Tender Notification for

SUPPLY OF 66 KV GRADE XLPE INSULATED ALUMINIUM CONDUCTOR POWER CABLE OF SIZE 3Cx300 SQ.MM

NIT NO- CMC/BR/21-22/RB/FH/941, DT 14.08.2021

Due Date for Submission: 03.09.2021, 1600hrs

BSES RAJDHANI POWER LIMITED,
BSES Bhawan, Nehru Place, New Delhi-110019 Corporate Identification Number: U74899DL2001PLC111527
Telephone Number: +91 11 3999 7235
Fax Number: +91 11 2641 9833
Website: www.bsesdelhi.com

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SECTION – I: REQUEST FOR QUOTATION

➢ 1.0 Event Information

BRPL invites sealed tenders in 2 envelopes for SUPPLY OF 33KV XLPE INSULATED ALUMINIUM CONDUCTOR POWER CABLE OF SIZE 3CX400 SQ.MM from reputed manufacturers. The bidder must qualify the technical requirements as specified in clause 2.0 stated below. All envelopes shall be duly superscripted as — **"SUPPLY OF 66 KV GRADE XLPE INSULATED ALUMINIUM CONDUCTOR POWER CABLE OF SIZE 3Cx300 SQ.MM "CMC/BR/21-22/RB/FH/941, DT 14.08.2021 DUE ON 03.09.2021"**

Sl.No.	Item	Technical Specification	Estimated Cost	Qty.	Delivery at
1	SUPPLY OF 66 KV GRADE XLPE INSULATED ALUMINIUM CONDUCTOR POWER CABLE OF SIZE 3Cx300 SQ.MM	SP-EWH2-3C-02	Rs 7.5 Crores	18.4 KM	New Delhi Stores

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

The schedule of specifications with detail terms & conditions can be obtained from address given below against submission of non-refundable demand draft of **Rs.1180/-(With GST)** drawn in favour of BSES Rajdhani Power Ltd, payable at Delhi. The tender documents & detail terms and conditions can also be downloaded from the website **"www.bsesdelhi.com --> Tenders --> BSES Rajdhani Power Ltd --> Open Tenders"**.

In case tender papers are downloaded from the above website, then the bidder has to enclose a demand draft covering the cost of bid documents.

The bids shall be addressed to :

Head of Department
Contracts & Materials Deptt. BSES Rajdhani Power Ltd. C&M Deptt.
1st Floor, C Block
BSES Bhawan, Nehru Place
New Delhi 110019

BRPL reserves the right to accept/reject any or all Tenders without assigning any reason thereof and alter the quantity of materials mentioned in the Tender documents by (±) 30% at the time of placing purchase orders.

Tender will be summarily rejected if:

- **Earnest Money Deposit (EMD)** of value INR 7,50,000/- is not deposited in shape of Bank Draft/Pay Order/Banker's Cheque/BG drawn in favour of BSES Rajdhani Power Ltd, payable at Delhi.

- The offer does not contain "FOR NEW DELHI" price indicating break-up towards all taxes, duties & freight.
- Complete Technical details are not enclosed.
- Tender is received after due date and time.

2.0 Qualification Criteria:-

The prospective bidder must qualify all of the following requirements to be eligible to participate in the bidding. Bidders who meet following requirements will be considered as Successful bidder and BRPL has the right to disqualify those bidders who do not meet these requirements.

1) Bidder must have Dry cure and Dry cooling CCV/VCV line for manufacturing of 66kV and above voltage grade cables.

2) The bidder must be a manufacturer of 66kV or higher voltage grade cable having valid Type Test Reports carried out at CPRI/ERDA for 66kV 3Cx300 sqmm Aluminum Cable. Type test reports shall not be older than 5 years from the date of NIT.

3) The bidder should have plant installed capacity to manufacture at least 10 – 15 kms kV or higher rated cable per month.

4) The bidder should have qualified technical & qualified QA personnel at various stages of manufacturing & testing-Quality manual, organizational chart & undertaking to this regard shall be furnished.

5) The bidder should have supplied at least 25km of 66kV grade Cable or higher rated cable to any major utilities/SEB/ other reputed firm where the end user is distribution utilities in last 3 years from the date of NIT, out of which at least 50% qty. should be in successful operation. Performance certificate shall be furnished in support of same.

6) Bidder should have average Annual Sales Turnover of Rs 300.00 Crores or more in the last 3 financial years

7) The bidder must possess valid ISO 9001:2000 certification and valid BIS License.

8) The bidders must submit an undertaking (self certified) that the bidders has not been blacklisted/debarred by any central / state government institution including electricity utilities.

NOT: - For SL NO-5 of qualification criteria data to be submitted as per annexure-VII

3.0 Bidding and Award Process.

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

BID SUBMISSION

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

Head of Department
Contracts & Material Deptt.
BSES Rajdhani Power Ltd 1st Floor,
C Block, BSES Bhawan, Nehru Place New Delhi
110019

PART A: TECHNICAL BID comprising of following (in duplicate)

- EMD
- Non-refundable demand draft for Rs 1180/- in case the forms are downloaded from website
- Documentary evidence in support of qualifying criteria
- Technical Literature/ GTP/Type test report etc
- Qualified Manpower available
- Testing Facilities
- Original Tender documents duly stamped & signed on each page as token of acceptance
- Acceptance to Commercial Terms and Conditions viz Delivery schedule/period, Payment terms, BG etc
- Power of Attorney for signing the bid

PART B: FINANCIAL BID comprising (1 original only)

- ✓ Price strictly in the Format enclosed in SECTION V indicating Break up of basic price, taxes & duties, Freight etc

TIME SCHEDULE

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

S.No.	Steps	Date
1	Date of sale of bid documents	14.08.2021 onwards
2	Last date of Queries, if any	23.08.2020,1500 Hrs
3	Last date of receipt of bid documents	03.09.2021,15:30 Hrs
4	Date & time of opening of tender – Part A	03.09.2021, 16:00 Hrs
5	Date & Time of opening of Part B of qualified bidders	Only Successful bidders

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

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

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

Bidders are requested to submit the bid in one Original plus one copy in duplicate

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 after techno-commercial evaluation and only of the qualified bidders. 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.

Part –C : E- Bidding and Reverse Auction through SAP-SRM Module

Purchase reserves the right to use the reverse auction through SAP-SRM tool as an integral part of the entire tendering process. All the bidders who are techno-commercial qualified on the basis of tender requirements shall participate in reverse auction.

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

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

4.0 Award Decision

The purchaser reserves all the rights to award the contract to one or more bidders so as to meet the delivery requirement or nullify the award decision without any reason.

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.

In case any supplier is found unsatisfactory during the delivery process, the award will be cancelled and BRPL reserves the right to award other suppliers who are found fit.

QTY VARIATION: The purchaser reserves the rights to vary the quantity by **(±) 30%** of the tender quantity.

Repeat Order: BRPL reserves the right to place repeat order at the same rates & terms and conditions as per this tender against additional requirement subject to mutual agreement between BRPL & supplier

5.0 Market Integrity

We have a fair and competitive marketplace. The rules for bidders are outlined in the Terms & Conditions. Bidders must agree to these rules prior to participating. In addition to other remedies available, we reserves the right to exclude a bidder from participating in future markets due to the bidder's violation of any of the rules or obligations contained in the Terms & Condition. Bidders who violates 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.

6.0 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 BRPL. This includes all bidding information submitted.

