BSES Yamuna Power Limited

NOTICE INVITING TENDER (NIT)

FOR

RATE CONTRACT FOR SUPPLY, INSTALLATION, TESTING & COMISSIONING OF PACKAGE SUB-STATION OF VARIOUS RATINGS

NIT NO: CMC/BY/20-21/RB/SV/011

Due Date for Submission: 06.07.2020, 15:00 HRS

BSES YAMUNA POWER LIMITED (BYPL)
CONTRACTS & MATERIALS DEPT.,
SHAKTI KIRAN BUILDING, KARKARDOOMA,
DELHI-110032
CIN: U40109DL2001PLC111525
WEBSITE: www.bsesdelhi.com

BSES Yamuna Power Limited

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SECTION – I: REQUEST FOR QUOTATION

1.00 EVENT INFORMATION

1.01 BSES Yamuna Power Ltd (hereinafter referred to as **"BYPL"**) invites sealed tenders in 2 envelopes for establishing Rate Contract from reputed manufacturers valid for a period of one year.

Sl. No.	Item Description	Estimated Cost (₹)	Cost of EMD (₹)	Delivery & Installation at
1	RATE CONTRACT FOR SUPPLY, INSTALLATION, TESTING & COMISSIONING OF PACKAGE SUB-STATION OF VARIOUS RATINGS	1.60 Crore	3.20 Lakh	Delhi Various Sites

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

All envelopes shall be duly super scribed "**BID FOR RATE CONTRACT FOR SUPPLY, INSTALLATION, TESTING & COMISSIONING OF PACKAGE SUB-STATION OF VARIOUS RATINGS" "NIT NO: CMC/BY/20-21/RB/SV/011 DUE ON 06.07.2020, 15:00 Hr.**"

Bid shall be submitted in two (02) parts. Details of part are as follow:
Part A – Techno Commercial Bid
Part B – Price Bid

1.1. The schedule of specifications with detail terms & conditions can be obtained from address given below against submission of non-refundable demand draft of **₹ 1,180/-** drawn in favour of BSES Yamuna Power Ltd, payable at Delhi or Online transfer of requisite amount through NEFT/ RTGS. The tender documents & detail terms and conditions can also be downloaded from the website www.bsesdelhi.com **--> BSES YAMUNA POWER LTD --> Tender --> Open Tenders**
In case tender papers are downloaded from the above website, then the bidder has to enclose a demand draft covering the cost of bid documents.

1.2. Bids will be received up to **06.07.2020, 15:00 Hr.** at the address given below.
Part A of the Bid shall be opened on **07.07.2020, 15:00 Hr.**

Part B of the Bid will be opened in case of Techno-Commercially Qualified Bidders and the date of opening of same shall be intimated in due course. It is the sole responsibility of the bidder to ensure that the bid documents reach this office on or before the last date.

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

1.3 BSES Yamuna Power Ltd reserves the right to accept/reject any or all tenders without assigning any reason thereof in the event of following:
a) Tender fee of requisite value.

b) Earnest Money Deposit (EMD) of requisite value & validity is not deposited in shape of Bank Guarantee drawn in favor of BSES Yamuna Power Ltd, payable at Delhi or Online transfer of requisite amount through NEFT/RTGS
c) The offer does not contain prices indicating break-up towards all taxes & duties in prescribed format.
d) Complete Technical details are not enclosed as per the Technical Bid Submission Checklist
e) Tender is received after due date and time.
f) Technical offer contains any prices.
g) Prices are not FIRM and subject to Price Variation.

2.00 QUALIFICATION CRITERIA

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

2.01 Technical Criteria:

Sl No.	Criteria	Documents to be submitted by bidder
1	The bidder should have own manufacturing facility to manufacture PSS of same or higher voltage rating and in-house routine and acceptance testing facilities for acceptance as per relevant IS/IEC	Manufacturing and factory incorporation certificate
2	The bidder should have successfully supplied/executed at least 50 no's and more of PSS with 990/1000KVA rating DT or above in last 3 years	i. Summary list of executed Purchase orders ii. Purchase order copies iii. Material delivery clearance certificate copy or delivery completion certificates
3	The bidder should have plant installed capacity to supply of minimum 5-10 nos. per month	Installed Capacity Certificate
4	Performance certificate for one year satisfactory performance from at least 03 companies for PSS of similar or higher rating is to be submitted	Performance certificates
5	The bidder must possess their own Type Tested design of PSS carried out at CPRI/ERDA/Other reputed International Institutions	Report
6	The bidder should have infrastructure in India for providing service & spare support to BYPL. The relevant documents including details of manufacturing units, locations and works from where supply, spares & service against this tender shall be proposed to be furnished.	Relevant Details/certificates
7	Out of two major components i.e. 11KV RMU and Distribution Transformer, the bidder shall be manufacturer of at least one component and offer the same.	Confirmation on the offered equipments

2.02 **Commercial Criteria:**

Sl No.	Criteria	Documents to be submitted by bidder
1	The bidder must have adequate Financial Stability and status to meet the financial obligation pursuant to the scope of supply and shall have average annual turnover of minimum ₹ 1000 Crore during last three (3) Financial Years preceding the date of opening of bid	Duly certified CA certificate to be submitted
2	An undertaking (self-certificate) that the bidder has not been blacklisted/debarred by any central/state government institution including electricity boards and also confirm that there is no pending litigation with government on account of executing similar order	Undertaking
3	The bidder should have registered under GST ACT and shall submit copy of GST Registration Number, PAN, PF, ESI in addition to other statuary compliances. The bidder must submit the copy of registrations and submit an undertaking that the bidder shall comply all the statutory compliances as per the applicable laws/rules etc	Relevant Statutory Documents Copy

The subsidiaries of global/Indian companies are also eligible to bid if the qualification requirements stated above are met independently or in combination with parent/sister concern/group Company. However, the bidder should have an establishment of permanent nature in India.

Bidders already qualified against previous tender(s) for similar requirement need not submit the documents in support of qualification criteria. However, GTP, Drawings and other technical details with supporting documents shall be submitted.

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

3.00 BIDDING AND AWARD PROCESS

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

3.01 BID SUBMISSION

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

Head of Department
Contracts & Material Deptt.
BSES Yamuna Power Ltd
3rd Floor, A Block
Shaktikiran Building, Karkardooma
Delhi 110032

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

BSES Yamuna Power Limited

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

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

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

3.02 TIME SCHEDULE

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

S.No.	Steps	Due date
1	Last Date of Sale of Bid Documents	30.06.2020
2	Last Date of receipt of pre-bid queries, if any (Queries to be submitted via e-mail)	26.06.2020, 15:00HRS
3	Last Date of Receipt of Bid Documents	06.07.2020, 15:00HRS
4	Date & Time of Opening of PART A - Technical and Commercial Bid	07.07.2020, 15:30HRS

This is a two part bid process. Bidders are to submit the bids in 2(Two) parts
Both these parts should be furnished in separate sealed covers super scribing NIT no. DUE DATE OF SUBMISSION, with particulars as **PART-A TECHNICAL BID & COMMERCIAL TERMS & CONDITIONS** and **Part-B FINANCIAL BID** and these sealed envelopes should again be placed in another sealed cover which shall be submitted before the due date & time specified.

Part – A:: Technical Bid should not contain any cost information whatsoever and shall be submitted within the due date**.**

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

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

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

Notwithstanding anything stated above, the Purchaser reserves the right to assess bidder's capability to perform the contract, should the circumstances warrant such assessment in the overall interest of the purchaser. In this regard the decision of the purchaser is final. Bidder to submit their acceptance as per format attached ANNEXURE-C

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

4.00 AWARD DECISION

4.01 Purchaser intends to award the business on a lowest bid basis, so suppliers are encouraged to submit the bid competitively. The decision to place purchase order/LOI solely depends on purchaser

on the cost competitiveness across multiple lots, quality, delivery and bidder's capacity, in addition to other factors that Purchaser may deem relevant.

4.02 In the event of your bid being selected by purchaser (and / or its affiliates) and you subsequent DEFAULT on your bid; you will be required to pay purchaser (and / or its affiliates) an amount equal to the difference in your bid and the next lowest bid on the quantity declared in NIT/RFQ.

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

4.05 Rate Contract: The rate contract shall have a validity period of 12 months from the date of LOI/PO issued to the responsive, techno-commercially acceptable and evaluated to be the lowest bidder. Purchase Order (PO) shall be placed as per the requirement of BYPL. Rate shall remain FIRM till the validity of Rate Contract.

