meter with proper contrast in coloring</li> <li>b) Progressive length marking for every drum shall be starting from zero for every drum.</li> </ol>
2.1.13	<p><b>Sealing-end Cap at both ends</b> (for Cables)</p>	<p>Cable both ends (inner and outer end) shall be sealed as per drawing MISC/E/4-1131/1698. One PVC cap with Polyurethane compound shall be provided as primary sealing and heat-shrink end-cap shall form a secondary sealing over the PVC cap.</p>
2.1.14	<p><b>Pulling-eye Assembly at one end, Sealing-end cap at other end</b> (if required as per tender requirement)</p>	<p>A cable pulling-eye assembly as per Drg. No. MISC/E/4-1131/1698 shall be provided at the loose end (outer end) of the cable on each drum. Sealing material shall be filled in inside the spaces / gaps between the pulling-eye assembly and cable outer sheath. Further, a heat-shrinkable sleeve shall be provided over the pulling-eye assembly and outer</p>

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		sheath of cable. If pulling eye is required as per tender requirement, sealing end cap shall be required for only one end of cable.
3.0.0	(This number not used.)	
4.0.0	<b>Testing &amp; Inspection</b>	Tests shall be carried out in accordance with IS 7098 (Part-2).
	a) Type Tests (IS 7098, IEC)	<p>1) <u>To Qualify in Tender:</u> Cables must be of type tested quality. Type Test Reports shall be submitted for the type, size and rating of cable offered in the bid. For participation in the tender Type Test report shall be submitted from CPRI/ERDA only and shall not be more than 5 years old from the date of tender. If the report is more than 5 years and but less than 10 years old than bidder to submit undertaking that there is no design changes from the Type test conducted.</p> <p>2) <u>Type Test Required After Award of PO:</u> Type test on one cable drum of each type/rating from any lot shall be conducted at CPRI/ERDA on sample basis as per relevant IS/IEC. Sample shall be sealed by BSES during inspection of cable. This type test is applicable subject to BSES requirement and cost shall be borne by BSES.</p>
	b) BSES QAP (Typical)	In general, all tests mentioned in the BSES QAP (Characteristics – Typical) mentioned in Annexure-F shall be included in the Routine Tests, Type Tests and Acceptance Tests stated above.
	c) Routine Tests	<ol style="list-style-type: none"> <li>1. Measurement of Electrical Resistance</li> <li>2. HV Test with power frequency AC voltage</li> <li>3. Partial Discharge test</li> <li>4. “Strippability Test” at both the ends of cable for each drum, to check the freely-strippable</li> </ol>

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		<p>property of the Insulation Screen (outer semi-con).</p> <ol style="list-style-type: none"> <li>5. Impulse voltage test of one drum</li> <li>6. Armour coverage measurement</li> <li>7. Physical test-Dimensions of each and every layer and components.</li> </ol> <p>Test results from the above tests must appear in the documents forwarded by the vendor for Inspection call / waiver.</p>
	<p>d) Inspection</p>	<ol style="list-style-type: none"> <li>1. The Buyer reserves the right to witness all tests specified on completed cables.</li> <li>2. The Buyer reserves the right to inspect cables at Sellers works at any time prior to dispatch, to verify compliance with the specifications.</li> <li>3. In-process (stage inspection) and final inspection call intimation shall be given at 10 days advance to the purchaser along with complete manufacturing scheduled.</li> <li>4. Minimum lot size of Cables to be offered for inspection shall be mutually agreed between Purchaser and Vendor, before placing the order. Vendor shall raise inspection call only after a minimum lot size is ready and with due factory routine tests already carried out.</li> </ol>
	<p>e) Acceptance Tests</p>	<p>Acceptance Tests shall be conducted as per Cl. 18.2 of IS 7098 (Part-2) and the approved Quality Assurance Plan (QAP) for each lot of cables.</p> <p>Following tests shall also be carried out during the Acceptance Tests :</p> <ol style="list-style-type: none"> <li>a) "Wafer Boil Test" for checking integrity of semi-conducting layers-in each lot.</li> <li>b) "Void-and-contamination Test" for the Insulation-in each lot</li> <li>c) "Strippability Test" at both the ends of cable for each drum, to check freely-strippable property of</li> </ol>

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		<p>the Insulation Screen (outer semi-con) - in each lot.</p> <p>d) "Water Penetration Test (WPT)", as per applicable IEC standards, to check adequacy of water-blocking arrangement provided inside the conductor -in each lot.</p> <p>e) Impulse voltage test – in each lot sample basis.</p> <p>f) Heating Cycle along with potential once per PO on sample basis.</p>
	<p>f) Test Certificates (TC)</p>	<p>Three sets of complete Test Certificates (Routine tests and Acceptance tests) shall be submitted along with the delivery of cables.</p> <p>Soft copy of the TCs shall be separately e-mailed to the Purchaser.</p> <p><b>Note :</b> Make/grades of critical materials (such as, for conductor screen, insulation, insulation screen, etc.), actually used during manufacturing of cables for order-on-hand, shall be clearly stated in the TCs forwarded by the Manufacturer, enabling references in future.</p>
<p>5.0.0</p>	<p><b>Drawing, Data and Manuals</b></p>	<p>a) Refer Annexure-A regarding Document Submission.</p> <p>b) Cross-Sectional Drawing shall show every feature of construction, including the thickness / diameter over every layer. This drawing shall also state the text to be embossed over the outer sheath - i.e. type/size, etc. of the cable, drum no./lot no., sequential marking over every meter, printing text on outer semi-con ("Do Not Heat-Freely Strippable"), font sizes to be used, additional text, if any, etc. Also, drum details, markings to be made on both sides of the drum, and so on.</p>

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5.0.1	Documents to be submitted along with bid	The vendor shall submit : a) Cross-sectional drawing b) GTP (all data to appear) c) Type Test certificates d) Fault Level Calculation for armour and copper tape screen e) Complete Cable Catalogue and Manual f) Armour Coverage Calculation g) Raw materials make list
5.0.2	Documents after award of contract	Within 15 days, the seller has to submit four sets of above-mentioned drawings, along with one soft copy for buyer's approval.
5.0.3	Final As-Built Drawings	One soft copy of all documents, including type & routine test certificates.
6.0.0	<b>Drum length &amp; tolerance</b>	Cable length per drum
6.0.1	a) 11 kV, 3Cx150 sqmm b) 11kV , 3Cx300 sqmm c) 11 kV, 1Cx1000 sqmm d) 11kV , 3Cx400 sqmm	300 mtr +/- 5% or 500 mtr +/- 5% (100% of the ordered quantity) as per tender requirement
6.0.2	Overall tolerance	- 2 % for the total cable length for the entire order.
6.0.3	Short length of cables	Manufacturer shall take prior approval from Purchaser for any supply of short length cables.  For 11 kV cables, minimum acceptable short length cables can be 250 meter.  In any case, manufacturer shall not put two cable pieces of different short lengths in same cable drum.