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

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

7.0 Contact Information

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

	Technical	Commercial
Contact Person	to CES	To:- faiyaz.hussain@relienaceada.com
	Copy to : Pankaj.goyal@releianceada.com	Copy to : Pankaj Goyal
Address	BSES RAJDHANI Power Ltd ,5th Floor , 20 No Building, Nehru Place,New Delhi 110019	C&M Deptt. 1st Floor , D-Block, BSES RAJDHANI Power Ltd BSES Bhawan, Nehru Place, New Delhi 110019
Email	Amit.as.tomar@releianceada.com	Pankaj.goyal@releianceada.com

SECTION – II: INSTRUCTION TO BIDDERS

A. GENERAL

1.00

BSES Rajdhani 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 as 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.

3.00 DISCLAIMER

- 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.

- 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 a rising in any way from the selection process for the Supply.

- 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.

- 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).

4.00 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

The Scope of Work, Bidding Procedures and Contract Terms are described in the Bidding Documents are as follows:

Volume - I

- Request for Quotation (RFQ) - Section - I
- Instructions to Bidders (ITB) - Section - II
- Terms & Conditions of Contract (T&C) - Section -III
- Delivery schedule - Section IV
- Technical Specifications (TS) - Section V (Pages Enclosed)

Volume - II

- Price Format - Annexue -I
- Bid Form - Annexure -II
- Acceptance Form for Reverse Auction - Annexure –III
- EMD BG Format - Annexure -1V
- Commercial Terms & Conditions- Annexure –V
- No Deviation Sheet - Annexure –VI

5.00 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.

6.00 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 6.01, and it Will be notified in web site **www.bsesdelhi.com** and the same will be binding on them.

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

- Purchaser shall reserve the rights to following

- extend due date of submission
- modify tender document in part/whole
- cancel the entire tender

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:

- Bid Form, Price & other Schedules (STRICTLY AS PER FORMAT) and Technical Data Sheets completed in accordance with Technical Specification.

- All the Bids must be accompanied with the required EMD as mentioned in the Section-I against each tender.
- Tender documents duly stamped and signed on each page by authorized signatory.

9.0 BID FORM

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

9.02 EMD

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

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

- Banker's Cheque/Demand Draft/Pay Order drawn in favour of BSES Rajdhani Power Ltd, payable at Delhi.
- A bank guarantee issued by any scheduled bank strictly as per the format enclosed and shall be valid for a period of thirty (30)days beyond the validity of the bid

The EMD may be forfeited in case of:

- ✓ the Bidder withdraws its bid during the period of specified bid validity or
- ✓ the case of a successful Bidder, if the Bidder does not
  - accept the Purchase Order, or
  - Furnish the required performance security BG.

Then buyer shall, without prejudice to any other right or remedy, be at liberty to forfeit of the earnest money absolutely.

10.0 BID PRICES

- 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.

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

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

11.0 BID CURRENCIES

Prices shall be quoted in Indian Rupees Only.

12.0 PERIOD OF VALIDITY OF BIDS

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

12.02 -Notwithstanding Clause 12.01 above, the Purchaser may solicit the Bidder's consent to an extension of the Period of Bid Validity. The request and the responses thereto shall be made in writing and sent by post/courier

13.0 ALTERNATIVE BIDS

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

14.0 FORMAT AND SIGNING OF BID

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

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 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

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

The Technical Documents and the EMD shall be enclosed in a sealed envelope and the said envelope shall be subscribed with —"**Technical & EMD**". The price bid shall be inside another sealed envelope with subscribed as "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 subscribed with —"Tender Notice No.& Due date of opening".

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

The original Bid, together with the required copies, must be received by the Purchaser at the address specified no **later than the due date specified earlier**

The Purchaser may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents in accordance with Clause9.0,in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended

17.0 ONE BID PER BIDDER

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

18.0 LATE BIDS

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

19.0 MODIFICATIONS AND WITHDRAWAL OF BIDS

The Bidder is not allowed to modify or withdraw its Bid after the Bid‘s submission.

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

The evaluation of Bids shall be done based on the delivered cost competitiveness basis.

23.01 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 Proposals and the Conditional ties of the Bidders would be evaluated.

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

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

- Delivery Schedule
- Conformance to Qualifying Criteria
- 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 any time 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.

26.01 Splitting of tendered quantity among two or more bidders:

BSES reserves the right to split the tender quantity among techno- commercially qualified bidders on account of delivery requirement in tender quantity under procurement.

For arranging timely procurement of material and to have uniform practice of distribution of quantity amongst eligible bidders, following procedure shall be applicable:

The tender quantity shall be split in following ratio:

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

(ii) If the quantity is to be split among 3 bidders, it will be done in the ratio of 60:25:15 on L1 price.

(ii) If the quantity is to be split among 4 bidders, it will be done in the ratio of 50:25:15:10 on L1 price.

Any deviation in regards to above will have deviation approval from management.

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

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

30.0 CORRUPT OR 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:

- "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

- "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.

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

SECTION – III: TERMS AND CONDITIONS

1.0 General Instructions

1.01 All the Bids shall be prepared and submitted in accordance with these instructions.

1.02 Bidder shall bear all costs associated with the preparation and delivery of its Bid, and the Purchaser will in no case shall be responsible or liable for these costs.

1.03 The Bid should be submitted by the Bidder in whose name the bid document has been issued and under no circumstances it shall be transferred /sold to the other party.

1.04 The Purchaser reserves the right to request for any additional information and also reserves the right to reject the proposal of any Bidder, if in the opinion of the Purchaser, the data in support of RFQ requirement is incomplete.

1.05 The Bidder is expected to examine all instructions, forms, terms & conditions and specifications in the Bid Documents. Failure to furnish all information required in the Bid Documents or submission of a Bid not substantially responsive to the Bid Documents in every respect may result in rejection of the Bid. However, the Purchaser's decision in regard to the responsiveness and rejection of bids shall be final and binding without any obligation, financial or otherwise, on the Purchaser.

2.0 Definition of Terms

2.01 "Purchaser" shall mean BSES Rajdhani 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 portionsof 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 BRPL 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

3.01Contract 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. In case of standard items, BRPL shall forward the standard QAP which is to be follow by vendor during manufacturing.

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 BRPL.

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 without 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 Packing, Packing List & Marking

6.01 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 BRPL, Delhi/New Delhi stores/site without undue risk of damage in transit.

6.02 Packing List: The contents of each package shall be itemized on a detailed list showing the exact weight, extreme outside dimensions (length, width and 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.

7.0 Price basis for supply of materials

Bidder to quote their prices on Landed Cost Basis and separate price for each item. FIRM prices for supply to BRPL site/ stores inclusive of packing, forwarding, loading at manufacturer's premises, Freight & GST.

The above supply prices shall also include unloading at BRPL Delhi/New Delhi stores/site.

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

8.0 Terms of payment and billing

8.01 For Supply of Equipments:

100% payment shall be made within 45 days from the date of receipt of material at store/ site

8.02 Bidder to submit the following documents against dispatch of each consignment:

i. Consignee copy of LR
ii. Supplier detailed invoice showing commodity description, quantity, unit price, total price and basis of delivery.
iii. Original certificate issued by BRPL confirming receipt of material at site and acceptance of the same.
iv. Dispatch clearance & inspection report issued by the inspection authority
v. Packing List.
vi. Test Reports
vii. Guarantee Certificate.

9.0 Price Validity

9.01 All bids submitted shall remain valid, firm and subject to unconditional acceptance by BRPL Delhi as mentioned earlier, the prices shall remain valid and firm till contract completion.