4.06 Quantity Variation: The purchaser reserves the rights to vary the quantity by (±) 50% of the tender quantity during the execution of the rate contract.

4.07 Quantity Splitting: The purchaser reserves the right to distribute the procurable quantity on one or more than one of the eligible tenders. If the quantity is to be split, quantity distribution shall be in the manner detailed below:
a) If the quantity is to be split among 2 bidders, it will be done in the ratio of 70:30 on L1 price.
b) It the quantity is to be split among 3 bidders, it will be done in the ratio of 50:30:20 on L1 price.
Note: In case quantity needs to be distributed and order splitting is required, distribution of quantity shall be maximum among three (3) bidders

5.00 MARKET INTEGRITY

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

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

6.00 SUPPLIER CONFIDENTIALITY

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

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

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

BSES Yamuna Power Limited

7.00 CONTACT INFORMATION

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

Address	Name/ Designation	E-mail Address
Technical		
CES Dept. 3rd Floor, B-Block, BSES Yamuna Power Ltd Shaktikiran Building, Karkardooma, Delhi 110032	Ashwani Aggarwal VP (HOD-CES)	ashwani.aggarwal@relianceada.com
	Gaurav Sharma AVP (CES)	gaurav.a.sharma@relianceada.com
	Srinivas Gopu DGM (CES)	srinivas.gopu@relianceada.com
Commercial		
C&M Dept. 3rd Floor, A-Block, BSES Yamuna Power Ltd Shaktikiran Building, Karkardooma, Delhi 110032	Rakesh Bansal VP (HOD-C&M)	rakesh.bansal@relianceada.com
	Rajesh Srivastava Addl. VP (Head-Procurement)	rajesh.r.srivastava@relianceada.com
	Sumit Verma DGM (C&M)	sumit.ra.verma@relianceada.com

SECTION – II: INSTRUCTION TO BIDDERS

A. GENERAL

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

2.00 SCOPE OF WORK

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

3.0 DISCLAIMER

3.01 This Document includes statements, which reflect various assumptions, which may or may not be correct. Each Bidder/Bidding Consortium should conduct its own estimation and analysis and should check the accuracy, reliability and completeness of the information in this Document and obtain independent advice from appropriate sources in their own interest.

3.02 Neither Purchaser nor its employees will have any liability whatsoever to any Bidder or any other person under the law or contract, the principles of restitution or unjust enrichment or otherwise for any loss, expense or damage whatsoever which may arise from or be incurred or suffered in connection with anything contained in this Document, any matter deemed to form part of this Document, provision of Services and any other information supplied by or on behalf of Purchaser

or its employees, or otherwise a rising in any way from the selection process for the Supply.

3.03 Though adequate care has been taken while issuing the Bid document, the Bidder should satisfy itself that Documents are complete in all respects. Intimation of any discrepancy shall be given to this office immediately.

3.04 This Document and the information contained herein are Strictly Confidential and are for the use of only the person(s) to whom it is issued. It may not be copied or distributed by the recipient to third parties (other than in confidence to the recipient's professional advisors).

4 COST OF BIDDING

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

B. BIDDING DOCUMENTS

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

(a) Request for Quotation (RFQ)
(b) Instructions to Bidders
(c) General Terms & Conditions of Contract (T&C)
(d) Delivery schedule
(e) Price Formats & Summary T&C
(f) Bid Form
(g) Acceptance Format – RA
(h) EMD BG Format
(i) Vendor code of conduct
(j) Appendix
(k) Technical Specifications (TS)

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

6.0 AMENDMENT OF BIDDING DOCUMENTS

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

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

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

6.04 Purchaser shall reserve the rights to following:

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

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

C. PREPARATION OF BIDS

7.0 LANGUAGE OF BID

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

8.0 DOCUMENTS COMPRISING THE BID

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

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

(b) All the Bids must be accompanied with the required EMD as mentioned in the Section-I against each tender.

(c) Tender documents duly stamped and signed on each page by authorized signatory.

9.0 BID FORM

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

9.02 EMD

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

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

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

The EMD may be forfeited in case of:

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

or

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

(i) Accept the Purchase Order, or

(ii) Furnish the required performance security BG.

10.0 **BID PRICES**

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

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

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

11.0 **BID CURRENCIES**

11.01 Prices shall be quoted in Indian Rupees Only.

12.0 **PERIOD OF VALIDITY OF BIDS**

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

12.02 Notwithstanding Clause12.01 above, the Purchaser may solicit the Bidder's consent to an extension of the Period of Bid Validity. The request and the responses thereto shall be made in writing and sent by post/courier

13.0 **ALTERNATIVE BIDS**

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

14.0 **FORMAT AND SIGNING OF BID**

14.01 The original Bid Form and accompanying documents (as specified in Clause 5.0), clearly marked "Original Bid" plus one copy must be received by the Purchaser at the date, time and place specified pursuant to Clauses 15.0 and 16.0. In the event of any discrepancy between the original and the copies, the original shall govern.

14.02 The original and copy of the Bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized to sign on behalf of the Bidder. Such authorization shall be indicated by written Power-of-Attorney accompanying the Bid. The Bid submitted on behalf of companies registered with the Indian Companies Act, for the time being in force, shall be signed by persons duly authorized to submit the Bid on behalf of the Company and shall be accompanied by certified true copies of the resolutions, extracts of Articles of Association, special or general Power of Attorney etc. to show clearly the title, authority and designation of persons signing the

Bid on behalf of the Company. Satisfactory evidence of authority of the person signing on behalf of the Bidder shall be furnished with the bid. A bid by a person who affixes to his signature the word 'President', 'Managing Director', 'Secretary', 'Agent' or other designation without disclosing his principal will be rejected.

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

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

D. SUBMISSION OF BIDS

15.0 **SEALING AND MARKING OF BIDS**

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

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

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

16.0 **DEADLINE FOR SUBMISSION OF BIDS**

16.01 The original Bid, together with the required copies, must be received by the Purchaser at the address on or before the due date & time of submission.

16.02 The Purchaser may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents in accordance with Clause 6.0,in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended

17.0 **ONE BID PER BIDDER**

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

18.0 **LATE BIDS**

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

19.0 **MODIFICATIONS AND WITHDRAWAL OF BIDS**

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

E. EVALUATION OF BID

20.0 PROCESS TO BE CONFIDENTIAL

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

21.0 CLARIFICATION OF BIDS

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

22.0 PRELIMINARY EXAMINATION OF BIDS / RESPONSIVENESS

22.01 Purchaser will examine the Bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Bids are generally in order. Purchaser may ask for submission of original documents in order to verify the documents submitted in support of qualification criteria.

22.02 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price per item that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price per item will be corrected. If there is a discrepancy between the Total Amount and the sum of the total price per item, the sum of the total price per item shall prevail and the Total Amount will be corrected.

22.03 Prior to the detailed evaluation, Purchaser will determine the substantial responsiveness of each Bid to the Bidding Documents including production capability and acceptable quality of the Goods offered. A substantially responsive Bid is one, which conforms to all the terms and conditions of the Bidding Documents without material deviation.

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

23.0 EVALUATION AND COMPARISON OF BIDS

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

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

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

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

(a) Delivery Schedule

(b) Conformance to Qualifying Criteria

(c) Deviations from Bidding Documents

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

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

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

F. AWARD OF CONTRACT

24.0 CONTACTING THE PURCHASER

24.01 If any Bidder wishes to contact the Purchaser on any matter related to the Bid, from the time of Bid opening to the time of contract award, the same shall be done in writing only.

24.02 Any effort by a Bidder to influence the Purchaser and/or in the Purchaser's decisions in respect of Bid evaluation, Bid comparison or Contract Award, will result in the rejection of the Bidder's Bid.

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

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

26.0 AWARD OF CONTRACT

The Purchaser will award the Contract to the successful Bidder whose Bid has been Determined to be the lowest-evaluated responsive Bid, provided further that the Bidder has been determined to be qualified to satisfactorily perform the Contract. Purchaser reserves the right to award order to other bidders in the tender, provided it is required for timely execution of project & provided he agrees to come to the lowest rate. Purchaser reserves the right to distribute the entire tender quantity at its own discretion without citing any reasons thereof.