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		Only one short length drum shall be accepted and in last lot only.
7.0.0	<b>Packing, Shipping, Handling &amp; Storage</b>	
	a) Packing	<p>a) Both the ends of the cables shall be properly sealed to prevent any deterioration of the cable, due to ingress of water, etc.</p> <p>b) Cable inner end (starting end) shall project, outside the completely wound cable, by sufficient length enabling verify cable details, including the initial length marking.</p> <p>c) Similarly, outer end of the cable shall be saddled / secured to the drum properly to prevent any external damage to the end at any time.</p> <p>d) Before putting on wooden planks, protective covers (thick plastic sheets, etc.) shall be secured over the wound cable, to avoid any abrasion by wooden planks, over the outer sheath of the cable.</p> <p>e) After providing the protective covers, the cable drums shall be finally closed by wooden planks (with saddles), without leaving any gaps between the planks; i.e. 100 % covering shall be ensured.</p>
	b) Drum Identification Markings:	<p>Direct marking (i.e. text painting through stencils, etc.) shall be done on the drums, instead of attaching labels, which may be misplaced/lost over a period of time.</p> <p>a) Drum identification number</p> <p>b) Cable voltage grade</p> <p>c) Cable code (e.g. A2XFY, etc.)</p> <p>d) Number of cores and cross sectional area</p> <p>e) Cable quantity, i.e. cable length (meter)</p>

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		<p>f) Purchase order number &amp; date</p> <p>g) SAP item code</p> <p>h) Total weight of cable and drum (kg)</p> <p>i) Manufacturer's Name</p> <p>j) Buyer's name</p> <p>k) Month &amp; Year of Manufacturing</p> <p>l) Direction of rotation of drum</p> <p>m) 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>
	c) Shipping information	The seller shall give complete shipping information concerning the weight, size of each package
	d) Transit damage	The seller shall be responsible for any transit damage due to improper packing.
	e) Type of Drum	Wooden or Steel drums as per tender requirement (all the drums shall be non returnable except otherwise mentioned in the tender), as per relevant IS / IEC.
	f) 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.
8.0.0	<b>Quality Assurance Plan (QAP)</b>	
8.0.1	Vendor's QAP	Manufacturer shall submit QAP in line with BSESQAP (Annexure-F) for purchaser's approval before starting of manufacturing which is mandatory
8.0.2	Inspection Points	As per BSES approved QAP and special BSES requirement if any to cross check the product quality. Seller must have to meet the special requirement of BSES during inspection.
9.0.0	<b>Progress Reporting</b>	

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9.0.1	Outline Document	To be submitted for purchaser's approval for outline of programmes for production, stage-inspection, testing, final inspection, packing, dispatch and documentation.
9.0.2	Detailed Progress Report	<p>To be submitted to Purchaser once a month containing :</p> <ul style="list-style-type: none"> <li>i) Progress on material procurement</li> <li>ii) Progress on fabrication (as applicable)</li> <li>iii) Progress on assembly (as applicable)</li> <li>iv) Progress on internal stage-inspection</li> <li>v) Reason for any delay in total programme</li> <li>vi) Details of test failures, if any, during manufacturing stages.</li> <li>vii) Progress on final box-up Constraints / Forward Path</li> </ul>
10.0.0	<b>Deviation</b>	<p>a) Deviations from this specification shall be listed separately by bidder clause wise (format given in Annexure- H) along with optional offer and has to submit the list along with bid/quotation. BSES will review the deviations and if BSES is agreed with the deviation, seller has to take written confirmation from BSES on deviation during tender evaluation.</p> <p>b) In the absence of any separate list of deviations from the bidders with bid as well as written confirmation from BSES on deviations, it will be assumed by the Buyer that the Seller complies with the Specification fully.</p> <p>c) Any deviations mentioned in any other submitted bid documents (i.e.in filled GTP, Catalog, BSES old approval, buyer's/seller's standards etc.) by seller without separate deviation sheets will not consider as a deviation from this tech spec at any stage of contract.</p>

**Annexure – A****Scope, Documentation and Delivery schedule**

Document/Drawing submission shall be as per the matrix given below:

- a. All documents/drawings shall be provided in soft copy only in returnable Pen drives
- b. Language of the documents shall be English only.
- c. Incomplete submission shall be liable for rejection.
- d. Document check sheet compliance shall be the first sheet for each submission stage i.e. Technical bid, Drawing Approval, Pre Dispatch, Pre closure
- e. No submission is acceptable without check list compliance.
- f. Deficient/ improper document/ drawing submission shall be liable for rejection.
- g. Order of documents shall be strictly as per the check list.
- h. Any document not included in the below table but necessary for detailed engineering shall be deemed to be included in bidder's scope

S.No.	Detail of Document	For Tender	For Approval/Review	Final Submission
1	Guaranteed Technical Particulars (GTP)	Required	Required	Required
2	Deviation Sheet, if any	Required	Required	Required
3	Detailed cross sectional drawing of cable and drum	Required	Required	Required
4	Installation Instructions		Required	Required
5	Manual/Catalogue	Required	Required	Required
6	Cable de-rating factors		Required	Required
7	Type test reports of offered type and rating of cable	Required	Required	Required
8	BIS certificate	Required		
9	Make of Raw Materials	Required	Required	Required
10	Inspection and test reports, carried out in manufacturer's works			Required
11	Routine Test Certificates			Required
12	Test certificates of all the raw materials			Required

**Annexure - B****GUARANTEED TECHNICAL PARTICULARS (GTP)****Note:**

- 1) For every type / size of cable, every data shall be mentioned.
- 2) Seller may submit separate GTP for every type / size of cable, as suitable.
- 3) GTP requirements are generally as per IS: 7098 (Part-II).
- 4) GTP shall be read in line with purchaser's Project Site Specific Requirement.

<b>Sr. No.</b>	<b>Description</b>	<b>Buyer's requirement</b>	<b>Unit</b>	<b>Seller's Data</b>
1.0	Purchase Req. No.	-		
2.0	Guarantee Period (Min.)	60 Months (from date of commissioning) / 66 Months (from date of receipt at purchaser's store) whichever is earlier		
3.0	Applicable IS / IEC Standard followed by vendor	IS 7098 Part-2 / IEC 60502-2		
4.0	Make	-		
5.0	<b>Type</b> (as required by purchaser)			
	a) 11 kV, 3c x 150 sq. mm.	A2XFY		
	b) 11 kV, 3c x 300 sq. mm.	A2XFY		
	c) 11 kV, 3c x 300 sq. mm. CCD	A2XF2Y2Y		
	d) 11 kV, 3c x 400 sq. mm.	A2XFY		
	e) 11 kV, 3c x 400 sq. mm. CCD	A2XF2Y2Y		
	f) 11 kV, 1c x 1000 sq. mm.	A2XWaY		
6.0	<b>Voltage Grade</b>			
	a) 11 kV, 3c or 1c	6.35 / 11	kV	
7.0	Maximum Conductor temperature			
	A Continuous	90	deg. C	
	B Short time	250	deg. C	
8.0	<b>Conductor</b>	Compacted, Circular, Water tight construction is mandatory		

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A	Material and Grade	As per Cl. 2.1.1		
B	Size	As shown under 5.0 above		
C	Wires in each conductor	As per Table 2 of IS 8130	Nos.	
D	Conductor Shape	As per Cl. 2.1.1 c		
E	Dia. of wires in each conductor before compaction	Manufacturer Standard	Mm	
F	Diameter over conductor		Mm	
G	Maximum Conductor resistance at 20 ° C			
	a) 11 kV, 3c x 150 sq. mm.	0.2060	ohm/km	
	b) 11 kV, 3c x 300 sq. mm.	0.1000	ohm/km	
	c) 11 kV, 3c x 400 sq. mm.	0.0778	ohm/km	
	d) 11 kV, 1c x 1000 sq. mm.	0.0291	ohm/km	
H	Longitudinal Water Blocking Arrangement within conductor	Is it provided and shown in the cross-sectional drawing? (Yes / No)		
I	Short circuit current-carrying capacity of conductor		kA for 1 sec.	
9.0	<b>Conductor Screen</b> (inner semi-con)			
A	Material & type	As per Cl. 2.1.2		
B	Thickness (min)	0.50	Mm	
C	Diameter over conductor screen		Mm	
D	Make and grade of semi-conducting compound			
10.0	<b>Insulation</b>			
A	Insulation Material	As per Cl. 2.1.3		
B	Nominal thickness			
	a) 11 kV, 3c or 1c	3.6	Mm	
C	Minimum thickness			
	a) 11 kV, 3c or 1c	3.14	Mm	
D	Diameter over Insulation		Mm	
E	Make and grade of Insulation compound			
F	Eccentricity	As per IEC standards	%	
G	Water-tree retardant property	Required		
11A.	<b>Insulation Screen</b> (outer semi-con)			
a.	i) Thickness of freely strippable Semi conducting screen	0.50	Mm	
	ii) Make and grade of semi-conducting compound			
	iii) Printing	As per Cl. No. 2.1.4 (Yes / No)		