10.0 Performance Guarantee

10.01 The bidder shall establish a performance bond in favor of BRPL in an amount not less than ten percent (10%) of the total price of the Contract (the "Performance Bond"). The Performance Bond shall be valid for a period of 24 months from the date of Commissioning or 30 months from the date of last dispatch whichever is earlier plus 3 months claim period.

10.02 Bank guarantee shall be drawn in favor of BSES Rajdhani Power Ltd as applicable. The performance Bank guarantee shall be in the format as specified by BRPL.

11.0 Forfeiture

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 BRPL 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.

Each Performance BG established under will be automatically and unconditionally forfeited without recourse if BRPL in its sole discretion determines that supplier has failed to comply with any term or condition set forth in the contract.

12.0 Release

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.

13.0 Warranty / Defects Liability Period

13.01 The bidder to guarantee the materials / items supplied against any defect of failure, which arise due to faulty materials, workmanship or design for the entire defects liability period. The Defect liability period shall be 60 months from the date of commissioning or 66 months from the date of delivery whichever is earlier. If during the defects liability period any materials / items are found to be defective, these shall be replaced or rectified by the bidder at his own cost within 30 days from the date of receipt of intimation.

14.0 Return, Replacement or Substitution.

BRPL shall give Supplier notice of any defective Commodity promptly after becoming aware thereof. BRPL may in its discretion elect to return defective Commodities to Supplier for replacement, free of charge to BRPL, or may reject such Commodities and purchase the same or similar Commodities from any third party. In the latter case BRPL 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. BRPL may set off such costs against any amounts payable by BRPL to Supplier. Supplier shall reimburse BRPL for the amount, if any, by which the price of a substitute Commodity exceeds the price for such Commodity as quoted in the Bid.

15.0 Effective Date of Commencement of Contract:

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

16.0 Time – The Essence of Contract

16.01 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.

17.0 The Laws and Jurisdiction of Contract:

17.01 The laws applicable to this Contract shall be the Laws in force in India.

17.02 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 Mumbai in India

18.0 Events of Default

18.01 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 BRPL.

19.0 Consequences of Default.

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

(b) In the event of an Event of Default, BRPL 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 BRPL may incur as a result of Supplier's default.

20.0 Penalty for Delay

20.01 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 or part thereof for individual mile stone deliveries.

20.02 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

20.03 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.

21.0 Statutory variation in Taxes and Duties

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. However, in case of reduction in taxes, duties and levies, the benefits of the same shall be passed on to BUYER.

22.0 Force Majeure

22.01 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.

22.02 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.
i. Dangers of navigation, perils of the sea.

22.03 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.

22.04 Mitigation of Events of Force Majeure Each Party shall:

- 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;
- 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

- 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.

22.05 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.

22.06 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.

22.07 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.

22.08 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.

22.09 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."

23.0 Transfer and Sub-Letting

23.01 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.

24.0 Recoveries

24.01 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

25.0 Waiver

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

26.0 Indemnification

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

SECTION – IV:

QUANTITY AND DELIVERY REQUIREMENT

Sl. No.	Item Description	Specification	Requirement		Location
			Total Qty.	Delivery Schedule	
1.	SUPPLY OF 66 KV GRADE XLPE INSULATED ALUMINIUM CONDUCTOR POWER CABLE OF SIZE 3Cx300 SQ.MM	SP-EWH2-3C-02	18.40 KM	4-7 Km per Month	BSES RAJDHANI POWER LIMITED

BSES

SECTION – V

TECHNICAL SPECIFICATION (TS)

SUPPLY OF 66 KV GRADE XLPE INSULATED ALUMINIUM CONDUCTOR POWER CABLE OF SIZE 3Cx300 SQ.MM

CMC/BR/21-22/RB/FH/941

Technical Specification

for

66 kV 3Core Cable

Specification No: SP-EWH2-3C-02

Prepared by		Reviewed by		Approved by		Rev./Pages	Date
Name	Sign	Name	Sign	Name	Sign		
Gautam Deka		Amit Tomar		K. Sheshadri		2/30	25.02.2020
Pronab Bairagi							

Revision Details						
Sl. no.	Clause no.	Item descriptions	As per old Technical Specification(SP-EWH2-3C-01)	As per Revised Technical Specification(SP-EWH2-3C-02)	Date of approval	Approved by
1	3.23	Embossing and printing	Drum no. was not included	Drum no shall be embossed or printing on outer sheath.	25/02/2020	KS
2	Special note	Type Test	Type test report with validity 5 years only	Type Test Required After Award of PO: i) Type test-1: 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 BRPL during inspection of cable. Cost for this type test shall be borne by the respective Bidder. ii) Type test -2: 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 BRPL during inspection of cable. This type test is applicable subject to BRPL requirement and cost shall be borne by BRPL.	25/02/2020	KS
3	3.14	Optical Fiber Cable (as one of the fillers)	30-Fiber optical cable with 24 Single mode and 6 multi mode fiber	48-Fiber optical cable with 36 Single mode and 12 multi mode fiber	25/02/2020	KS
4	—	—	—	Revised QAP plan added	25/02/2020	KS

Gautam Deka/ Pronab Bairagi
Prepared by
P. Bairagi 25/04/2020

Amit Tomar
Reviewed by
25/02/2020

K. Sheshadri
Approved by
26/02/2020

1.0 Scope

This specification covers technical requirements of design, manufacture, testing at manufacturer's works, packing, forwarding, supply and unloading at stores/site, performance of 66 kV 3Cx300 sq. mm cable complete with all accessories for trouble free and efficient operations.

2.0 Applicable Standard

The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with latest revisions of relevant Indian Standards /IEC and shall conform to the regulations of local statutory authorities.

Indian Standards

IS 7098 (Part-3)-1993	Specification for Cross-linked polyethylene insulated PVC sheathed Cables Part: 3 - For working voltages from 66 kV upto and including 220 kV
IS 8130-2013 R1	Specification for Conductor for insulated electric cables & flexible Cords
IS 5831-1984	Specification for PVC insulation and sheath of electric Cables
IS : 3975 -1999	Mild steel wires, formed wires and tapes for Armouring of Cables
IS: 5216	Guide for Safety procedures and practices in electric works
IS: 10418-1982	Specification for Drums for Electric Cables

IEC Standards

IEC-60228: 2004	Conductor for insulated cables
IEC-60502 (Part-2): 2005	Power cables with extruded insulation and their accessories for rated voltages for rated voltages from 6 kV (Um = 7,2 kV) up to 30 kV (Um= 36 kV)
IEC-60811: 1990	Test methods for insulations and sheaths of electric cables and cords.
IEC 60840: 2004	Power cables with extruded insulation and their accessories. Test methods and requirements.