27.0 THE PURCHASER'S RIGHT TO VARY QUANTITIES

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

BSES Yamuna Power Limited

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**

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

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

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

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

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

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

BSES Yamuna Power Limited

APPENDIX I

(FORMAT FOR EMD BANK GUARANTEE)

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

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

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

Sealed with the Common Seal of the said Bank this_____ day of_____ 20____.

The conditions of this obligation are:

1 If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form; or

2. If the Bidder, having been notified of the acceptance of its Bid by the Purchaser during the period of bid validity:

(a) fails or refuses to execute the Contract Form, if required; or

(b) fails or refuses to furnish the performance security, In accordance with the Instructions to Bidders/ Terms and Conditions;

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

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

(Stamp & signature of the bank)

Signature of the witness

BSES Yamuna Power Limited

BID FORM

To

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

Sir,

1 We understand that BYPL is desirous of procuring…….. for it's licensed distribution network area in Delhi

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

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

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

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

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

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

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

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

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

Signature..... In the capacity of ……

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

(IN BLOCK CAPITALS) .....

BSES Yamuna Power Limited

ACCEPTANCE FORM FOR PARTICIPATION IN REVERSE AUCTION EVENT

(To be signed and stamped by the bidder)

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

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

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

Signature & seal of the Bidder

BSES Yamuna Power Limited

ANNEXURE - SCHEDULE OF DEVIATIONS

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

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

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

BSES Yamuna Power Limited

Technical Bid Submission Check List

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

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

BSES Yamuna Power Limited

VENDOR CODE OF CONDUCT

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

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

I. Labour and Human Rights

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

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

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

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

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

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

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

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

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

II. Health and Safety

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

The health and safety standards are:

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

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

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

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

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

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

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

III. Environmental

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

The environmental standards are:

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

IV. Ethics

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

V. Management System

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

The management system should contain the following elements:

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

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

BSES Yamuna Power Limited

GENERAL CONDITIONS OF CONTRACT (GCC-SUPPLY)

BSES Yamuna Power Limited

GENERAL CONDITIONS OF CONTRACT (GCC)-SUPPLY

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

1.0 General Instructions

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

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

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

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

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

2.0 Definition of Terms

2.01 "Purchaser" shall mean BSES Yamuna Power Limited, on whose behalf this bid enquiry is issued by its authorized representative / officers.

2.02 "Bidder" shall mean the firm who quotes against this bid enquiry issued by the Purchaser. "Supplier" or "Supplier" shall mean the successful Bidder and/or Bidders whose bid has been accepted by the Purchaser and on whom the "Letter of Acceptance" is placed by the Purchaser and shall include his heirs, legal representatives, successors and permitted assigns wherever the context so admits.

2.03 "Supply" shall mean the Scope of Contract as described.

2.04 "Specification" shall mean collectively all the terms and stipulations contained in those portions of this bid document known as RFQ, Commercial Terms & Condition, Instructions to Bidders, Technical Specifications and the Amendments, Revisions, Deletions or Additions, as may be made by the Purchaser from time to time.

2.05 "Letter of Acceptance" shall mean the official notice issued by the Purchaser notifying the Supplier that his proposal has been accepted and it shall include amendments thereto, if any, issued by the Purchaser. The "Letter of Acceptance" issued by the Purchaser shall be binding on the "Supplier" The date of Letter of Acceptance shall be taken as the effective date of the commencement of contract.

2.06 "Month" shall mean the calendar month and "Day" shall mean the calendar day.

2.07 "Codes and Standards" shall mean all the applicable codes and standards as indicated in the Specification.

2.08 "Offer Sheet" shall mean Bidder's firm offer submitted to BYPL in accordance with the specification.

2.09 "Contract" shall mean the "Letter of Acceptance/Purchase Order" issued by the Purchaser.

2.10 "Contract Price" shall mean the price referred to in the "Letter of Acceptance/Purchase Order".

2.11 "Contract Period" shall mean the period during which the "Contract" shall be executed as agreed between the Supplier and the Purchaser in the Contract inclusive of extended contract period for reason beyond the control of the Supplier and/or Purchaser due to force majeure.

2.12 "Acceptance" shall mean and deemed to include one or more of the following as will be stipulated in the specification:

a) The written acceptance of material by the inspector at suppliers works to ship the materials.
b) Acceptance of material at Purchaser site stores after its receipt and due inspection/ testing and release of material acceptance voucher.
c) Where the scope of the contract includes supply, acceptance shall mean issue of necessary equipment / material takeover receipt after installation & commissioning and final acceptance.

3.0 Contract Documents & Priority

3.01 Contract Documents: The terms and conditions of the contract shall consist solely of these RFQ conditions and the offer sheet.

4.0 Scope of Supply -General

4.01 The "Scope of Supply" shall be on the basis of Bidder's responsibility, completely covering the obligations, responsibility and supplies provided in this Bid enquiry whether implicit or explicit.

4.02 Bidder shall have to quote for the Bill of quantities as listed in Section – IV of this RFQ.

4.03 Quantity variation and additional requirement if any shall be communicated to successful bidder during project execution.

4.04 All relevant drawings, data and instruction manuals.

5.0 Quality Assurance and Inspection

5.01 Immediately on award of contract, the bidder shall prepare detailed quality assurance plan / test procedure identifying the various stages of manufacture, quality checks performed at each stage, raw material inspection and the Customer hold points. The document shall also furnish details of method of checking, inspection and acceptance standards / values and get the approval of Purchaser before proceeding with manufacturing. However, Purchaser shall have right to review the inspection reports, quality checks and results of suppliers in house inspection department which are not Customer hold points and the supplier shall comply with the remarks made by purchaser or his representative on such reviews with regards to further testing, rectification or rejection, etc.

5.02 Witness and Hold points are critical steps in manufacturing, inspection and testing where the supplier is obliged to notify the Purchaser in advance so that it may be witnessed by the Purchaser. Final inspection is a mandatory hold point. The supplier to proceed with the work past a hold point only after clearance by purchaser or a witness waiver letter from BYPL.

5.03 The performance of waiver of QA activity by Purchaser at any stage of manufacturing does not relieve the supplier of any obligation to perform in accordance with and meet all the requirements of the procurement documents and also all the codes & reference documents mentioned in the procurement document nor shall it preclude subsequent rejection by the purchaser.

5.04 On completion of manufacturing the items can only be dispatched after receipt of dispatch Instructions issued by the Purchaser.

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

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

6.0 INSPECTION & TEST CHARGES:

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

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

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

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

7.0 HANDLING AND STORAGE:

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

8.0 Packing, Packing List & Marking

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

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

BSES Yamuna Power Limited

9.0 Prices/Rates/Taxes

9.01 **Price basis for supply of materials**

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

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

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

10.0 TAXES & DUTIES:

10.01 Prices for Goods are on Ex- Works basis. For the Goods covered under the GST laws, all taxes that are applicable under CGST, SGST, UGST, IGST and GST Compensation Cess shall be payable extra.

10.02 For the Goods not covered in the GST laws, the applicable ED, VAT / CST shall be payable extra at applicable rates.

10.03 GSTIN of BSES YAMUNA POWER LTD - 07AABCC8569N1Z0
CST No of BSES YAMUNA POWER LTD -07740254593
TIN NO of BSES YAMUNA POWER LTD - 07740254593
PAN NO of BSES YAMUNA POWER LTD - AABCC8569N

10.04 At the end of each month, the SELLER must submit their detail of invoices and amount thereof to the concerned officer in charge, within 07 days after the close of the respective month of which supply relates. Non submission of the said request would be treated as good as that the SELLER has no requirement of reconciliation.

11.0 INVOICING INSTRUCTIONS:

11.01 Invoices in triplicate [1) Original for recipient, 2) Duplicate for Transporter, 3) Triplicate for supplier] shall be made out and delivered to the following address: BSES YAMUNA POWER LIMITED, SHAKTI KIRAN BUILDING, KARKARDOOMA, DELHI-110032.
MDCC will be released separately for Capex & Opex. Invoice will be submitted by supplier as per the MDCC.

11.02 Vendor shall obtain GST registration in the State from where the supply will be carried out. Vendors supplying Goods to the Purchaser shall have a valid GST registration number and shall submit GST Tax Invoice and other documents as per SGST Act, CGST Act, IGST Act, UTGST Act, GST Compensation Cess Act and Rules made there under. Failure to submit GST Tax Invoice shall be liable for withholding SGST, CGST, IGST, UTGST, GST Compensation Cess amount charged by the vendor while releasing the payment.