Technical Specification for 11 kV Cables (1CX1000,3Cx400, 3CX300 and 3CX150 sqmm)

	iv) Ovality of the core (max)	2	%	
b.	Diameter over Insulation Screen (approx.)		Mm	
11B.	<b>Water-Swellable Tape</b> (if required by Purchaser)			
	a) Thickness b) Weight c) Swell height d) Compatible to strippable / non-strippable semi-con, over which it is applied. e) Make & Grade f) Pre-slitted packed tapes from sub-vendors approved by BSES	a) 0.3 mm b) 118 gm / sq. m c) ≥ 12 mm in 1 min. d) Yes / No  e) Pl. state f) Yes / No		
11C.	<b>Cable Core identification</b>  a) By coloured strips over cores applied helically / longitudinally b) Manufacturer's name shall be permanently printed on the strips, at close intervals.			
11D.	<b>Copper Tape</b>			
	i) Dimensions	a) Thickness : 0.06 + 5 % b) Width : 50 mm  C) Overlap: 10% d) no negative tolerance in thickness of copper tape	Mm	
	ii) Fault current-carrying capacity of copper tape	Manufacturer's Standard (Calculation sheet shall be attached)	... kA for ... sec.	
11E.	Diameter over laid up core (approx.)		Mm	

Technical Specification for 11 kV Cables (1CX1000,3Cx400, 3CX300 and 3CX150 sqmm)

12.0	<b>Filler</b> (Material and type)	As per Cl. 2.1.7 (Specify no. & size of filler at center & core interstices)		
	a) 11 kV, 3c x 150 sq. mm.			
	b) 11 kV, 3c x 300 sq. mm.			
	c) 11 kV, 3c x 400 sq. mm.			
	d) 11 kV 1core	Not applicable		
12A.0	<b>Binder Tape</b>	over laid-up cores		
13.0	<b>Inner Sheath</b>			
A	Material and type	As per Cl. 2.1.9		
B	Minimum thickness			
	a) 11 kV, 3c x 150 sq. mm.	0.6	Mm	
	b) 11 kV, 3c x 300 sq. mm. (conventional & CCD)	0.7	Mm	
	c) 11 kV, 3c x 400 sq. mm. (conventional & CCD)	0.7	Mm	
	d) 11 kV, 1c x 1000 sq. mm.	0.7	Mm	
C	Approx. dia. over inner sheath		Mm	
14.0	<b>Armour</b>	as per purchaser's requirements		
A	Material			
	a) 11 kV, 3c	G. I. Strip	No.	
	b) 11 kV 1c	non-magnetic wire armour (Aluminium wire)	No.	
B	Armour – Wires	As per Table 6 of IS 7098 Part-2 (zero negative tolerance for diameter)	mm.	
	a) Diameter of wire			
	b) Number of wires (min.)		no.	
C	Armour – GI strips		mm	
	a) Width of strip & Thickness of strip	a) 6.1 x 1.4 (zero negative tolerance for thickness)		
	b) Number of strips (min.)	b) Vendor to specify	no.	
D	Approx. Equivalent Area		sq. mm.	
E	Area covered by armour	Min. 90 % Calculation shall be attached.	%	
F	Dia. over armour - approx.		Mm	
G	Fault current carrying capacity of armour	Calculation sheet shall be attached.	... kA for ... sec.	
15.0	<b>Outer Sheath</b>			
A	Material and type	As per Cl. 2.1.12		

Technical Specification for 11 kV Cables (1CX1000,3Cx400, 3CX300 and 3CX150 sqmm)

B	Thickness (min.)	** As per Table-5 of IS 7098 Part-2		
	a) 11 kV, 3c x 150 sq. mm.	**	mm	
	b) 11 kV, 3c x 300 sq. mm. Conventional cable	**	mm	
	c) 11 kV, 3c x 400 sq. mm. Conventional cable			
	d) 11 kV, 1c x 1000 sq. mm.	**	mm	
	e) 11 kV, 3c x 300 sq. mm. CCD cable	As per Cl. 2.1.12		
	f) 11 kV, 3c x 400 sq. mm. CCD cable			
C	Color	As per Cl. 2.1.12		
D	Embossing (details as per Cl. 2.1.12)	Yes		
E	FRLS Properties	As per customer's requirement		
16.0	Approx. overall diameter		mm	
17.0	Standard drum length with tolerance			
	a) 11 kV, 3Cx150 sqmm b) 11kV , 3Cx300 sqmm conventional or CCD c) 11kV , 3Cx400 sqmm conventional or CCD d) 11kV , 1Cx1000 sqmm	500 mtr +/- 5% or 300 mtr +/- 5%	meters	
17A	Overall order tolerance- <del>{R1}</del>	- 2 % for the total cable length for the entire order.		
18.0	<b>Cable Drum</b>			
	a. Type of drum	Wooden/ Steel non returnable (Specify the relevant IS / IEC followed for drum design)		
	b. Markings on the drum (as per Cl. 7.0.0)	On both faces		
18A.0	<b>Cross-Sectional Drawing</b> (ref. Cl. 5.0.0)	Is drawing submitted, showing every feature of constructions?		

Technical Specification for 11 kV Cables (1CX1000,3Cx400, 3CX300 and 3CX150 sqmm)

		(Yes / No)		
19.0	a. Sealing-end Cap (provided at the both Ends)	Yes/No Is manufacturer's / Sub-Vendor's drawing submitted? (Yes / No)		
	b. Pulling Eye at one end and Sealing-end Cap provided at other end	Yes/No Is manufacturer's / Sub-Vendor's drawing submitted? (Yes / No)		
20.0	<b>Weights</b>			
	a) Net weight of cable (approx.)		kg / km	
	b) Weight of empty drum	500 mtr/300 mtr	Kg	
	c) Weight of Cable with drum	500 mtr/300 mtr	Kg	
	d) Size of Drum	500 mtr/300 mtr	mm	
	e) Drawing of Drum	Required	EA	
21.0	Continuous current rating for standard I. S. condition laid Direct			
	a) In ground 30° C		Amp	
	b) In duct 30° C		Amp	
	c) In air 40° C		Amp	
22.0	(not used)			
23.0	Electrical Parameters at Maximum Operating temperature:			
A	AC Resistance		ohm / km	
B	Reactance at 50 c/s		ohm / km	
C	Impedance		ohm / km	
D	Zero sequence impedance		ohm / km	
E	Positive sequence impedance		ohm / km	
F	Negative sequence impedance		ohm / km	
G	Capacitance		micro-farad / km	
H	Conductance		Amperes per volts	
I	Inductive susceptance		mho	
J	Capacitive susceptance		ohms	
24.0	Recommended minimum bending radius	12 x O. D.	mm	

Technical Specification for 11 kV Cables (1CX1000,3Cx400, 3CX300 and 3CX150 sqmm)

25.0	De-rating factor for following Ambient Temperatures :	Ground / Air		
	a) At 30° C			
	b) At 35° C			
	c) At 40° C			
	d) At 45° C			
	e) At 50° C			
26.0	Group factor for following numbers of cables laid :	Touching Trefoil		
	a) 3 Nos.			
	b) 4 Nos.			
	c) 5 Nos.			
	d) 6 Nos.			
27.0	Recommended pressure for laying cable using power winch	30 N / mm <sup>2</sup>	N / sq. mm.	
28.0	Process of Cross-linking of Polyethylene			
	a) 11 kV, 3c or 1c	Dry Cure process and Dry Cooling only		
29.0	<b>Type test</b> (TTR - Type Test Report)	Is copy of latest valid TTR for respective sizes enclosed? (Yes / No)		
30.0	<b>Quality Assurance Plan</b> (QAP)	Is QAP Format (Annexure-F), duly filled in and enclosed? (Yes / No)		
31.0	<b>List of Sub-Vendors</b> for construction items (Annexure-C)	Is this list enclosed for BSES approval? (Yes / No)		

**Annexure - C****List of Sub-Vendors for critical items**

Vendor/Bidder to state sub-vendors' names for other items, wherever approved names are not mentioned, for purchaser's approval during tendering stage else purchaser shall impose as per their requirement and bidder to follow the same in post-order stages.