3.0 Cable Design Features

S.NO	DESRIPTION	REQUIREMENT
3.1	Manufacturing process	The cable shall be manufactured by "Triple head extrusion process". The conductor screen, Insulation & Insulation screen shall all be extruded in tandem to ensure homogeneity and reduction of voids, in the insulation and the screening system of the cable, whereby enhancing the life of the cable. The cable shall be strictly manufactured by "**Dry Cured and Dry-Cooled**" process.
3.2	Conductor	Electrolytic grade Aluminum conductor shall H2 grade, class-2 in accordance with IS 8130/IEC 228. The shape of conductor shall

		be compacted, stranded, and circular.
3.3	Longitudinal water sealing of conductor	Shall be achieved by water swelling yarns/tapes in the interstices of the conductor. The fiber/yarn shall turn into jelly/swell, when in contact with water making the conductor water tight as per IEC 60502-2.
3.4	Semi conducting water blocking tape	Semi-conducting water blocking tapes shall be applied over the conductor, suitable for continuous operating conductor temperature of 90 deg C.
3.5	Conductor Screen	The conductor screen shall consist of extruded semi conducting compound which shall be fully compatible with the conductor and extruded insulation. Outer surface of semiconductor screen shall be super smooth, and firmly bonded to the overlaying insulation. The minimum Thickness of conductor screen shall be 0.8 mm
3.6	Insulation	The extruded XLPE insulation shall TREE-RETARDANT and of very high degree of purity with nominal thickness of 11 mm. The minimum thickness at any point shall not be less or more than 10% of the nominal value. Percentage eccentricity of the insulation shall not be more than 10%. The insulation properties shall be stable under Thermal conditions arising out of continuous operation at conductor temperature of 90 deg C rising momentarily to 250 Deg C under short circuit conditions.
3.7	Insulation Screen	The insulation screen shall consist of extruded semi conducting Compound which shall be fully compatible with extruded insulation. Insulation screen shall be firmly bonded to the insulation The minimum Thickness of insulation screen shall be 0.8 mm
3.8	Make of insulation and semi conducting screen	TR-XLPE of Dow/Borealis/Hanwa R1 (any deviation to above shall not be acceptable unless and until it has been specially approved by BSES prior to sourcing of compounds and manufacturing of cable).
3.9	Core	The ovality of the core shall not be more than 5%.
3.10	Inner Longitudinal water sealing bedding	Semi-conducting water swellable tapes shall be applied over the extruded semi-conducting core screening. Nominal Thickness of the Swellable Tape = 0.3 mm The swell speed shall be greater 12mm/minute
3.11	Metallic Screen	The metallic Screen shall consist of a layer of annealed copper tape of minimum 0.1mm thickness and shall be applied over the semi-conducting water-swellable tape with minimum 10% overlap.

3.12	Inner Longitudinal water sealing bedding (2nd layer)	Semi-conducting water swellable tapes shall be applied over the metallic screen again with a minimum overlap of 10 %. Nominal Thickness of the Swellable Tape = 0.3 mm The swell speed shall be greater 12mm/minute
3.13	Core Identification	Cores shall be identified by coloured strips (Red, Yellow, Blue), applied helically / longitudinally over the copper tape. The coloured strips shall carry the name of manufacturer permanently printed at close intervals; this is to provide additional identification of manufacturer of the cable.
3.14	Optical Fiber Cable (as one of the fillers)	48-Fiber optical Fiber cable, with such a construction to facilitate to continuously operate at 80 deg C to be used without any increase in loss beyond permissible limit. The cable manufacture to give confirmation from the optic-fiber manufacturer that the proposed construction is suitable to operate continuously at 80 deg C The OF cable will have: a) 36 Nos Single Mode fiber as per ITU-T G.657. A1 (low bend sensitive) with 12 Nos per loose tube for SCADA/communication b) 12 Nos Multi Mode Fiber as per OM-2 (50/125) in a single loose tube for optical-DTS The manufacturer must have adequate acceptance testing facilities of testing optical fiber cable performance of the complete 3-Core Power Cable post manufacturing. The minimum acceptance test would constitute: 1. Length and Continuity of Fiber inside Power Cable 2. Attenuation at defined wavelengths (Refer Annexure E) (Attenuation to be done at incoming stage) R1
3.15	Fillers	Balance fillers used in 3-Core cables shall be of PP Fillers R1 grade along with sufficient water blocking yarn to make it water tight construction.
3.16	Laying up of Cores	All the 3-Core, along with Fillers, water-blocking yarn and optical fiber cable shall be laid in the suitable right hand lay.
3.17	Inner Sheath	R1 Extruded PE ST7 confirming to requirements of IEC 60502-2 with latest amendments. The minimum thickness of the inner sheath shall be 1.5 mm. A non-conducting water blocking tape with approx. 10% overlap shall be applied over the inner sheath.
3.18	Armour	The armour shall be of galvanized round steel wires of minimum 4 mm dia complying the requirements of IS 3975:1999 with latest

		amendments. The armour wires shall be applied with minimum 90% coverage. The joints in the armour round wires shall be made by brazing or welding and the surface irregularities shall be removed. A joint in the wire shall be at least 300 mm from the nearest joint in any other armour wire in the completed cable. The short circuit capacity of armour shall be 26.3 kA for 3 second.
3.19	Binder Tape	Rubberized cotton tape shall be wrapped with approx. 10% overlap over armour
3.20	Outer Sheath	The outer sheath shall consist of extruded black colored HDPE type ST 7 as per IEC 60502-2 with anti termite protection. The minimum thickness shall be 3 mm at any point. Semi conductive layer either extruded or graphite coating shall be provided over the Outer Sheath.
3.21	Cable Rating	The cable size shall be suitable to carry rated load current on 66 kV continuously without exceeding the maximum conductor temperature of 90 deg. C.
3.22	Drum Length	300m ± 5 % (short lengths not acceptable except the last length and minimum acceptable short length shall be 100m). The overall quantity tolerance shall be as purchase order. Manufacturer shall not be allowed to put two cable pieces of different short length in same cable drum.
3.23	Embossing	The extruded outer sheath shall be embossed with meter marking at interval of 1 metre. The ”A” end meter marking and “Z” end meter marking and the drum lengths shall be printed on the drum flange along with other markings. The outer sheath shall also be embossed with (min.) a) Voltage designation b) Type of construction/cable code (i.e. A2XCEW2Y) R1 c) Number of core and nominal cross sectional area. d) Type of cable “Electric Cable”. e) Manufacturers name & trade mark f) Name of buyer (e.g. BSES) g) Month & year of manufacturing h) Batch no / Lot no. and Drum no i) Sequential length marking. j) Purchase Order Number and Date
3.24	Joints and Terminations	The 3-Core Joints and Terminations to be used with the cable shall be with proven design and fully type tested as per IS 60840. The Joints and Terminations match or exceed all technical performance parameters of the specified cable.

		The Joints and Terminations would be either Heat Shrink, Cold-Shrink or Pre-moulded type. The Joints and Terminations should have provision for splicing/terminating Optical Fiber Cable and manufacturer to give design for the same along with bid.

4.0 Quality Assurance

4.1	Vendor quality plan	To be submitted for purchaser approval
4.2	Inspection points	To be mutually identified & agreed in quality plan