11.03 Invoice in the name of BSES YAMUNA Power Limited & address of the store/site mentioned in the MDCC. Invoice should contain all information as required under GST Invoice, Debit Note and Credit Rules. The government has notified rules of invoicing under GST along with a template of invoice(GST INV-01) covering the elements such as supplier's details, GSTIN No, HSN Codes, item details, GST tax rates, etc that need to be presented by the supplier.

11.04 Vendor to carefully examine and charge relevant CGST / SGST, UGST, IGST and GST compensation cess as applicable to the transactions.

11.05 Timely provision of invoices / Debit Notes / Credit Notes:

11.05.1 Vendor to timely provide invoice / Debit note / Credit note to enable Purchaser to claim tax benefit on or before stipulated time period. All necessary adjustment entries (Credit Note, Purchase Returns, Debit Notes) shall be made within the time lines prescribed under the GST Laws.

11.05.2 In case of receipt of advance, the Vendor undertakes to raise the tax invoice. Purchaser, upon payment of advance, shall issue payment voucher as per applicable GST laws and rules. Four copies of the invoices need to be provided by suppliers and wherever the law requires, an Electronic Reference Number for each invoice.
Documents and devices to be carried by a person-in-charge of a conveyance under.

12.0 Terms of payment and billing

12.01 For Supply of Equipments (PSS wise):
Part 1) 90% of basic value with 100% taxes and duties shall be paid in 45 days from the date of receipt and acceptance of GOODS at STORES/SITE on presentation of following documents:

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

Part 2) Balance 10% of basic value shall be paid in 30 days from the date of successful testing, commissioning and handing over of individual Package Substation duly certified by BYPL Engineer-in-Charge.

In case of receipt of material at store & not erected ,tested & commissioned within six(06) month from the date of receipt of material at store, Balance 10% of basic value retained shall be released against the GRN.

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

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

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

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

13.0 TAX INDEMNITY CLAUSE:

13.01 Vendor (along with its affiliates in India or overseas including any agent/ third party contractor or any other person appointed by such affiliates for the purpose of this agreement) agrees that it will be solely responsible for performing all compliances and making payments of all taxes (direct tax or indirect tax including but not limited to income-tax, transfer pricing, value added tax, SGST, CGST, IGST, UTGST, GST Compensation Cess custom duty, excise duty, Research and Development Cess, etc.), cesses, interest, penalties or any other tax/ duty/ amount/ charge/ liability arising either out of laws/ regulations applicable in India and overseas or because of a demand/ recovery initiated by any revenue authority under laws/ regulations applicable in India or overseas.

13.02 In case any tax liability (including but not limited to income-tax, transfer pricing, value added tax, SGST, CGST, IGST, UTGST, GST Compensation Cess custom duty, excise duty, Research and Development Cess, etc.), cesses, interest, penalties or any other tax/ duty/ amount/ charge/ liability becomes payable by Purchaser due to failure of the Vendor, or any of its affiliates in India or overseas including any agent/ third party contractor or any other person appointed by such affiliates for the purpose of this agreement, to comply with the relevant laws/ regulations applicable in India or overseas, Vendor undertakes to indemnify Purchaser for an amount equal to amount payable by Purchaser.

13.03 Further, Vendor undertakes to keep Purchaser indemnified at all times against and from all other actions, proceedings, claims, loss, damage, costs and expenses which may be brought against Purchaser or suffered or incurred by Purchaser and which shall have arisen either directly or indirectly out of or in connection with failure of The Vendor, or any of its affiliates in India or overseas including any agent/ third party contractor or any other person appointed by such affiliates for the purpose of this agreement, to comply with relevant obligations/ compliance under any law/ regulations applicable in India and overseas.

13.04 The parties agree to follow the following process in case any communication of demand, arising out non-compliance by Vendor (along with its affiliates in India or overseas including any agent/ third party contractor or any other person appointed by such affiliates for the purpose of this agreement), is received by Purchaser :

13.04.1 On Purchaser receiving any communication from a competent authority demanding tax liability (including but not limited to income-tax, transfer pricing, value added tax, SGST, CGST, IGST, UTGST, GST Compensation Cess custom duty, excise duty, Research and Development Cess, etc.), cesses, interest, penalties or any other tax/ duty/ amount/ charge/ liability, Purchaser shall, within 5 common working days from the date of receipt of such communication (save where the period to respond to the relevant authority is less than five days, in which case, as soon as reasonably possible) inform Vendor in writing of such communication.

13.04.2 Pursuant to receiving communication from Purchaser, Vendor shall suggest to accept the communication and pay the demand amount to the competent authority. In such an event, Vendor shall reimburse such amount paid to Purchaser within 5 working days from the date of payment by Purchaser to the competent authority.

13.04.3 If Vendor advises in writing and Purchaser agrees to dispute the demand, then Purchaser shall dispute the matter with competent authority as per due process prescribed under the regulations and Purchaser shall not pay the Tax Demand. In such scenario, cost of litigation including but not limited to Counsel cost, filing fees, other related charges, should be reimbursed by Vendor to Purchaser. Additionally, If any coercive steps of recovery are initiated by the department, then Purchaser would pay such amount (including by way of adjustment of refunds due to it) and the same would be reimbursed by Vendor within 5 working days from date of such recovery from Purchaser. Purchaser will take all necessary steps to avoid such recovery measures.

13.04.4 On determination of the demand through an Order issued by a Tribunal or any other similar Authority, by whatever name called, under any law applicable in India or overseas, if the demand or any part thereof becomes payable and is paid by Purchaser, then Vendor undertakes to reimburse such amount to Purchaser within 10 days from the date of payment. Alternatively, if on determination of the demand through an Order, no amount is payable by Purchaser then any refund arising to Purchaser due to such an Order shall be passed on to Vendor within 10 days from the date of receipt of refund.

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

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

15.0 Price Validity

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

16.0 Performance Guarantee

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

16.02 Bank guarantee shall be drawn in favour of BSES Yamuna Power Ltd as applicable. The performance Bank guarantee shall be in the format as specified by BYPL.

17.0 Forfeiture

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

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

18.0 Release

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

19.0 Defects Liability Period/Guarantee/Warranty

19.01 The bidder to Guarantee the materials / items supplied against any defect of failure, which arise due to faulty materials, workmanship or design for the entire defects liability period. The Defect liability period shall be 60 months from the date of commissioning or 66 months from the date of delivery whichever is earlier.

19.02 If during the Defects Liability Period any GOODS are found to be defective, they shall be promptly replaced or rectified by BIDDER at its own cost (including the cost of dismantling and (reinstallation) on the instructions of BUYER and if removed from SITE for such purpose, shall be removed and re-delivered to SITE by BIDDER at its own cost.

20.0 Return, Replacement or Substitution.

20.01 BYPL shall give Supplier notice of any defective Commodity promptly after becoming aware thereof. BYPL may in its discretion elect to return defective Commodities to Supplier for replacement, free of charge to BYPL, or may reject such Commodities and purchase the same or similar Commodities from any third party. In the latter case BYPL shall furnish proof to Supplier of the cost of such substitute purchase. In either case, all costs of any replacement, substitution, shipping, labour and other related expenses incurred in connection with the return and replacement or for the substitute purchase of a Commodity hereunder should be for the account of Supplier. BYPL may set off such costs against any amounts payable by BYPL to Supplier. Supplier shall reimburse BYPL for the amount, if any, by which the price of a substitute Commodity exceeds the price for such Commodity as quoted in the Bid. BUYER at its sole discretion shall have the opinion to dispose the material or GOODS so rejected and not taken back within forty-five days from the date of intimation of rejection.

21.0 Effective Date of Commencement of Contract:

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

22.0 Time – The Essence Of Contract

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

23.0 The Laws and Jurisdiction of Contract:

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

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

24.0 Events of Default

24.01 Events of Default. Each of the following events or occurrences shall constitute an event of default ("Event of Default") under the Contract:

(a) Supplier fails or refuses to pay any amounts due under the Contract;

(b) Supplier fails or refuses to deliver Commodities conforming to this RFQ/ specifications, or fails to deliver Commodities within the period specified in P.O. or any extension thereof

(c) Supplier becomes insolvent or unable to pay its debts when due, or commits any act of bankruptcy, such as filing any petition in any bankruptcy, winding-up or reorganization proceeding, or acknowledges in writing its insolvency or inability to pay its debts; or the Supplier's creditors file any petition relating to bankruptcy of Supplier;

(d) Supplier otherwise fails or refuses to perform or observe any term or condition of the Contract and such failure is not remediable or, if remediable, continues for a period of 30 days after receipt by the Supplier of notice of such failure from BYPL.