Ser. No.	Raw Materials		Name of the Make
1.	XLPE Compound	1	Dow Chemicals , U.S.A.
		2	Borealis , Sweden
		3	Hanwha , South Korea
2.	Semi-Conducting Compound	1	Dow Chemicals, U.S.A.
		2	Borealis , Sweden
		3	Hanwha , South Korea
3.	Conductor Water-Blocking tapes / yarn	1	Lantor
		2	Geca
		3	Miracle
		4	Scapa
		5	Sneham International
4.	Water-Swellable Tapes (Pre-slitted)	1	Lantor
		2	Geca
		3	Miracle
		4	Scapa
		5	Sneham International
5.	Aluminium Rod	1	Bharat Aluminium Co. Ltd. (BALCO)
		2	Hindustan Aluminium Co. Ltd. (HINDALCO)
		3	National Aluminium Co. Ltd. (NALCO)
		4	Vedanta (Sesa Sterlite)

Technical Specification for 11 kV Cables (1CX1000,3Cx400, 3CX300 and 3CX150 sqmm)

Ser. No.	Raw Materials		Name of the Make
6.	Copper Tape	1	Aggarwal Metal
		2	Indian Smelting
		3	Luvata Swedan
		4	Outokumpu Copper Strip AB, Swedan
7	Galvanised Steel Wires / Strips	1	Tata
		2	Balaji
		3	Systematic
		4	Mica Wires Pvt. Ltd.
		5	Bansal Industries
8	PVC Compound	1	Kalpana
		2	Universal
		3	SCJ Plastic
		4	Sriram Polytech
		5	Shri Ram Vinyl, Kota
9	P. P. Fillers	1	Vijoy Polymers
		2	Yash Polymers
		3	AVSL Industries
10	Core Identification Tape	1	AVSL Industries
		2	Yash Polymer
		3	Vijoy Polymers
11	PE Compound	1	Borealis
		3	Shakun
		4	Kalpana

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Technical Specification for 11 kV Cables (1CX1000,3Cx400, 3CX300 and 3CX150 sqmm)

**Annexure - D****Service Conditions**

(Atmospheric / Soil conditions at Site)

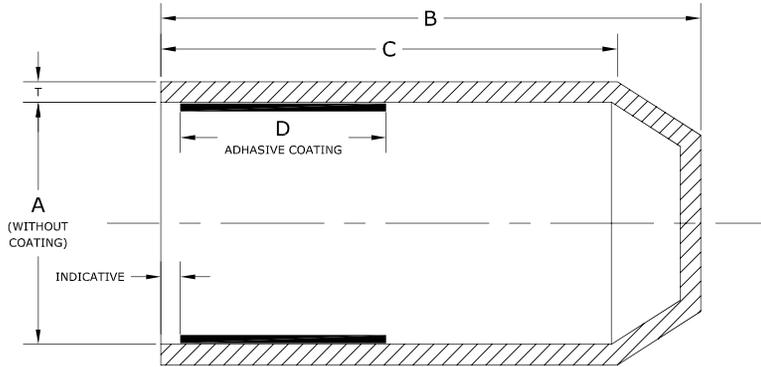
<b>B. Delhi</b>		
a)	Average grade atmospheric condition	Heavily polluted, dry
b)	Maximum altitude above sea level	1000 M
c)	Air temperature Ambient	i) Highest : 50 deg C ii) Average : 40 deg C iii) Minimum : 0 deg C
d)	Relative Humidity	100 % max
e)	Thermal Resistivity of Soil	150 deg. C. cm / W max.
f)	Seismic Zone	4
g)	Rainfall	750 mm concentrated in four months

# ANNEXURE E

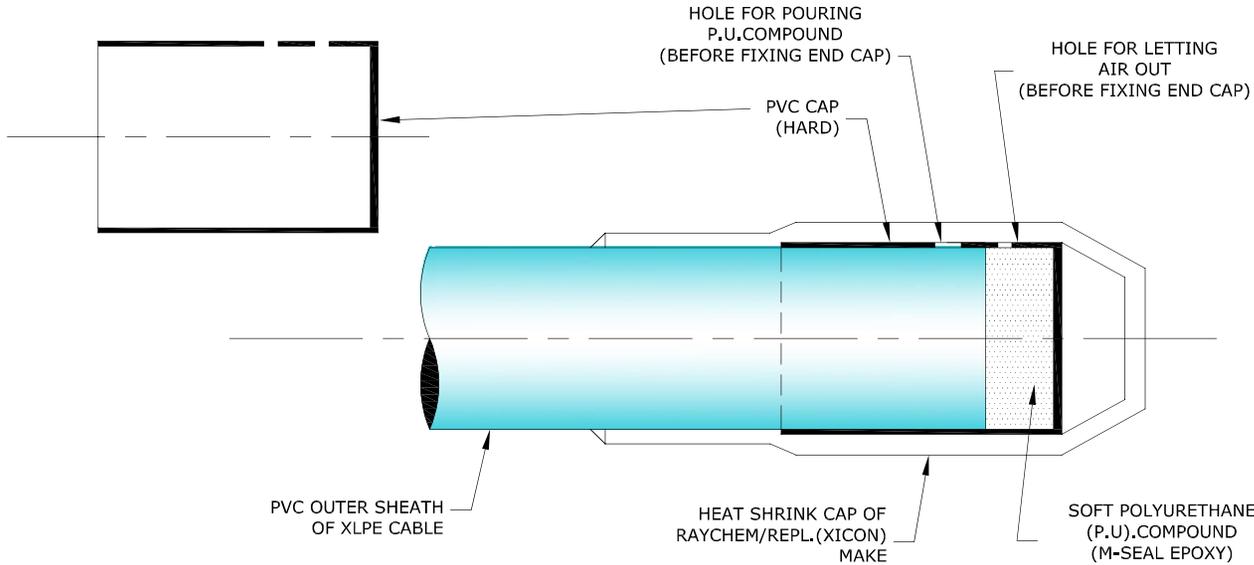
## DIMENSIONS

SIZE	A EXP.(Min.)	A REC.(Max.)	B EXP.(Min.)	C EXP.(Min.)	D EXP.(Min.)	LC %	T (WALL REC. ± 20 %)
EC 120/150	75	34	120	105	50	± 10	4.2
EC 240/300	100	62	130	110	70	± 10	3.5
EC 400	145	75	155	120	70	± 10	4.6

EXP - Expanded (as supplied), REC - Recovered freely, LC - Longitudinal Change, T - Wall Thickness, EC - End Cap



**END CAP**  
(AS SUPPLIED)  
SECTIONAL VIEW



**END CAP**  
(AFTER HEAT SHRINKING OVER THE CABLE END)

## MATERIAL SPECIFICATIONS

Characteristics	Test Class	Value	Test Method
<b>A Physical Properties</b>			
1 Specific Gravity	Type	1.05 ± 0.2	ASTM D-1505
2 Water Absorption	Type	1 % (max)	ASTM D-570 / ISO 62
3 Tensile Strength	Routine	10 N/sqmm (min)	ASTM D-412 / ISO 37
4 Ultimate Elongation	Routine	300% (min)	ASTM D-412 / ISO 37
5 Hardness	Type	45 shore D ± 3	ASTM D-2240
<b>6 Thermal Test</b>			
<b>B Thermal Ageing (120°C for 500 hrs)</b>			
1 Tensile Strength	Type	8 N/sqmm (min)	ASTM D-412 / ISO 37
2 Ultimate Elongation	Type	200% (min)	ASTM D-412 / ISO 37
<b>C Electrical Properties</b>			
1 Volume Resistivity	Type	10 <sup>12</sup> ohm-cm. (min)	ASTM D-257 / IEC 93
2 Dielectrical Strength	Type	10 kV/mm. (min)	ASTM D-149 / IEC 243
3 Dielectric Constant	Type	5 (max)	ASTM D-150 / IEC 250