5.0 Inspection & testing

5.1	Routine test	Each drum length of cable shall be subjected to the following tests
		- Measurement of the electrical resistance of the conductor shall be carried out as per the provisions of Clause 10.5 of IEC 60840/ IS 10810 part 5 The measurement shall be made on the conductors of each cable length. The D.C. resistance of the conductor at 20 deg. C shall not exceed the maximum value specified in IEC 60228 / IS 8130.
		- High voltage test as per clause 9.3 of IEC-60840/ 20.17 of IS 7098(Part-3):1993
		- Partial discharge test shall be carried out as per clause 9.2 of IEC Publication No.60840/20.10 of IS 7098(Part-3):1993
		- Measurement of capacitance as per clause 10.10 of IEC60840/ 20.18 of IS 7098(Part-3):1993
		- Measurement of length and continuation in Optic Fiber as defined in Annexure – E. R1
		- Test on the outer jacket as per Clause 3 of IEC 60229
5.2	Type test	The cable and the associated accessories like Joints and Terminations of same voltage, design and number of cores shall be of Type Tested from CPRI/ERDA as per IEC 60840:2004 /IS7098-III:1993 with latest amendments . Type test report of not more than five (5) years shall be submitted for the same type, size and rating of the cable offered, along with the bid.
		All type tests shall be carried out in accordance with Clause 12 of IEC-60840 / Clause 19.1 of IS 7098-III and in accordance with the sequence prescribed therein.
5.3	Short Circuit Test of Armour	The bidder shall furnish short circuit test report of 26.3 kA for 3 seconds from CPRI/ERDA for the same voltage, size and design

		of cable. This short circuit test shall be preceded and succeeded by high voltage, Partial Discharge, Armour Resistance and Conductor Resistance Test. Test report shall not be more than five (5) years old.
5.3	Acceptance Tests	Shall be conducted as per IEC: 60840: 2004 / IS: 7098-III: 1993 and approved QA plan for each lot of cable.
5.4	Special Tests	The following tests shall be carried out as special tests
		Conductor examination as per Clause 10.4 of IEC-60840 for conformance of IEC 60228/IS 8130.
		Measurement of thickness of insulation as per Clause 10.6 of IEC- 60840 and Clause 8 of IEC-60811-1-1./ IS 10810 part 6
		Measurement of thickness and overall dimensions of sheath as per Clause 8 of IEC-60811-1-1./ IS 10810 part 6
		Measurement of dimensions of Armour as per Clause 10.7 of IEC-60840/IS 10810 part 36
		Measurement of external diameter as per Clause 8.3 of IEC-60811-1-1
		Hot set test for TR-XLPE insulation as per Clause 10.9 of IEC-60840/ IS 10810 Part 30
		Degree of cross-linking as per ASTM D 2768-01, void and contamination as per 20.1 of IS 7098 (Part-3), abrasion resistance as per BS 7835
		Sheath Integrity Test
5.5	Inspection	The buyer reserves the right to witness all tests specified on completed cables
		The buyer reserves the right to inspect cables at the Seller's works at any time prior dispatch, to verify compliance with the specifications.
		In-process and final inspection call intimation shall be given in advance to purchaser.
		In the event of any discrepancy in the test reports i.e test reports not acceptable or any type tests(including special / assitional tests,if any) not carried out , same shall be carried out without any cost implication to BSES before dispatch of cable.
5.6	Test certificates	Three sets of complete test certificates shall be submitted along with the dispatch documents.

6.0 Drawings, Data & manuals

6.1	To be submitted along with bid	The seller has to submit:
		a) Cross sectional drawing of cable.
		b) Completely filled GTP
		c) Type test certificates
		d) Dimensional drawing for pulling eye
		e) Fault level calculation
		f) Complete cable catalogue and manual
		g) Armour Coverage Calculations
		f) Short Circuit Test Certificate
6.2		Within 15 days, the seller has to submit four sets of above mentioned drawings along with one soft copy for buyer's approval.
6.3	Submittals required prior to dispatch	a) Inspection and test reports, carried out in manufacturer's works (R)
		b) Test certificates of all bought out items.
6.4	Drawing and document sizes	Standard size paper A0, A1, A2, A3, A4
6.5	No. of drwgs. / Documents required at different stages	As per Annexure – A

7.0 Shipping, Handling and Site support

7.1	Packing	The cable shall be wound on non-returnable steel drums of suitable size of minimum hub diameter of 15D (where D is the overall diameter of the cable) and packed conforming to international standards. The drum shall be fully enclosed by suitable packing preferably PP sheeting. Cable shall have sea worthy packing in case cables are dispatched by shipping lines.
7.2	Pulling eye & sealing of Cable ends	A cable pulling eye shall be provided at "Z" end of cable on each drum. Suitable fillings/putty shall be used for sealing gap between outer sheath and pulling eye. Heat shrinkable sleeves with the pulling eye shall also be provided. The pulling eye shall be directly connected to the conductor and be capable to withstand a tensile load of 30N / sq mm of conductor area. The "A" end of the cable shall be sealed with heat shrinkable cap. Drawing of the pulling eye shall be submitted along with the bid for review.
7.3	Drum identification label	The following information shall be marked on the drum:
		- Drum identification number.
		- Trade name or trade mark; if any
		- Name of manufacturer and buyer
		- Nominal sectional area of the conductor of the cable
		- Type of cable and voltage for which it is suitable

		- Length of the cable on the drum, with “A” end and “Z” end markings.
		- Purchase order number with SAP item code.
		- Year and month of manufacturing.
		- Direction of rotation of drum (an arrow) and
		- Net weight of cable in drum and gross weight of cable with drum.
		- Batch no or Lot no.
7.4	Shipping	The seller shall give complete shipping information concerning the gross weight, size of each packing.
7.5	Handling & Storage	Manufacturer instruction shall be followed. Detail handling & storage instruction sheet / manual needs to be furnished before commencement of supply.
7.6	Transit damage	The seller shall be responsible for any transit damage due to improper packing.

8.0 Progress reporting

8.1	Outline Document	To be submitted for purchaser approval for outline of production, inspection, testing, packing, dispatch, documentation programmer.
8.2	Detailed Progress report	To be submitted to Purchaser once a month containing a) Progress on material procurement. b) Progress on internal stage inspection c) Reason for any delay in total program d) Details of test failures if any in manufacturing stages e) Progress on final box up. f) Constraints / forward path

9.0 Deviations

9.0	Deviation from the Specification.	Deviations from this Specification shall be stated in writing with the tender by reference to the Specification clause/GTP/Drawing and a description of the alternative offer. In absence of such a statement, it will be assumed by the Buyer that the Seller complies fully with this specification.

Special Note on Type Test Required After Award of PO:
i) Type test-1: Type test on one cable drum of each type/rating from any lot, shall be conductedat CPRI/ERDAon sample basis as per relevant IS/IEC. Sample shall be sealed by BRPL during inspection of cable. Cost for thistype test shall be borne by the respective Bidder.
ii) Type test -2: Type test on one cable drum of each type/rating from any lot shall be conductedat CPRI/ERDAon sample basis as per relevant IS/IEC. Sample shall be sealed by BRPL during inspection of cable.This type test is applicable subject to BRPL requirement and cost shall be borne by BRPL.

Annexure – A: Scope of supply

1.0 The scope of supply shall include following

1.1 Design, manufacture, testing at manufacturer works before dispatch, packing, delivery including unloading and stacking at site/store of 38/66kV 3Cx300 sq. mm cable as per BOQ and submission of all documents.