25.0 Consequences of Default.

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

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

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

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

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

26.0 Penalty for Delay

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

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

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

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

27.0 VARIATION IN TAXES, DUTIES & LEVIES

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

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

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

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

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

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

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

29.0 Force Majeure

29.01 General

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

(i) Such event or circumstance materially and adversely affects the ability of the affected Party to perform its obligations under this Contract, and the affected Party has taken all reasonable precautions, due care and reasonable alternative measures in order to prevent or avoid the effect of such event on the affected party's ability to perform its obligations under this Contract and to mitigate the consequences thereof.

(ii) For the avoidance of doubt, if such event or circumstance would not have materially and adversely affected the performance of the affected party had such affected party followed good industry practice, such event or circumstance shall not constitute force majeure.

(iii) Such event is not the direct or indirect result of the failure of such Party to perform any of its obligations under this Contract.

(iv) Such Party has given the other Party prompt notice describing such events, the effect thereof and the actions being taken in order to comply with above clause.

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

(i) The following events and circumstances :

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

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

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

29.04 Mitigation of Events of Force Majeure Each Party shall:

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

29.05 Burden of Proof In the event that the Parties are unable in good faith to agree that a Force Majeure event has occurred to an affected party, the parties shall resolve their dispute in accordance with the provisions of this Agreement. The burden of proof as to whether or not a force majeure event has occurred shall be upon the party claiming that the force majeure event has occurred and that it is the affected party.

29.06 Termination for Certain Events of Force Majeure. If any obligation of any Party under the Contract is or is reasonably expected to be delayed or prevented by a Force Majeure event for a continuous period of more than 3 months, the Parties shall promptly discuss in good faith how to proceed with a view to reaching a solution on mutually agreed basis. If a solution on mutually agreed basis cannot be arrived at within a period of 30 days after the expiry of the period of three months, the Contract shall be terminated after the said period of 30 days and neither Party shall be liable to the other for any consequences arising on account of such termination.

29.07 Limitation of Force Majeure event. The Supplier shall not be relieved of any obligation under the Contract solely because cost of performance is increased, whether as a consequence of adverse economic consequences or otherwise.

29.08 Extension of Contract Period due to Force Majeure event The Contract period may be extended by mutual agreement of Parties by way of an adjustment on account of any period during which an obligation of either Party is suspended due to a Force Majeure event.

29.09 Effect of Events of Force Majeure. Except as otherwise provided herein or may further be agreed between the Parties, either Party shall be excused from performance and neither Party shall

be construed to be in default in respect of any obligations hereunder, for so long as failure to perform such obligations shall be due to and event of Force Majeure."

30.0 Transfer And Sub-Letting

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

31.0 Recoveries

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

32.0 Waiver

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

33.0 Indemnification

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

34.0 Problem Troubleshooting & Restoration In Warranty Period For A Particular Equipment:

34.01 a) Service Engineer Availability to Attend, Identify & Restore Defects (Minor) Of Equipments under Guarantee Period within 48 Working Hours (Exclusion of Material Support Cases)
b) Spare Material Delivery For Restoration Of Grid Equipment (Major Defect) Under Guarantee Period Within Two Weeks. Seller must keep Requisite Inventory of Critical Switchgear Spares & Other Equipment's Covered in Guarantee Period to Restore Equipment within Two Weeks.
c) In Case Of Complete Replacement of Equipment, Complete Equipment to Be Replaced Within a Period Of 4 Weeks.

35.00 DOCUMENTATION

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

36.0 Limitation of Liability

36.01 Except as provided otherwise in the Contract and except for willful misconduct or gross negligence, neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or any other indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract. The total liability of the Contractor to

the Purchaser under the Contract shall not exceed the Contract Value. Except that this Clause shall not limit the liability of the Contractor:

(a) Under any other provisions of the Contract which expressly impose a greater liability,

(b) In cases of fraud, willful misconduct or illegal or unlawful acts, or

(c) In cases of acts or omissions of the Contractor which are contrary to the most elementary rules of diligence which a conscientious Contractor would have followed in similar circumstances.

37.0 Liability of Contractors

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

(a) For any indirect or consequential loss or damage; and

(b) For any direct loss or damage that exceeds:

(i) The total payments made and expected to be made to the Contractor under the Contract including reimbursements, if any; or

(ii) The insurance claim proceeds which the Contractor may be entitled to receive from any insurance purchased by the Contractor to cover such a liability, whichever is higher.

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

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

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

38.0 Intellectual Property Rights and Royalties

38.01 The Contractor shall indemnify the Purchaser and the Purchaser's Representative from and against all claims and proceedings on account of infringement (or alleged infringement) of any patent rights, registered designs, copyright, design, trademark, trade name, know-how or other intellectual property rights (hereinafter collectively referred to as "Intellectual Property Rights") in respect of the Works, Contractor's Equipment, machines, Works method, Plant, Materials, or anything whatsoever required for the execution of the Works and from and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto. In the event of infringement of any Intellectual Property Rights of any third party as a result of the execution of the Works (or any part thereof) by the Contractor, the Contractor shall rectify, modify or replace, at its own cost, the Works, Plant or Materials or anything whatsoever required for the Works so that infringement ceases to exist or, in the alternative, the Contractor shall procure necessary rights/ licenses from the affected third party so that there is no infringement of Intellectual Property Rights.

38.02 The Contractor shall be promptly notified of any claim made against the Purchaser. The Contractor shall, at its cost, conduct negotiations for the settlement of such claim, and any litigation or arbitration that may arise from it. The Purchaser or the Purchaser's Representative shall not make any admission which might be prejudicial to the Contractor, unless the Contractor has failed to take over the conduct

of the negotiations, litigation or arbitration within a reasonable time after having been so requested. In the event of Contractor failing to act at the Purchaser's Representative's notice, the Purchaser shall be at full liberty to deduct any such amount of pending claim from any amount due to the Contractor under the Contract or any other contract and the balance portion of claim shall be treated as debt due from the Contractor.

38.03 All Intellectual Property Rights in respect of any Plant, Materials, Drawings and Designs, plans, documents, specifications, data, materials, know how, charts, information, etc., provided to the Contractor by the Purchaser pursuant to this Contract for the execution of the Works, belongs to and shall continue to belong to the Purchaser and the Contractor shall not have any rights in the same other than the limited right for its use for the purpose of execution of the Works.

38.04 Intellectual Property Rights in respect of any Plant, Materials, Drawings and Designs, plans, calculations, drawings, documents, know-how and information relating to the Works which are proprietary to the Contractor and/ or its third party licensors ("Contractor's IPR") shall continue to vest with the Contractor and/ or its third party licensors and the Contractor shall grant and/ or procure from its third party licensors, at its own cost, a worldwide, perpetual, royalty free, non-exclusive license (along with the right to sub-license) to use and reproduce such Contractor's IPR for the use, operation, maintenance and repair of the Works.

38.05 If any patent, trademark, trade name, registered design or software is developed by the Contractor or its Subcontractor specifically for the execution of the Works, then all Intellectual Property Rights in respect of such design, trademark, trade name or software shall be the absolute property of the Purchaser and shall not be utilized or retained by the Contractor (or its Subcontractors) for any purpose other than with the prior written consent of the Purchaser.

38.06 If the Contractor uses proprietary software (whether customized or off the shelf) for the purpose of storing or utilizing records in relation to the Works, the Contractor shall obtain at its own expense, the grant of a worldwide, royalty-free, perpetual licence or sublicence (including the right to sublicense) to use such software, in favour of the Purchaser provided that the use of such software under the licence or the sublicense may be restricted to use any such software only for the design, construction, reconstruction, manufacture, installation, completion, reinstatement, extension, repair and operation of the Works or any part thereof.

38.07 If any software is used by the Contractor for the execution of the Works over which the Contractor or a third party holds pre-existing title or other rights, the Contractor shall obtain for the Purchaser, a worldwide, royalty free, perpetual license for the right to use and apply that software (together with any modifications, improvements and developments thereof).