- Note : 1) All dimension in mm  
2) Colour Black  
3) Size as mentioned in the table shall be stencilled on respective item

# BSES

DRAWING No. MISC/E/4-1131/1698

SCALE :NOT TO SCALE

DATE: 09-05-2011

**END SEALING CAP**  
(FOR XLPE CABLE)

DRAWN BY:

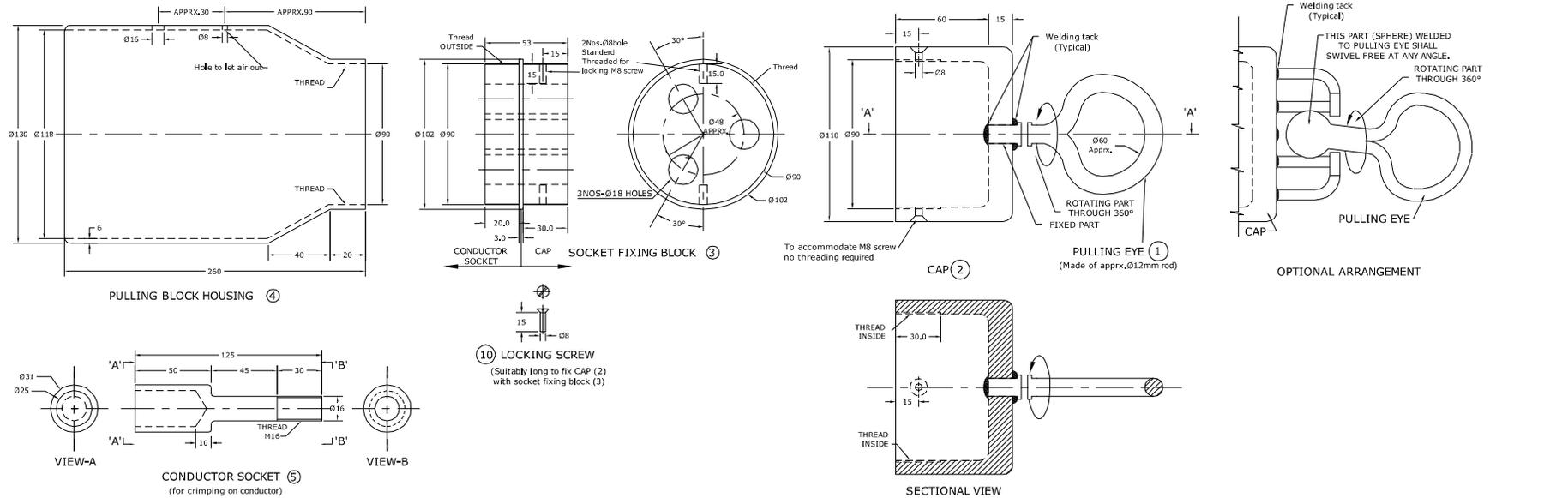
CHECKED BY:

APPROVED BY:

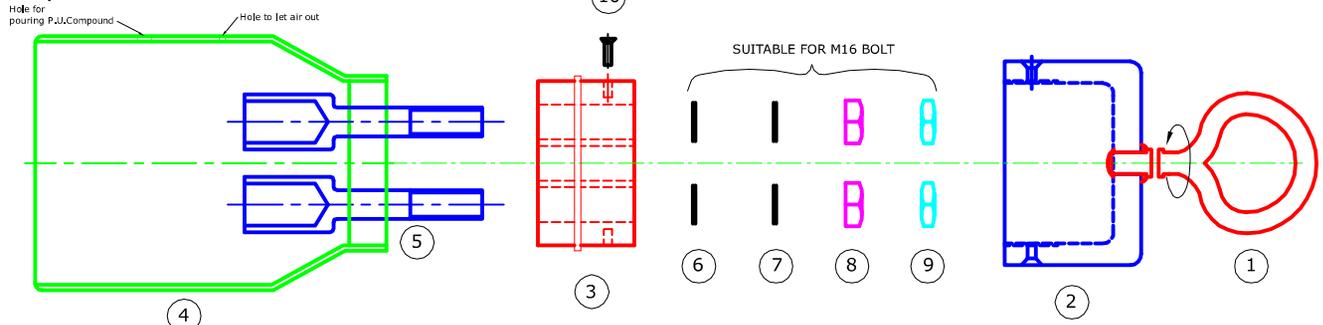
REVISIONS

Addl V.P.

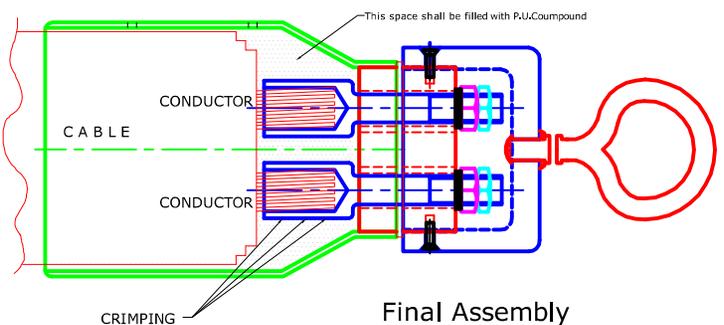
# ANNEXURE F



## Exploded View



NO.	DISCRIPTION	QTY.	MATERIAL
10	LOCKING SCREW	2	M.S.Zinc-Plated
9	LOCK NUT	3	M.S.Zinc-Plated
8	NUT	3	M.S.Zinc-Plated
7	SPRING. WASHER	3	M.S.Zinc-Plated
6	PLAIN WASHER	3	M.S.Zinc-Plated
5	CONDUCTOR SOCKET	3	AL.
4	PULLING BLOCK HOUSING	1	M.S.Zinc-Plated
3	SOCKET FIXING BLOCK	1	M.S.Zinc-Plated
2	CAP	1	M.S.Zinc-Plated
1	PULLING EYE	1	M.S.Zinc-Plated



**EXAMPLE:**

- 1) For cable size 33kV, 3/C X 400sq mm Al XLPE.
- 2) Diameter over conductor : 23.8mm approx.

Overall diameter : 108±3mm approx.  
 Pulling force applicable on the cable : 30 N/sq mm  
 Pulling eye shall withstand total force of : 36000N+Safety margin

**NOTE:**

- 1) All Dimensions are in mm, unless otherwise stated.
- 2) This drawing is typical / indicative. Separate dimensioned drawing for cable pulling eye assembly, suitable for required size & rating of cables, shall be submitted for approval, prior to manufacturing.
- 3) After fixing cable pulling eye, P.U. (Poly-Urethane) Compound shall be poured to occupy inner spaces to avoid ingress of Water / Moisture.
- 4) After P.U. Compound oozes/flows out from the cable side, the same edge shall be sealed with suitable sleeve/Tape.

# BSES

<b>DRAWING No.</b> MISC/E/4-1133/1699		
SCALE :NOT TO SCALE	DATE: 09-05-2011	
<b>CABLE PULLING EYE ASSEMBLY (TYPICAL)</b>		
DRAWN BY:	CHECKED BY:	APPROVED BY:
REVISIONS		
Addl. V.P.		