1.2 BOQ as following –

Sr No	Purchaser Equipment Tag No / SAP code	Material/Equipment description	Location	Unit	Quantity
1			e.g. Delhi	km	e.g. 10
2			e.g. Goa	km	e.g. 10
3					
4					
5					
6					
7					

2.0 Submission of documents

	Along with offer	**For Approval after award of contract**	**Final after approval**	**Remarks**
Detailed dimensional cross-sectional drawing of the cable	3 copies (Typical drgs)	4 copies	6 copies + 1 soft copy in CD	
Type test certificates.	2 copies (Type Test, Short Circuit Test Certificate and sample Routine Test)		6 copies + 1 soft copy in CD	Type test and sample Routine test reports
Guaranteed technical particulars of each type of cable	3 copies	4 copies	6 copies + 1 soft copy in CD	
Dimensional drawing for pulling eye.	3 copies	4 copies	6 copies + 1 soft copy in CD	
Rating factors	3 copies	4 copies	6 copies + 1 soft copy in CD	
Complete cable catalogue and Manual	1 copy		6 copies + 1 soft copy in CD	

3 Sec rating calculation for Armour	3 copies (Typical)	4 copies	6 copies + 1 soft copy in CD	
Armour Coverage Calculations	3 copies (Typical)	4 copies	6 copies + 1 soft copy in CD	
List of Sub-Vendors	3 copies (Typical)	4 copies	6 copies + 1 soft copy in CD	
Optic Fiber Cable Manufacturer's declaration for no increase in losses till 80 deg operations	3 copies (Typical)	4 copies	6 copies + 1 soft copy in CD	
Data Sheet of Optic Fiber Cables a) Single Mode Cable (G 657.A1) b) Multi Mode Cable	3 copies (Typical)	4 copies	6 copies + 1 soft copy in CD	

3.0 Delivery schedule

3.1 Delivery period start date - from date of LOI

3.2 Delivery period end date - as agreed with supplier

3.3 Material dispatch clearance - after inspection by purchaser

Annexure – B: Service Conditions

1.0.0	Delhi Atmospheric conditions	
a)	Average grade atmosphere :	Heavily polluted, dry
b)	Maximum altitude above sea Level	1000 M
c)	Ambient Air temperature	Highest 50 deg C, Average 40 deg C
d)	Minimum ambient air Temperature	Deg C
e)	Relative Humidity	90 % Max
f)	Thermal Resistivity of Soil	150 Deg.C cm/W
g)	Seismic Zone	4
h)	Rainfall	750 mm concentrated in four months

Annexure – C: Guaranteed Technical Particulars (Data by Supplier)

Sr.	Description	Unit	Data specified by the purchaser	Data to be filled by the manufacturer
1	Name of manufacturer			
2	Country of manufacturer			
3	Type of cable			
4	Standard according to which cable is manufactured			
5	Rated voltage	kV	38/66	
6	Highest system voltage	kV	72.5	
7	System frequency	Hz	50	
8	No of phases per circuit	Nos	3	
9	System earthing		Solidly Grounded	
10	Rated short time current of Conductor	kA		
11	Rated short time current of Armour	kA	26.3 for 3 sec	
12	Rated short time current of metal screen	kA		
13	Rated short time current of armour and screen	kA		
14	Duration of short circuit current	Sec	1	
15	Impulse withstand voltage 1.2/50 micro sec wave	kVp	325	
16	Power frequency withstand Voltage	kV(rms)	95 for 30 minutes	
17	Conductor			
a	Nominal cross sectional area	sqmm	300	
b	Type class of conductor.		Compacted Stranded Circular	
C	Material of conductor		Aluminum	
D	Flexibility class of conductor		Class -2	
E	Minimum numbers of strands	Nos		
F	Diameter of strands before compaction. (nominal / Minimum)	Mm / mm		
G	Material of longitudinal water sealing filling of conductor			
18	Details of semi conducting tape over the conductor			
19	Conductor Screen			
a	Material and type			
b	Minimum thickness	mm	0.8	
	Make and grade of semi conducting compound.			
20	Insulation			

	Material of Insulation		TR-XLPE	
	Nominal thickness	Mm	11	
	Minimum thickness		9.9	
	Make and grade of insulation Compound			
	Maximum dielectric stress at the conductor surface	kV/mm		
21	Insulation screen			
a	Material and type			
b	Minimum thickness	mm	0.8	
c	Make and grade of semi conducting compound.			
22	Inner water swellable semi conducting tape			
a	Nominal thickness	mm	0.3	
b	Minimum swell height in one minute.	mm	12 mm in one Minute	
c	Overlap	%	10 min	
23	Min thickness of copper tape	mm	0.1	
a	width of copper tape	mm		
b	Overlap of copper tape	%	10 min	
24	outer water swellable semiconducting tape			
a	Nominal thickness	mm	0.3	
b	Minimum swell height in one minute.	mm	12 mm in one Minute	
c	Overlap	%	10 min	
25	Nominal diameter over Laying up	mm		
26 a	Optic Fibers Cable used as per OF Cable specifications defined I. No. of Single Mode fiber (G 657.A1) II. No. of Multi Mode – OM-2	Yes/No No. No.		
26 b	No. & Material of balance fillers	No./material	/ PE ST 7	
27	No. of water blocking yarns and denier	No./material		
28	Material of the inner sheath		PE ST 7	
29	Method of Extrusion	mm	Sleeve/Tube R1	
30	Minimum thickness of inner sheath	mm	1.5	
31	Nominal diameter over inner Sheath	mm		
32	Non conducting water blocking tape over inner sheath			

a	Nominal thickness	mm	0.3	
b	Overlap	%	10 min	
33	Armour			
	Nominal Diameter	mm	4	
	No. of wires			
	Armour coverage			
	Area of Armour			
	Short circuit capacity of Armour	kA/3 sec	26.3	
	Binder tape over Armour		RC tape	
34	Outer jacket			
	Material and type		HDPE type ST 7	
	Minimum thickness	mm	3	
	Colour		Black	
35	Semiconducting coating outer jacket	Extruded/Graphite coating		
36	AC test voltage at works for insulation.	kV(rms)	95	
37	DC test voltage for outer jacket	kV(DC)	25	
38	Overall dia of completed single core cable	mm		
39	Weight per metre of complete Cable	kg/m		
40	Short circuit capacities with maximum conductor temperature of 250Deg C : (conductor temperature of 90 Deg C at the commencement of short circuit) 0.5 second duration 1 second duration 2 second duration 3 second duration	kA		
41	Minimum radius of bend round: which cable can be laid a) Direct burial in ground b) In ducts	mm		
42	Maximum D.C .resistance of: conductor per KM at 20 deg. C	Ohm/km	0.100	
43	Maximum AC resistance of: conductor per KM at 90 deg. C	Ohm		
44	Equivalent star reactance per KM: of 3 phase circuit at 50 Hz	Ohm		
	Maximum electrostatic capacitance : Per KM of cable	pf		
45	Maximum continuous current carrying :	Amp		

	Capacity per circuit when laid in ground as per the following parameters -Maximum continuous conductor temperature of 90Deg C -Maximum conductor temperature during short circuit of 250 Deg C -Ground temperature of 30 Deg C -Soil resistivity of 150 DegCcm/ Watt -Depth of laying of 150cm			
46	Maximum continuous current carrying : Capacity per cable when laid in air with ambient temperature of 40DegC and other parameters as per Sl no 49	Amp		
47	Rating factors for ambient air temperature attached(Yes/No)			
48	Rating factors for ground temperature attached(Yes/No)			
49	Rating factors for phase spacing in flat formation attached(Yes/No)			
50	Rating factors for grouping of cable laid in ground in horizontal formation attached(Yes/No)			
51	Rating factors for grouping of cable laid in ground in tri-foil touching formation attached(Yes/No)			
52	Rating factors for thermal resistivity of soil attached(Yes/No)			
53	Rating factors for depth of laying attached(Yes/No)			
54	Max. power factor of charging KVA of : cable when laid direct in the ground at normal voltage frequency at conductor temperature at 90Deg .C			
55	Max. dielectric power loss of cable per :	Watt/km		