39.00 Commissioning Spares

39.01 Commissioning Spares shall be deemed to be included in the quoted prices.

40.0 Transit Insurance:

40.01 Transit Insurance shall be arranged by the Bidder.

40.02 DAMAGE / LOSS OF CARGO IN TRANSIT: Vendor shall be solely responsible for coordinating with the concerned insurance company for procuring insurance for material and/or Goods, processing claim lodgment and settlement. Notwithstanding the insurance cover, in case of loss / damage to material and/or Goods, in any manner and for any cause whatsoever, Vendor shall cause the damaged cargo to be replaced and delivered to the Purchaser with new material and/or Goods within 30 days of such loss / damage. The Vendor shall be solely responsible for all expenses in relation to the replacement and delivery in such circumstances.

BSES Yamuna Power Limited

41.0 Acceptance:

41.01 Vendor confirms to have gone through the Policy of BYPL on legal and ethical code required to be followed by vendors encapsulated in the "Vendor Code of Conduct" displayed on the official website of BYPL (www.bsesdelhi.com) also, which shall be treated as a part of the contract/PO/WO.
Vendor undertakes that he shall adhere to the Vendor code of Conduct and also agrees that any violation of the Vendor Code of Conduct shall be treated as breach of the contract/PO/WO.
In event of any such breach, irrespective of whether it causes any loss/damage, Purchaser (BYPL) shall have the right to recover loss/damage from Vendor.
The Contractor/Vendor herby indemnifies and agrees to keep indemnified the Purchaser (BYPL) against any claim/litigation arising out of any violation of Vendor Code of Conduct by the Contractor/Vendor or its officers, agents & representatives etc.

41.02 Acceptance of the CONTRACT implies and includes acceptance of all terms and conditions enumerated in the CONTRACT in the technical specification and drawings made available to Contractor consisting of general conditions, detailed scope of work, detailed technical specification, detailed equipment drawing and complete scope of work.

41.03 Contractor and Company contractual obligation are strictly limited to the terms set out in the CONTRACT. No amendments to the concluded CONTRACT shall be binding unless agreed to in writing for such amendment by both the parties

41.04 We expect your services and supplies are aligned to our Vision, Mission and Values. Please refer to the following link to know about our Vision, Mission and Values; https://www.bsesdelhi.com/web/bypl/about-bses

BSES Yamuna Power Limited

QUANTITY AND DELIVERY REQUIREMENTS

Sl. No.	BYPL SAP Code	Item Description	Specification	Total Qty.	Tentative Delivery Schedule	Destination
1	-	SITC OF PACKAGE SUB-STATION WITH OIL TYPE DISTRIBUTION TRANSFORMER OF 400 KVA RATING WITH MOTORIZED RMU (PSS TYPE -III)	SP-PSSC-38-R6	01 Nos	01 No per month	BYPL Stores Delhi
2	-	SITC OF PACKAGE SUB-STATION WITH OIL TYPE DISTRIBUTION TRANSFORMER OF 630 KVA RATING WITH MOTORIZED RMU (PSS TYPE – II)		01 Nos	01 No per month	
7	-	SITC OF PACKAGE SUB-STATION WITH OIL TYPE DISTRIBUTION TRANSFORMER OF 1000 KVA RATING WITH MOTORIZED RMU (PSS TYPE -I)		04 Nos	02 No per month	

NOTE:

a) Rate contract to be valid for 01 year from the placement of contract.

b) The delivery shall be as per the requirement and as per the written instructions issued by C&M deptt., BYPL.

c) The quantity shown is indicative only for RC purpose and can vary. PO(s) will be released as per the actual requirement. However, supplier has to deliver the material within the delivery schedule provided.

d) BYPL reserves the right to split the quantity to any extent.

e) Schemes may be executed in the phased manner.

BSES Yamuna Power Limited

GENERAL CONDITIONS OF CONTRACT (GCC-ETC)

BSES Yamuna Power Limited

GENERAL TERMS & CONDITIONS - INSTALLATION, TESTING, & COMISSIONING

1. DEFINITIONS and INTERPRETATION:

The following terms shall have the following meanings:

1.1 "Company": means BSES Yamuna Power Ltd, a company incorporated under the Companies Act 1956 and having its office at BSES Yamuna Power Limited having its office at Shaktikiran Building, Karkardooma, Delhi -110032, which expression shall include its authorized representatives, agents, successors and assigns.

1.2 "Contractor": shall mean the successful Tenderer / vendor to whom the contract has been awarded

1.3 "Rate": The unit rates for the work to be carried out at site shall be as per finalized unit rates through tender. The finalized rates shall be firm for the entire duration of work to be carried out by the Contractor under the work order and are not subject to escalation for any reason whatsoever.

1.4. CONTRACT SPECIFICATION: The terms "CONTRACT Specification" shall mean the Technical specification of the work as agreed by you and description of work as detailed in Annexure-I enclosed herewith and all such particulars mentioned directly/referred to or implied as such in the contract.

1.5 SITE: The terms "Site" shall mean the working location in BYPL area. Under this tender, working location shall be as mentioned elsewhere.

1.6 ENGINEER IN CHARGE: "Engineer In-charge" means the Company's authorized representative for the purpose of carrying out the work.

2. EXAMINATION OF SITE AND LOCAL CONDITIONS:

The contractor is deemed to have visited the site of the work and ascertained therefore all site conditions and information pertaining to his work. The company shall not accept any claim whatsoever arising out of the difficult site/terrain/local conditions, if any.

3. LANGUAGE AND MEASUREMENT:

The CONTRACT issued to the contractor by the company and all correspondence and documents relating to the CONTRACT placed on the Contractor shall be written in English language.

Metric System shall be followed for all dimension, units etc.

4. SCOPE OF WORK:

The scope of work shall be "Erection Testing and commissioning of PSS at site(s), Delhi.

SCOPE OF WORK

Assembly, Installation, Testing & Commissioning of PSS Includes:

1) Construction of concrete foundation/plinth or prefabricated foundation/plinth

2) Installation of Package Substation at the designated site.

3) Assembling of standard fittings and all accessories (glands, lugs etc).

4) Complete testing and commissioning and submission of testing reports/results.

5) Earthing of PSS with GI Strip of size 50x6 mm.

6) Making cable end terminations. (Note: End Terminations Kits will be provided by the contractors as per approved make of BSES)

7) All the labour, cranes tools, and tackles, testing instruments/kit and technical supervision etc. are included in the vendor scope of work.

8) The cost of transit insurance, freight, loading/unloading of materials/equipments during its handling/erection at site is included in the vendor scope of work.

9) Obtaining EIC (BSES Electrical Inspector) shall be in the scope of bidder, all the necessary documents like drawings, test reports and any other relevant documents shall be provided by the supplier.

10) Against this contract individual framework order / intimation of site will be issued and work shall be completed within 30 days from the date of issue or order / intimation.

11) Transportation of PSS from Store to site (i.e., loading, Transportation & Unloading), if required.

A Separate order will be placed for supply & ETC which inter-alia includes the Scope of Work as mentioned/required for satisfactory operation of the Scheme shall be in Bidder's scope. Bidder(s) must provide goods and services that conform to these specifications for the entire term of the agreement.

All the labour, cranes, tool and tackles, and technical supervision etc. are including in your scope of work. Adequate number of engineers, supervisors and labours shall be posted at site and the list of the same along with certificate of Qualification of technical staff should be submitted by the Contractor to the Engineer In Charge for checking the adequacy immediately (with in seven days) after award of contract.

All loading/unloading, of materials at work-site shall be your responsibility. Involvement of Crane/Hydra/Tractor/Trailer for this type of work shall be in your scope.

5. RATES:

The rates finalized for this order shall be firm for the entire duration of work carried out by the Contractor under the order and are not subject to any variation and escalation for any reason whatsoever.

Rate for all the extra items shall be mutually negotiated and fixed on the basis of cost of materials, consumables, labour and T&P expenses plus overhead expenses and profit upto maximum 10%.

The cost of insurance during loading/unloading of materials/ equipments during its storage and handling/erection at site for installation is included in the contractor's scope and value is included in the unit rates finalized.

6. TAXES AND DUTIES:

Prices are inclusive of all taxes and duties including labour cess and GST as applicable. However, IT as per applicable rate will be deducted from your bills as Tax Deduction at Source (TDS).

The total order value shall remain **FIRM** and shall only be adjusted on account of any variations in Statutory Taxes, duties and Levies imposed by Competent Authorities by way of fresh notification(s) within the stipulated delivery period.