**ANNEXURE G : QUALITY ASSURANCE PLAN (QAP)**

**FOR 11 kV H. T. CABLES**

S. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			Remark
									SV	MFR	BSES	
1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Legend : SV : Sub-Vendor of Cable Manufacturer, MFR : Cable Manufacturer, MPS : Material Purchase Specification,</b> <b>P : Perform, W : Witness, V : Verification</b>												
<b>A RAW MATERIAL</b>												
1	Aluminium/Copper Rod	a) Tensile strength	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		b) Resistivity	Major	Electrical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		c) Diameter	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		d) Chemical composition	Major	Chemical	Sample	MPS	MPS	Test certificate	P	V	V	
		e) Surface finish	Major	Visual	Sample			-	P	P	-	
2	PVC Compound	a) Tensile Strength	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		b) Elongation at break	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		c) Thermal stability	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
3	TR-XLPE Compound (Borealis/Dow chemical/ Hanwa)	a) Packing	Minor	Visual	100%	MPS	MPS	-	P	V	-	
		b) Tensile Strength	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		c) Elongation at break	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		d) Hot set test	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		e) Volume Resistivity	Major	Electrical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		f) Cure Curve (Max. Torque)	Major	Physical	Sample	MPS	MPS	Reg./Sheet	-	P	V	
		g) Density	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
4	Semi-conducting Compound (Borealis/Dow chemical/ Hanwa)	a) Packing	Minor	Visual	100%	MPS	MPS	-	P	V	-	
		b) Volume Resistivity	Major	Electrical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		c) Tensile Strength	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		d) Elongation at break	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		e) Cure Curve (Max. Torque)	Major	Physical	Sample	MPS	MPS	Reg./Sheet	-	P	V	
		f) Density	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
5	Copper tape	a) Thickness & width	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		b) Tensile Strength	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		c) Elongation at break	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		d) Resistivity	Major	Electrical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
6.	Armour wires/strips (Galvanised steel)	a) Dimensions	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		b) Surface condition/finish	Major	Visual	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		c) Tensile Strength	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		d) Elongation at break	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		e) Torsion test for round wire	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		f) Wrapping test	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		g) Mass of zinc coating	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		h) Uniformity of zinc coating	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		i) Adhesion test	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		j) Resistivity test	Major	Electrical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
7	Water Swellable	a) Dimensions	Minor	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	



**ANNEXURE G : QUALITY ASSURANCE PLAN (QAP)**

**FOR 11 kV H. T. CABLES**

S. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			Remark
									SV	MFR	BSES	
1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Legend : SV : Sub-Vendor of Cable Manufacturer, MFR : Cable Manufacturer, MPS : Material Purchase Specification,</b> <b>P : Perform, W : Witness, V : Verification</b>												
	tape	b) Swelling height	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		c) Resistivity	Major	Electrical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
		d) Weight	Major	Physical	Sample	MPS	MPS	Reg./Sheet	P	P/V	V	
8	Steel Drum	a) Dimension	Major	Meas.	1 sample per size	IS 10418 / Purchase order		-	P	P	-	
		b) Finish & workman ship	Minor	Visual	1 sample per size	Compliance to standard Engineering norms & free from surface defects		-	P	P	-	
9	Binder tape	a) Dimensions & material	Minor	Physical	Sample	MPS	MPS	-	P	P	-	
10	Polypropylene filler	a) Size	Minor	Physical	Sample	Purchase order	Purchase order	-	P	P	-	
11	Heat shrinkable end cap	a) Bore diameter	Major	Physical	1 sample per size	--	--	-	-	P	-	
		b) Length of end cap	Minor	Physical	1 sample per size	--	--	-	-	P	-	
<b>B PROCESS INSPECTION</b>												
1	Wire Drawing	a) Diameter	Major	Physical	Sample			Reg./Sheet	-	P	V	
		b) Surface finish	Major	Visual	100 %	Smooth & free from defects		--	-	P	-	
		c) Tensile test (for Al)	Major	Physical	Sample	IS: 8130/84	IS: 8130/84	Reg./Sheet	-	P	V	
		d) Elongation test (for Cu)	Major	Physical	Sample	IS: 8130/84	IS: 8130/84	Reg./Sheet	-	-	V	
		e) Wrapping test (for Al)	Major	Physical	Sample	IS: 8130/84	IS: 8130/84	Reg./Sheet	-	P	V	
2	Stranding	a) No. of wires/strands	Major	Physical	At the time of m/c setting			Reg./Sheet	-	P	V	
		b) Lay length & Lay direction	Major	Physical	-do-			-	-	P	V	
		c) Dia of conductor	Major	Physical	During setting & once in each shift			Reg./Sheet	-	P	V	
		d) Surface finish	Major	Visual	100 %	No surface defects and free from sharp edges, scratches, grease, oil etc.		-	-	P	-	
3	Core extrusion (Conductor screen, Insulation & insulation screen)	a) Compound Make/Grade	Major	Visual	During m/c setting			-	-	P	-	Insulation screen shall be freely strippable, without application of heat.
		b) Thickness of insulation & extruded S.C. layers	Major	Physical	During m/c setting after stabilisation	Tech. Data Sheet / IS 7098/II/2011	Tech. Data Sheet / IS 7098/II/2011	Reg./Sheet	-	P	V	
		c) Surface finish	Minor	Visual	100 %	Smooth & free from defects		-	-	P	-	
		d) Printing on outer semi- conducting layer	Major	Visual	100 %	"DO NOT HEAT, FREELY STRIPPABLE"		-	-	P	-	
		e) Tensile Strength	Major	Physical	Sample	IS 7098/II/2011	IS 7098/II/2011	Reg./Sheet	-	P	V	
		f) Elongation at break	Major	Physical	Sample	IS 7098/II/2011	IS 7098/II/2011	Reg./Sheet	-	P	V	
		g) Hot set test	Major	Physical	Sample	IS 7098/II/2011	IS 7098/II/2011	Reg./Sheet	-	P	V	
		g1) Ovality of core	Minor	Physical	Sample	Tech. Data Sheet	Tech. Data Sheet	Reg./Sheet	-	P	V	



**ANNEXURE G : QUALITY ASSURANCE PLAN (QAP)**

**FOR 11 kV H. T. CABLES**

S. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			Remark
									SV	MFR	BSES	
1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Legend : SV : Sub-Vendor of Cable Manufacturer, MFR : Cable Manufacturer, MPS : Material Purchase Specification, P : Perform, W : Witness, V : Verification</b>												
		h) Eccentricity of insulation	Minor	Physical	Sample	Tech. Data Sheet	Tech. Data Sheet	Reg./Sheet	-	P	V	
		i) Core diameter	Minor	Physical	Sample	Tech. Data Sheet	Tech. Data Sheet	Reg./Sheet	-	P	V	
		j) Void & contamination test for insulation (Silicon Oil test)	Major	Physical	Sample			-	-	P	V	
		k) Wafer boil test for extruded semi-conducting layers	Major	Physical	1 sample/lot	BIS draft Specn	BIS draft Specn	Reg./Sheet	-	P	V	
4	Taping - water Swellable semi-conducting	a) Dimensions	Minor	Physical	Sample	Tech. Data Sheet	Tech. Data Sheet	-	-	P	-	
		b) Tape Application (Overlap)	Minor	Visual	During m/c setting	Suitable overlap	Suitable overlap	-	-	P	-	
5	Taping - Copper tape	a) Width & Thickness of tape	Major	Physical	During m/c setting	Tech. Data Sheet	Tech. Data Sheet	Reg./Sheet	-	P	V	
		b) Number of tapes	Major	Visual	During m/c setting	Tech. Data Sheet	Tech. Data Sheet	Reg./Sheet	-	P	V	
		c) Tape application (Overlap)	Minor	Visual	During m/c setting	Tech. Data Sheet	Tech. Data Sheet	-	-	P	-	
6	Laying up	a) Identification of cores	Major	Visual	During m/c setting	Tech. Data Sheet	Tech. Data Sheet	-	-	P	-	Cores shall be laidup with PP fillers & suitable tape binder shall be provided over laid up assembly
		b) Direction of lay, core Sequence & Lay length	Major	Visual	During m/c setting	IS 7098/II/2011, PIL-W-02	IS 7098/II/2011, PIL-W-02	-	-	P	-	
		c) Application of binder tape	Minor	Visual	During m/c setting	Tech. Data Sheet		-	-	P	-	
		d) Shape of laid up assembly	Minor	Visual	100%	Reasonably circular	Reasonably circular	-	-	P	-	
7	Inner sheath	a) Material & type	Major	Visual	During m/c setting	Tech. Data Sheet	Tech. Data Sheet	-	-	P	-	
		b) Thickness	Major	Physical	During m/c setting & drum change	Tech. Data Sheet & IS 7098/II/2011	ech. Data Sheet & IS 7098/II/2011	Reg./Sheet	-	P	V	
		c) Surface finish	Minor	Visual	100 %	Surface shall be smooth & free from defects		-	-	P	-	
		d) Colour of inner sheath	Major	Visual	100 %	Tech. Data Sheet	Tech. Data Sheet	-	-	P	-	
8	Armouring	a) Dimension of armour wires/strips	Major	Physical	During m/c setting	Tech. Data Sheet	Tech. Data Sheet	Reg./Sheet	-	P	V	No negative tol. on strip thickness/wire diameter
		b) No. of armour strip/wire	Major	Counting	During m/c setting	Tech. Data Sheet	Tech. Data Sheet	Reg./Sheet	-	P	V	
		c) Armour coverage	Minor	Visual	During m/c setting	IS 7098/II/2011	IS 7098/II/2011	-	-	P	-	
		d) Direction of lay	Major	Visual	During m/c setting	IS 7098/II/2011	IS 7098/II/2011	-	-	P	-	
		e) Lay length/Gear setting	Minor	Visual	During m/c setting			-	-	P	-	
		f) Surface finish	Major	Visual	100 %	No cross over/over riding of wire/strip		-	-	P	-	
9	Outer sheath/Rewinding	a) Material & type	Major	Visual	During m/c setting	Tech. Data Sheet	Tech. Data Sheet	-	-	P	-	
		b) Anti rodent & termite additives	Major	Visual	Each loading			Reg./Sheet	-	P	V	