	KM of 3 phase circuit laid direct in ground at normal voltage, frequency and maximum conductor temperature of 90 Deg C			
56	Impedance per KM of 3 phase circuit : at 50 C/s and maximum conductor temperature. a) Positive and negative sequence b) Zero sequence	Ohm		
57	Standard drum length of cable	Metres	300 R1 +/- 5% (short lengths not acceptable except the last length	
58	The overall quantity tolerance	%		
59	Cable to be wound on non returnable steel drum.	Yes / no	Yes	
60	Normal delivery length	Metres		
61	Cable pulling Eye to be provided at “Z” end			
62	Tensile load withstand capacity for pulling eye		30 N / sqmm	
63	Approximate shipping weight for the normal deliver length with the drum size (flange dia. in mm and width in mm):	kg		
64	Drum size (Flange dia X flange width X hub dia)			
65	Embossing details on outer jacket			
66	Sequential marking at every meter.		Provided	
67	Process of cross linking of polyethylene.			
68	Maximum Optic Fiber losses i) Each Joint ii) Per km (excluding Joint)			

Annexure –D: Cross Sectional Drawing (Data by Supplier)

Pictorial Label No.	Reference Clause No	Description	Nominal Thickness in mm	Nominal Diameter in mm
1	4.2 & 4.3	Compacted, stranded, circular water blocked aluminium conductor		
2	4.4	Semi-conducting water blocking tape		
3	4.5	Conductor screen		
4	4.6	TR-XLPE insulation		
5	4.7	Insulation screen		
6	4.8	Semiconducting water blocking tape		
7	4.9	Metal screening of a copper tape applied in helical form		
8	4.10	Semiconducting water blocking tape		
9	4.11	OFC		
10	4.12	PP Fillers R1		
11	4.13	Water blocking yarn		
12	4.14	PE extruded inner sheath R1		
13	4.15	Non conducting water blocking tape		
14	4.16	G.S Round Wire Armour		
15	4.17	RC Tape		
16	4.18	HDPE outer jacket		

Net weight of cable: …… kg/m

Name of manufacturer:
Drawing No and date:

Annexure –E: Specifications of Optic Fiber

A. Single-Mode Fiber (G 657.A1-Low Bend Sensitive Fiber)

Attenuation	≤ 0.33 dB/km at 1310 nm < 0.31 dB/km at 1383 nm or less than attenuation at 1310 nm# ≤ 0.20 dB/km at 1550 nm ≤ 0.21 dB/km at 1625 nm
Mode field diameter	8.8 ± 0.4 µm at 1310 nm 10.3 ± 0.5 µm at 1550 nm
Zero dispersion wavelength	1300 nm to 1324 nm
Dispersion at 1550 nm	≤ 17.5 ps/nm.km
PMD Individual Fiber*	≤ 0.1 ps/√km
Cladding diameter	125.0 ± 0.7 µm
Core-clad concentricity error	≤ 0.5 µm
Cladding non-circularity	≤ 0.7 %
Coating diameter (uncoloured)	242 ± 5 µm
Coating-cladding concentricity error	≤ 12 µm
Zero dispersion slope	≤ 2 0.090 ps/nm .km
PMD LDV	≤ 0.06 ps/√km

* Individual PMD values may change when cabled
# After hydrogen aging according to IEC-60793-2-50 regarding the B1.3 fiber category

B. Multi-Mode Fiber (OM -2)

Geometrical Characteristics

S. No.	Characteristics	Value
1	Core Diameter	50 ± 2.5 µm
2	Core Non-Circularity	≤ 5.0 %
3	Core/Clad Concentricity Error	≤ 1.5 µm
4	Cladding Diameter	125 ± 2.0/± 1.0 µm
5	Cladding Non-Circularity	≤ 1.0 %
6	Coating Diameter	245 ± 10.0 µm
7	Coating/Clad Concentricity Error	≤ 10.0 µm

Optical Characteristics

S. No.	Characteristics	Value
1	Attenuation Cofficient 850 nm 1300 nm	 ≤ 2.6 dB/km ≤ 0.8 dB/km
2	Attenuation at 1383 nm	≤ 2.0 dB/km
3	Attenuation Discontinuities (1300 nm)	≤ 0.05 nm
4	Macrobend	≤ 0.5 dB
5	Numerical Aperture	0.200 ± 0.015
6	Effective Group Index of Refraction 850 nm 1300 nm	 1.483 1.478

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S. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			Remark
									SV	MFR	BRPL	
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,											
	BRPL : BSES Rajdhani Power Ltd, P : Perform, W : Witness, V : Verification											
A	**RAW MATERIAL**											
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	

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									SV	MFR	BRPL	
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,											
	BRPL : BSES Rajdhani Power Ltd, P : Perform, W : Witness, V : Verification											
	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	Cable Pulling eye	a) Dimensions & Material	Major	Meas.	1 sample per size	Purchase order	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	-	
		c) Tension test on pulling eye	Major	Physical	1 sample per size	Pulling eye subjected to load		-	P	P	-	
10	Binder tape	a) Dimensions & material	Minor	Physical	Sample	MPS	MPS	-	P	P	-	
11	Polypropylene filler	a) Size	Minor	Physical	Sample	Purchase order	Purchase order	-	P	P	-	
12	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	**PROCESS INSPECTION**											
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	-	

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									SV	MFR	BRPL	
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,											
	BRPL : BSES Rajdhani Power Ltd, P : Perform, W : Witness, V : Verification											
		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	
		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	

QUALITY ASSURANCE PLAN (QAP)
FOR HT/EHV CABLES

S. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			Remark
									SV	MFR	BRPL	
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,											
	BRPL : BSES Rajdhani Power Ltd, P : Perform, W : Witness, V : Verification											
		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	
		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	
C	**FINAL INSPECTION**											
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 BRPL 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	
3	Acceptance tests	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	

QUALITY ASSURANCE PLAN (QAP)
FOR HT/EHV CABLES

S. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			Remark
									SV	MFR	BRPL	
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,											
	BRPL : BSES Rajdhani Power Ltd, P : Perform, W : Witness, V : Verification											
		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	
		g) Tensile strength & Elongation at break of insulation & outer sheath	Major	Physical		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	Each Lot Sample Basis	IEC:60502	IEC:60502	Test Report	-	P	W	**Test shall be conducted for leakage of water through conductor.**
		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	

QUALITY ASSURANCE PLAN (QAP)
FOR HT/EHV CABLES

S. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			Remark
									SV	MFR	BRPL	
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,											
	BRPL : BSES Rajdhani Power Ltd, P : Perform, W : Witness, V : Verification											
		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) Cable pulling eye strength test on one sample	Major	Physical		As per data sheet & FS	As per data sheet & FS	Test Report	-	P	W	
		y) Flammability test	Major	Physical		As per IS-78098/II/2011	As per IS-78098/II/2011	Test Report	-	P	W	
		z)Impulse withstand test	Critical	Electrical		IS 7098/II/2011	IS 7098/II/2011	Test Report	-	P	W	
		z1) Ageing & Water absorption test(Gravimetric) on Insulation & Outer sheath	Major	Physical		IS 5831/84	IS 5831/84	Test Report	-	P	W	
		z2) Heating Cycle with Potential	Critical	Electrical	sample basis, once per PO			Test Report	-	P	W	
		z3) Raw Material Verification in all aspects	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	

QUALITY ASSURANCE PLAN (QAP)
FOR HT/EHV CABLES

S. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			Remark
									SV	MFR	BRPL	
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,											
	BRPL : BSES Rajdhani Power Ltd, P : Perform, W : Witness, V : Verification											
		iii) Hot set test	Major	Physical	One sample per order	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	
		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	
D	**PACKING & MARKING**											
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	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	

BSES

QUALITY ASSURANCE PLAN (QAP)