7. BILL SUBMISSION PROCEDURE:

All bills shall be submitted to the Engineer In charge / Package Engineer for certification. Bills shall be complete in all respect including ESI / HR compliance, Quality compliance, HSE compliance, Store compliance, Finance compliance etc. An established procedure is followed at site. Incomplete bills / invoices will not be considered for processing payments.

8. TERMS OF PAYMENT:

Payment shall be made as under (PSS wise):
i) 100% payment shall be due after 30 days of submission of your bills, after installation of material at site, along with work completion certificate at our office. The work completion certificate shall be issued by Engineer-In-Charge by certifying that the work has been completed in full satisfaction.

Company shall make payments of the bills either; By crossed cheque or by electronic transfer directly to Contractor's designated bank account.

9. COMPLETION PERIOD:

The contract shall remain valid for the period of one year.

The rates of E/T/C shall be valid for the quantity ordered against this tender only.

10. CLEANLINESS:

All debris shall be removed and disposed of at assigned areas on daily basis. Surplus excavated earth shall be disposed of in an approved manner. In short, you shall be fully responsible for keeping the work site clean at all times. In case of non- compliance, company shall get the same done at Contractor's risk and costs.

11. COMMISSIONING & ACCEPTANCE TEST:

After completion of the work, the Contractor shall conduct trial run/ operation in the presence of Engineer In charge. During such trial run the system shall be operated under the supervision of the Contractor. If any rectification/modification required during this period the Contractor shall do all necessary measures.
On satisfactory completion of above, the system shall be deemed to have energized and placed in commercial operation. The Engineer In Charge will issue an acceptance certificate.

12. WORK COMPLETION CERTIFICATION, HANDING OVER:

The work carried out by the Contractor under this order has to be certified by Engineer In-charge for satisfactory completion of work allotted to the contractor with respect to specifications / Field Quality Procedures as per applicable standards. In case of modification/correction to be carried out, contractor shall carry out the said modifications/correction without additional cost. The Contractor shall remain in close contact with Engineer In-Charge at site to report the general findings of the fieldwork during the initial as well as later stage of the work at site.

13. PENALTY AND LIQUIDATED DAMAGES:

14.1 Penalty: A penalty of 2.5% of bill amount shall be levied in each case of non-compliance of safety practices and site cleanliness.

14.2 Liquidated Damages: In the event of any delay in completion of the work beyond the stipulated time given by in order due to reasons solely attributable to the Contractor, the Contractor shall pay to the Company liquidated damages.

If the Contractor failed perform the services within the time period specified in the order, the Company shall, without prejudice to its other remedies under the contract, deduct liquidated damages a sum equivalent to 0.5 % of the basic order value for each week or part there of delay until the actual date of completion up to a maximum deduction of 5% of basic order value. Once the maximum is reached to Company may consider termination of contract without any liabilities to Company.

Engineer In charge should specifically mention the amount of LD levied on the bill of contractor.

14. SAFETY CODE:

The Contractor shall ensure adequate safety precautions at site as required under the law of the land and shall be entirely responsible for the complete safety of their workman as well as other workers at site and premises. The contractor shall not deploy any worker below the age of 18 years.

The contractor shall observe the safety requirements as laid down in the contract and in case of sub-contract (only after written approval of company), it shall be the responsibility of main contractor that all safety requirements are followed by the employees and staff of the sub-contractor.

The contractor employing two hundred employees or more, including contract workers, shall have a safety co-ordinator in order to ensure the implementation of safety requirements of the contract and a contractor with lesser number of employees, including contract workers, shall nominate one of his employees to act as safety co-ordinator who shall liaise with the safety officer on matters relating to safety and his name shall be displayed on the notice board at a prominent place at the work site.

The contractor shall be responsible for non-compliance of the safety measures, implications, injuries, fatalities and compensation arising out of such situations or incidents.

In case of any accident, the contractor shall immediately submit a statement of the same to the owner and the safety officer, containing the details of the accident, any injury or casualities, extent of properly damage and remedial action taken to prevent recurrence and in addition, the contractor shall submit a monthly statement of the accidents to the owner at the end of each month.

15. STATUTORY OBLIGATIONS:

The Contractor shall take all steps as may be necessary to comply with various Acts, Rules, including but not limited to The Child Labour (Prohibition & Regulation) Act, 1986, The Contract Labour (Regulation & Abolition) Act, 1970. The Employees Pension scheme , The Employees Provident Funds and miscellaneous provisions Act, 1952 ,The Employees state Insurance Act,1948,The Equal Remuneration Act, The Industrial Dispute Act,1947, The Maternity Benefit Act , 1961, The Minimum Wages Act, 1948, The payment of Bonus Act ,1965, The Payment of Gratuity Act,1972, The Payment of wages Act, 1936, The Shops & Establishment Act, The Workmen's Compensation Act , 1923, Building and Other Construction Workers (Employment and Regulations) Act 1996, Building and Other Construction Workers (Cess) Act 1996, The Employers Liability Act,1938, Indian Electricity Act, 2003 and Indian Electricity Rules, VAT and Service tax etc., and all other applicable laws as amended and rules framed there under including any statutory approval required from the Central/State Govt. Ministry of Labour. Broadly, the compliance shall be as detailed below, but not limited to:

a) An Electrical license.
b) PF Code No. and all employees to have PF A/c No. under PF every Act, 1952.
c) All employees to have a temporary or permanent ESI Card as per ESI Act.
d) ESI Registration No.
e) Sales Tax registration number, if applicable.

f) PAN No.
g) Work Contract Tax Registration Number/ VAT Registration.
h) Labour License under Contract Labour Act (R & A) Act 1970.
i) Delhi Building and other Construction Worker (Regulation of Employment and Conditions of Services) Rules, 2002(B.O.C.W.)

(Bidder responsible for execution of the job should obtain a copy of Labour License before start of the work by the contractor.)

The Contractor must follow:

a) Third party Insurance Policy before start of work.
b) To follow Minimum Wages Act prevailing in the state.
c) The Salary/wages to all deployed manpower is to be distributed through ECS only into the bank accounts of all individuals and not later than 7th of succeeding month. In case of unavoidable circumstances the payment may be made through crossed cheques in the name of the individual and information of all such cases need to be submitted to HR(CMC).
d) To maintain Wage- cum - Attendance Register.
e) To maintain First Aid Box at Site.
f) Latest P.F. and E.S.I. challans pertaining to the period in which work was undertaken along with a certificate mentioning that P.F. and E.S.I. applicable to all the employees has been deducted and deposited with the Authorities within the time limits specified under the respective Acts.
g) Workman Compensation Policy. {If applicable}.
h) Labour license before start of work. {If applicable}.

Before commencing the work it would be mandatory for the Contractor to furnish the Company the permanent PF code no and ESI of the employees.

16. WORKMAN COMPENSATION:

The Contactor shall take insurance policy under the Workman Compensation Act to cover such workers who are not covered under ESI and PF by the Contractor however engaged to undertake the jobs covered under this order and a copy of this insurance policy will be given to Company for reference and records. This insurance policy shall be kept valid at all times. In case there are no worker involve other than those who are covered under ESI and PF by the Contractor, the Contractor shall certify for the same.

The contractor shall keep the company indemnified at all times, against all claims of compensation under the provision of Workmen Compensation Act 1923 and as amended from time to time or any compensation payable under any other law for the time being workman engaged by the contractor/sub-contractor/sub-agent in carrying out the job involved under this work order and against costs and expenses, if any, incurred by the company in connection therewith and without prejudice to make any recovery.

The company shall be entitled to deduct from any money due to or to become due to the Contractor, moneys paid or payable by way of compensation as aforesaid or cost or expenses in connection with any claims thereto and the Contractor shall abide by the decision of the Company as to the sum payable by the Contractor under the provisions of this clause.

17. STAFF AND WORKMAN:

(I) It shall be responsibility of contractor:

(a) To obtain Contract Labour License from the concerned authorities and maintain proper liaison with them. Necessary Forms for obtaining Labour License would be issued by the company. However you will bear all expenses for obtaining Labour license and registration in PF Department

for your scope of work. You will deposit PF of your staff/laborer each month and all related documents should be furnished to us.

(b) To obtain workman insurance cover against deployment of workers etc.

(II) To maintain, proper records relating to workmen employed, in the form of various Registers, namely.