**ANNEXURE G : QUALITY ASSURANCE PLAN (QAP)**

**FOR 11 kV H. T. CABLES**

S. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			Remark
									SV	MFR	BSES	
1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Legend : SV : Sub-Vendor of Cable Manufacturer, MFR : Cable Manufacturer, MPS : Material Purchase Specification, P : Perform, W : Witness, V : Verification</b>												
		b) Thickness	Major	Physical	Each length	Tech. Data Sheet	Tech. Data Sheet	Reg./Sheet	-	P	V	
		c) Overall diameter	Major	Physical	Each length	Tech. Data Sheet	Tech. Data Sheet	Reg./Sheet	-	P	V	
		d) Surface finish & colour of sheath	Major	Visual	100 %	Surface smooth & free from defects. Colour as per Tech. Data Sheet		-	-	P	-	
		e) Cable length verification	Major	Visual	Each length	Manufacturing Plan	Manufacturing Plan	-	-	P	-	
		f) Marking	Major	Visual	Each length	As per approved GTP/cross sectiona drawing		Reg./Sheet	-	P	V	
<b>C FINAL INSPECTION</b>												
1	Routine tests	a) High Voltage	Critical	Electrical	100 %	IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	V	
		b) Conductor Resistance	Critical	Electrical	100 %	IS 8130/84	IS 8130/84	Test Report	-	P	V	
		c) Partial Discharge	Critical	Electrical	100 %	IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	V	
		d) Impulse	Critical	Electrical	One sample per lot			Test Report		P	V	
		e) Armour Coverage	Critical	Physical	One sample per lot			Test Report		P	V	
		f) Physiacal Dimensions	Critical	Physical	One sample per lot			Test Report		P	V	
		g) Freely Strippable insulation screen (Strippability Test)	Major	Physical	One sample per lot	Factory Standard	Factory Standard	Test Report	-	P	V	
2	Stage Inspection	Wire Drawing	Major	Visual	100 %	Tech. Data Sheet	IS/IEC	Test Report	-	P	W	Stage Inspection shall be conducted subject to BSES requirement
		Extrusion process	Major	Visual	100 %	Tech. Data Sheet	IS/IEC	Test Report	-	P	W	
		Raw maerial inspection at factory	Major	Physical	100 %	Tech. Data Sheet	IS/IEC	Test Report	-	P	W	
		Wrapping of Aluminium	Major	Physical	100 %	Tech. Data Sheet	IS/IEC	Test Report	-	P	W	
		Tensile test for Aluminium	Major	Physical	100 %	Tech. Data Sheet	IS/IEC	Test Report	-	P	W	
		a) Annealing test for copper	Major	Physical	Appendix A to IS 7098/II/2011, each lot sample basis	IS 8130/84	IS 8130/84	-	-	P	V	Verification of process records.
		b) Tensile test for aluminium	Major	Physical		IS 8130/84	IS 8130/84	-	-	P	V	
		c) Wrapping test for aluminium	Major	Physical		IS 8130/84	IS 8130/84	-	-	P	V	Tests N/A on finished conductor.
		d) Conductor resistance test	Major	Electrical	Appendix A to IS 7098/II/2011, each lot sample basis	IS 8130/84	IS 8130/84	Test Report	-	P	W	
		e) Test for thickness of insulation & sheath	Major	Physical		IS 7098/II/2011 & Tech. Data sheet	IS 7098/II/2011 & Tech. Data sheet	Test Report	-	P	W	
		f) Hot set test for insulation	Major	Physical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	



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**FOR 11 kV H. T. CABLES**

S. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			Remark
									SV	MFR	BSES	
1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Legend : SV : Sub-Vendor of Cable Manufacturer, MFR : Cable Manufacturer, MPS : Material Purchase Specification, P : Perform, W : Witness, V : Verification</b>												
3	Acceptance tests	g) Tensile strength & Elongation at break of insulation & outer sheath	Major	Physical	Each Lot Sample Basis	IS 7098/II/2011 & IS 5831/84	IS 7098/II/2011 & IS 5831/84	Test Report	-	P	W	
		h) Partial discharge test	Critical	Electrical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		i) High voltage test	Critical	Electrical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		j) Insulation resistance (Volume resistivity) test	Major	Electrical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		k) Tests for dimension of armour wires/strips	Major	Physical		IS 3975, IS 10810 Pt. 36 & Tech. Data sheet		Test Report	-	P	W	
		l) Test for anti termite & anti rodent property of outer sheath	Major	Physical		Tech. Data Sheet	Tech. Data Sheet	Reg./Sheet	-	P	W	
		m) Rewinding of cable on drum	Major	Visual		To check cable appearance, drum appearance, cable winding, packing, embossing/printing/sequential marking		Reg./Sheet	-	P	W	
		n) Void & contamination test for insulation (Silicon Oil test)	Major	Physical				Reg./Sheet	-	P	W	
		o) Wafer boil test for extruded semi-conducting layers	Major	Physical				Reg./Sheet	-	P	W	
		p) Freely Strippable insulation screen	Major	Physical		Factory Standard	Factory Standard	Test Report	-	P	W	
		q) Water Penetration test (WPT) on core (i.e. Logitudinal Water Blocking Test)	Major	Physical		IEC:60502	IEC:60502	Test Report	-	P	W	<b>Test shall be conducted for leakage of water through conductor.</b>
		r) Armour coverage	Major	Physical		As per data sheet & FS	As per data sheet & FS	Test Report	-	P	W	
		s) Ovality	Major	Physical		As per data sheet	As per data sheet	Test Report	-	P	W	
		t) Eccentricity	Major	Physical		As per data sheet	As per data sheet	Test Report	-	P	W	
		u) Mass & uniformity & zinc coating on armour	Major	Physical		As per data sheet & FS	As per data sheet & FS	Test Report	-	P	W	
		v) Resistivity of Strip armour	Major	Electrical		As per data sheet & FS	As per data sheet & FS	Test Report	-	P	W	
		w) Swelling height of water swellable tape	Major	Physical		As per data sheet & FS	As per data sheet & FS	Test Report	-	P	W	
		x) Flammability test	Major	Physical		As per IS-78098/II/2011	As per IS-78098/II/2011	Test Report	-	P	W	
y) Impulse withstand test	Critical	Electrical	IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W				