FOR HT/EHV CABLES

S. NO.	COMPONENT & OPERATION	CHARACTERISTICS	CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	AGENCY			Remark
									SV	MFR	BRPL	
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,											
	BRPL : BSES Rajdhani Power Ltd, 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. BRPL may witness Raw material and in process inspection in addition to Routine/Acceptance tests at any time/stage of manufacturing.
5. BRPL's Inspector may randomly select a cable drum for type testing at vendor's works.
6. For each of the offered lot for inspection, BRPL may randomly select one cable drum for testing of end cap "Destructive testing" to verify adhesion of sealing cap to cable outer sheath. Similarly, pulling eye shall be tested with 30N/mm^2 pressure.
7. All factory Type Tests shall be Witnessed by BRPL

Ser. No.	Raw Materials		Name of the Suppliers
1.	Tr-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 / powder	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)
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

ANNEXURE - I

PRICE FORMAT

ITEM DESCRIPTION	QTY	UoM	EX- WORKS RATE PER KM	UNIT FREIGHT	GST	UNIT LANDED	TOTAL LANDED COST
SUPPLY OF 66 KV GRADE XLPE INSULATED ALUMINIUM CONDUCTOR POWER CABLE OF SIZE 3Cx300 SQ.MM	18.40	KM					

ANNEXURE -II

BID FORM

To

Head of Department
Contracts & Material
Deptt. BSES Rajdhani
Power Ltd 1st Floor, C
Block
BSES Bhawan, Nehru
Place New Delhi
110019

Sir,

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

2 Having examined the Bidding Documents for the above named works, we the undersigned, offer to deliver the goods in full conformity with the Terms and Conditions and technical specifications as may be determined in accordance with the terms and conditions of the contract.

3 If our Bid is accepted, we undertake 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 …… 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..... 2021

Signature..... In the capacity of ……

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

(IN BLOCK CAPITALS).....

ANNEXURE -III

ACCEPTANCE FORM FOR PARTICIPATION IN REVERSE AUCTION EVENT

(To be signed & stamped by the bidder along-with bid)

BSES Rajdhani Power Ltd (BRPL) intends to use reverse auction through SAP-SRM tool as an integral part of entire tendering process. All bidders who are techno-commercially qualified on the basis of tender requirements shall participate in the reverse auction.

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

1. In case of bidding through Internet medium, bidders are advised to ensure availability of all associated infrastructure as required to participate in the reverse auction event. Inability to bid due to telephone glitch, internet response issues, software & hardware hangs/failures, power failures or any other reason shall not be the responsibility of BRPL.

2. In case bidder fails to participate in the reverse auction event due to any reason whatsoever, it shall be presumed that the bidder has no further discounts to offer and the initial bid submitted by them as a part of tender shall be considered as bidder's Final No Regret offer. Any off-line price bids received from a bidder in lieu of non-participation in the reverse auction event shall be rejected by BRPL.

3. The bidder is advised to understand the auto bid process t safeguard themselves against any possibility of non-participation in the reverse auction event.

4. The bidder shall be prepared with competitive price quotes during the day of reverse auction event.

5. The prices quoted by bidder in reverse auction event shall be on FOR Landed cost BRPL Store/site basis inclusive of all relevant taxes, duties, levies, transportation charges etc.

6. The prices submitted by the bidder during reverse auction event shall be binding on the bidder.

7. The bidder agrees to non-disclosure of trade information regarding bid details e.g. purchase, identity, bid process/technology, bid documentation etc.

8. BRPL will make every effort to make the bid process transparent. However award decision of BRPL will be final and binding on the bidder.

9. The prices submitted during reverse auction event shall be binding on the bidder.

10. No request for Time extension of the reverse auction event shall be considered by BRPL.

ANNEXURE - IV

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 Rajdhani Power Ltd., with it's Corporate Office at BSES Bhawan Nehru Place, New Delhi -110019, (herein after called —the "Purchaser") in the sum of
..... (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

TH E CONDITIONS of this obligation are:

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 TWENTY DAYS(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(s)

ANNEXURE -V

COMMERCIAL TERMS AND CONDITIONS

Sl N	Item Description	AS PER BRSPL	BIDDER'S CONFIRMATIO
1	Validity	**120 days** from the date of offer.	
2	Price basis	a) **Firm,** FOR Delhi store basis. Prices shall be inclusive of all taxes & duties, freight up to Delhi stores. b) Unloading at stores shall be in vendor's scope	
3	Payment terms	100% payment within **45 days** after receipt of material at stores	
4	Delivery schedule	AS PER SECTION – IV	
5	Defect Liability period	60 months after commissioning or 66 months from the last date of dispatch, whichever is earlier	
6	Penalty for delay	1% per week of delay of undelivered units or part thereof subject to maximum of 10% of total PO value of undelivered units	
7	Performance Bank Guarantee	10% of total PO value valid for 24 months after commissioning or 30 months from the last date of dispatch, whichever is earlier plus 3 months towards claim period	

Bidder should also furnish the below details for future communication:-

FOR TECHNICAL QUERY:		
CONTACT PERSON & DESIGNATION	NAME	DESIGNATION
E-MAIL	MOBILE NO	TELEPHONE NO

FOR COMMERCIAL QUERY:		
CONTACT PERSON & DESIGNATION	NAME	DESIGNATION
E-MAIL	MOBILE NO	TELEPHONE NO

ANNEXURE VI

NO DEVIATION SHEET

SL NO	SL NO OF TECHNICAL SPECIFICATION	DEVIATIONS,IF ANY

SIGNATURE & SEAL OF BIDDER

NAME OF BIDDER

ANNEXURE-VII

S.No	PO No	PO Date	Qty	Supplied		Customer
				Qty.	Date	

Note: - CA/self certified and shall be printed on company letter head.

CHECK LIST

Sl No	Item Description	YES/NO
1	INDEX	YES/NO
2	COVERING LETTER	YES/NO
3	BID FORM (UNPRICED) DULY SIGNED (1 nos. Original +1 nos. Photo Copy)	
4	BILL OF MATERIAL (UNPRICED) (1 nos. Original +1 nos. Photo Copy)	YES/NO
5	TECHNICAL BID (1 nos. Original +1 nos. Photo Copy)	YES/NO
6	ACCEPTANCE TO COMMERCIAL TERMS AND CONDITIONS	YES/NO
7	FINANCIAL BID (IN SEALED ENVELOPE – 1 ORIGINAL)	YES/NO
8	EMD IN PRESCRIBED FORMAT	YES/NO
9	DEMAND DRAFT OF RS 1180/- DRAWN IN FAVOUR OF	BSES RAJDHANI POWER LTD
10	POWER OF ATTORNEY/AUTHORISATION LETTER FOR SIGNING THE BID	
11	ACCEPTANCE FORM FOR REVERSE AUCTION	YES/NO
12	PLANT MANUFACTURING CAPACITY (CA CERTIFIED)	YES/NO
13	ANNUAL TURNOVER (CA CERTIFIED)	YES/NO
14	PERFORMANCE CERTIFICATE AS PER QR	YES/NO
15	SUPPLIED QUANTITY AS PER PQR	YES/NO
16	ISO Certification /Any other certification/Type test Report/BIS etc as per PQR	YES/NO
17	Quality Assurance /Organization Chart	YES/NO
18	Undertakings as per NIT	YES/NO
19	Technical Deviation	YES/NO
20	SUPPLIED/PERFORMANCE QTY AS PER QR(IN ANNEXURE-VII) CA CERTIFIED	YES/NO
Note : The above document must be properly tagged with page nos.		