**ANNEXURE G : QUALITY ASSURANCE PLAN (QAP)**

**FOR 11 kV H. T. CABLES**

S. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			Remark	
									SV	MFR	BSES		
1	2	3	4	5	6	7	8	9	10	11	12	13	
<b>Legend : SV : Sub-Vendor of Cable Manufacturer, MFR : Cable Manufacturer, MPS : Material Purchase Specification, P : Perform, W : Witness, V : Verification</b>													
		z) Ageing & Water absorption test(Gravimetric) on Insulation & Outer sheath	Major	Physical		IS 5831/84	IS 5831/84	Test Report	-	P	W		
		z1) Heating Cycle with Potential	Critical	Electrical	sample basis, once per PO			Test Report	-	P	W		
		z2) Raw Material Verification in all aspects	Major	Physical	Each Lot					P	W		
		Z3) OFC Continuty Test and verification of outer sheath marking with continuous 15mm red strip for OFC embedded identification	Major	Physical	Each Lot					P	W		
4	Type tests at vendor's works	a) Tests on conductor											
		i) Annealing test for copper	Major	Physical		IS 8130/84	IS 8130/84	-	-	P	V	Verification of process records. Tests N/A on finished conductor.	
		ii) Tensile test for aluminium	Major	Physical		IS 8130/84	IS 8130/84	-	-	P	V		
		iii) Wrapping test for aluminium	Major	Physical		IS 8130/84	IS 8130/84	-	-	P	V		
		iv) Conductor resistance test	Major	Electrical			IS 8130/84	IS 8130/84	Test Report	-	P	V	
		b) Tests for armouring wires/strips											
		i) Dimensions of wire/strip	Major	Physical			IS 3975, IS 10810 Pt. 36 & Tech. Data sheet		Test Report	-	P	W	
		ii) Tensile strength & Elongation at break	Major	Physical			IS 3975	IS 3975	Test Report	-	P	W	Only for Steel wires/strips
		iii) Torsion test for wire	Major	Physical			IS 3975	IS 3975	Test Report	-	P	W	
		iv) Winding test for strip	Major	Physical			IS 3975	IS 3975	Test Report	-	P	W	
		v) Uniformity of zinc coating	Major	Chemical			IS 3975	IS 3975	Test Report	-	P	W	
		vi) Mass of zinc coating	Major	Chemical			IS 3975	IS 3975	Test Report	-	P	W	
		vii) Resistivity of wire/strip	Major	Electrical			IS 3975	IS 3975	Test Report	-	P	W	
		c) Test for thickness of insulation & sheath	Major	Physical			IS 7098/II/2011 & Tech. Data sheet	IS 7098/II/2011 & Tech. Data sheet	Test Report	-	P	W	
		d) Physical tests for insulation											W
		i) Tensile strength & Elongation test	Major	Physical			IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		ii) Ageing in air oven	Major	Physical			IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		iii) Hot set test	Major	Physical			IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		iv) Shrinkage test	Major	Physical			IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		v) Water absorption (gravimetric)	Major	Physical			IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
e) Physical tests for outer sheath											W		

One sample per Tender



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**FOR 11 kV H. T. CABLES**

S. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			Remark
									SV	MFR	BSES	
1	2	3	4	5	6	7	8	9	10	11	12	13
<b>Legend : SV : Sub-Vendor of Cable Manufacturer, MFR : Cable Manufacturer, MPS : Material Purchase Specification,            P : Perform, W : Witness, V : Verification</b>												
		i) Tensile strength & Elongation test at break	Major	Physical		IS 5831/84	IS 5831/84	Test Report	-	P	W	
		ii) Ageing in air oven	Major	Physical		IS 5831/84	IS 5831/84	Test Report	-	P	W	
		iii) Shrinkage test	Major	Physical		IS 5831/84	IS 5831/84	Test Report	-	P	W	
		iv) Hot deformation test	Major	Physical		IS 5831/84	IS 5831/84	Test Report	-	P	W	
		v) Loss of mass in air oven	Major	Physical		IS 5831/84	IS 5831/84	Test Report	-	P	W	
		v) Heat shock test	Major	Physical		IS 5831/84	IS 5831/84	Test Report	-	P	W	
		vi) Thermal stability test	Major	Physical		IS 5831/84	IS 5831/84	Test Report	-	P	W	
		f) Electrical tests in sequence									W	
		i) Partial discharge test	Critical	Electrical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		ii) Bending test	Major	Physical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		iii) Partial discharge test	Critical	Electrical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		iv) Dielectric power factor as a function of voltage	Major	Electrical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		v) Dielectric power factor as a function of temperature	Major	Electrical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		vi) Heating cycle test	Major	Electrical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		vii) Dielectric power factor as a function of voltage	Major	Electrical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		viii) Partial discharge test	Critical	Electrical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		ix) Impulse withstand test	Critical	Electrical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		x) High voltage test	Critical	Electrical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		g) Insulation resistance (Volume resistivity test)	Major	Electrical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		h) Flammability test	Major	Physical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
<b>D PACKING &amp; MARKING</b>												
1	Packing & Marking	a) Cable end sealing	Major	Visual	100 %	IS 7098/II/2011/ Agreement	IS 7098/II/2011/ Agreement	-	-	P	W/V	BSES representative may verify these characteristics on randomly selected drums.
		b) Pulling eye at leading end- removed from vendor scope, end cap shall be provided at both the end of cable	Major	Visual	100 %	As per agreement	As per agreement	-	-	P	W/V	
		b) Stencilling/Marking on drum	Minor	Visual	100 %	IS 7098(Part 2):2011/ Agreement	IS 7098(Part 2):2011/ Agreement	-	-	P	V	



## ANNEXURE G : QUALITY ASSURANCE PLAN (QAP)

### FOR 11 kV H. T. CABLES

S. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			Remark
									SV	MFR	BSES	
1	2	3	4	5	6	7	8	9	10	11	12	13
Legend : SV : Sub-Vendor of Cable Manufacturer, MFR : Cable Manufacturer, MPS : Material Purchase Specification,												
P : Perform, W : Witness, V : Verification												

**Note**

1. Checks specified above for Raw Material, In-Process and Final Inspection shall be as relevant to the specific cable construction.
2. Number of samples shall be selected as per Factory Standard/Agreement wherever 'sample' is indicated for extent of check.
3. Plant standards shall be followed in case Technical Data Sheet does not include requirements for characteristics to be checked.
4. BSES may witness Raw material and in process inspection in addition to Routine/Acceptance tests at any time/stage of manufacturing.
5. BSES's Inspector may randomly select a cable drum for type testing at vendor's works.
6. For each of the offered lot for inspection, BSES may randomly select one cable drum for testing of end cap "Destructive testing" to verify adhesion of sealing cap to cable outer sheath. .
7. All factory Type Tests shall be Witnessed by BSES

**Annexure- H****Testing and manufacturing process requirements w. r. t. TR- XLPE insulation**

All cables made with TR-XLPE Insulation should be tested and/or certified to meet the following performance parameters as per ANSI /ICEA S-94-649 after one year AWTT.

Property	Units	Requirements Values
Min. Avg. Electrical Breakdown Strength(qual. test)	kV/mm	$\geq 25$
Impulse Strength	kV/mm	$\geq 83$
Water Tree Length	Mm	0.25
Max. Bowtie Tree Density	(Number per 16.4 cu. cm)	Maximum 15 (0.12-0.25 mm range)

Manufacturing processes to produce high-quality cables with the following characteristics:

- Cure consistency with hot set/creep less than 100%
- No voids larger than 75 microns per 16.4 cubic cm
- No ambers larger than 250 microns per 16.4 cubic cm
- No contaminants larger than 125 microns and less than 5 between 50-125 microns per cubic 16.4 cubic cm tested.
- Neutral indent on cable is less than 375 microns
- Cable insulation concentricity greater than 90% tested
- No protrusions greater than 75 microns at the conductor shield and 125 microns at the insulation shield

**Annexure-I: Deviation Format**

Sl. No.	Document Name	Clause No.	Deviation	Reason	Merit to BSES