(a) Register of workmen.
(b) Register of muster roll.
(c) Register of overtime.
(d) Register of wages.
(e) Any other register as per latest amendment Labour Act.

(III) To disburse monthly wages to your workers/ supervisors in time and in the presence of Company representatives or as directed by the Labour authorities.

(IV) To maintain proper liaison with the Project authorities, local police and all other government and local bodies.

(V) To pay your workmen at least not less than the minimum prescribed wages as per state/Central Labour laws as may be, applicable. The contractor shall, be responsible for compliance of all the provisions of minimum Wages Act, PF, ESIC Act workmen Compensation Act and Contract Labour Regulation & Abolition Act the rules made there under. In case of non- Compliance of the statutory requirements. The company would take necessary action at the risk and cost of the Contractor.

(VI) To employ required number of skilled/semi-skilled and unskilled workmen as per site requirement to complete the entire project as per schedule. To provide safety shoes, safety helmets, safety belts, gloves etc. to your worker/staff as per requirement during erection work.

(VII) To employ necessary engineering and supervisory staff for completion of the Project in time. While day-to-day management of the site and supervision of the works shall be the responsibility of your Engineer - In charge, he will report to the our Engineer in charge to assist him to discharge the overall responsibility of the execution of the project.

18. THIRD PARTY INSURANCE:

Before commencing the execution of the work the Bidder shall take third party insurance policy to insure against any damage or loss or injury which may occur to any property / public property or to any person or any employee or representative of any outside Agency/ the company engaged or not engaged for the work of the company, by or arising out of the execution of the work or temporary work or in carrying out of this Agreement. For third party insurance policies, the Bidder shall be responsible for settlement of claims with the underwriters without any liability on the purchaser / owner and will arrange replacements / rectification expeditiously without a waiting settlement by insurance claim at Bidder's own cost.

19. ENVIRONMENTAL, HEALTH & SAFETY PLAN:

Contractor will make ensure that the Environment, Health & Safety (EHS) requirements are clearly understood and faithfully implemented at all levels at site as per instruction of Company. Contractors must comply with these requirements:

a) Comply with all of the elements of the EHS Plan and any regulations applicable to the work.
b) Comply with the procedures provided in the interests of Environment, Health and Safety.
c) Ensure that all of their employees designated to work are properly trained and competent.
d) Ensure that all plant and equipment they bring on to site has been inspected and serviced in accordance with legal requirement and manufacturer's or suppliers' instructions.
e) Make arrangements to ensure that all employees designated to work on or visit the site present themselves for site induction prior to commencement of work.

f) Provide details of any hazardous substances to be brought onsite.
g) Ensure that a responsible person accompanies any of their visitors to site.

All contractor's staff are accountable for the following:

1. Use the correct tools and equipment for the job and use safety equipment and protective clothing supplied, e.g. helmets, goggles, ear protection, etc. as instructed.
2. Keep tools in good condition.
3. Report to the Supervisor any unsafe or unhealthy condition or any defects in plant or equipment.
4. Develop a concern for safety for themselves and for others.
5. Prohibit horseplay.
6. Not to operate any item of plant unless they have been specifically trained and are authorized to do so.

20. TEST CERTIFICATE & QUALITY ASSURANCE:

The Contractor shall procure all equipment from genuine sources as approved by the Company and as per Company specifications. The Contractor shall submit all the test certificates and joint inspection reports related to major equipment wherever applicable. The contractor shall ensure for the strict compliance to the specifications and Field Quality Procedures issued by company / Engineer in-charge.

21. SUB-CONTRACTING / SUBLETTING:

CONTRACTOR shall not assign or transfer the whole or any part of this Work Order or any other benefits accruing there from nor shall it subcontract / sublet the whole or any part of the Works without the prior written consent of COMPANY.

In the event the contractor assigns this work order, contractor's assignees shall be bound by the terms and conditions of this work order and shall , if deemed necessary by COMPANY at the time of such assignment, undertake in writing to be so bound by this Work Order.

Notwithstanding the subletting / subcontracting of any portion of the works, contractor shall remain wholly responsible for the carrying out, completion and satisfactory execution of Works in all respects in accordance with this Work Order, specification, approved drawings and data sheets.

22. INDEMNITY:

Contractor shall indemnify and save harmless COMPANY against and from any and all liabilities, claims, damages, losses or expenses arising due to or resulting from:

a) Any breach non-observance or non-performance by contractor or its employees or agents of any of the provisions of this Work Order.
b) Any act or omission of contractor or its employees or agents.
c) Any negligence or breach of duty on the part of contractor, its employees or agents including any wrongful use by it or them of any property or goods belonging to or by COMPANY.

Contractor shall at all times indemnify COMPANY against all liabilities to other persons, including he employees or agents of COMPANY or contractor for bodily injury, damage to property or other loss which may arise out of or in consequence of the execution or completion of Works and against all costs charges and expenses that may be occasioned to COMPANY by the claims of such person.

23. EVENTS OF DEFAULTS:

COMPANY may, without prejudice to any of its other rights or remedies under the Work Order or in law, terminate the whole or any part of this Work Order by giving written notice to the Contractor, if in the opinion of COMPANY, contractor has neglected to proceed with the works with due diligence or commits a breach of any of the provisions of this work order including but not limited to any of the following cases.

a) Failing to complete execution of work within the terms specified in this work order.
b) Failing to complete works in accordance with the approved schedule of works.
c) Failing to meet requirements of specifications, drawings, and designs as approved by COMPANY.
d) Failing to comply with any reasonable instructions or orders issued by COMPANY in connection with the works.
e) Failing to comply with any of the terms or conditions of this work order.

In the event COMPANY terminates this work order, in whole or in part, on the occurrence of any event of default, COMPANY reserves the right to engage any other subcontractor or agency to complete the work or any part thereof, and in addition to any other right COMPANY may have under this work order or in law including without limitation the right to penalize for delay under clause 15.0 of this work order, the contractor shall be liable to COMPANY for any additional costs that may be incurred by COMPANY for the execution of the Work.

24. RISK & COST:

If the Contractor fails to execute the work as per specification / as per the direction of Engineer's In-charge within the scheduled period and even after the extended period, the contract shall got cancel and company reserves the right to get the work executed from any other source at the Risk & Cost of the Contractor. The Extra Expenditure so incurred shall be debited to the Contractor.

25. ARBITRATION:

To the best of their ability, the parties hereto shall endeavor to resolve amicably between themselves all disputes arising in connection with this LOA. If the same remain unresolved within thirty (30) days of the matter being raised by either party, either party may refer the dispute for settlement by arbitration. The arbitration to be undertaken by two arbitrators, one each to be appointed by either party. The arbitrators appointed by both the parties shall mutually nominate a person to act as presiding arbitrator before entering upon the reference in the event of a difference between the two arbitrators and the award of the said presiding arbitrator in such a contingency shall be conducted in accordance with this provisions of the Indian Arbitration & Conciliation Act, 1996 and the venue of such arbitration shall be in the city of New Delhi only.

26. FORCE MAJEURE:

27.1 General:

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

(i) Such event or circumstance, despite the exercise of reasonable diligence, could not have been prevented, avoided or reasonably foreseen by such Party;

(ii) 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 parties ability to perform its obligations under this Contract and to mitigate the consequences thereof. 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; and

(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

27.2 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: The following events and circumstances:

(i) 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, and

(ii) Explosions or fires

(iii) Declaration of the Site as war zone

Any order, regulation, directive, requirement from any Governmental, legislative, executive or judicial authority.

27.3 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 2 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.

27.4 Mitigation of events of force majeure:

The Contractor shall:

(i) Make all reasonable efforts to prevent and reduce to a minimum and mitigate the effect of any delay occasioned by an Event of Force Majeure, including applying other ways in which to perform the Contract;

(ii) Use its best efforts to ensure resumption of normal performance after the termination of any Event of Force Majeure and shall perform its obligations to the maximum extent practicable as agreed between the Parties; and

(iii) Keep the Company 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.

27.5 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 Contract. 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.

27.6 Terminations 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 1 (one) month during the Term of the Contract the Contract shall be terminated at the discretion of the Company and neither Party shall be liable to the other for any consequences arising on account of such termination.

27. SECRECY CLAUSE:

The technical information, drawing and other related documents forming part of work order and the information obtained during the course of investigation under this work order shall be the Company's executive property and shall not be used for any other purpose except for the execution of the work order. The technical information drawing, records and other document shall not be copied, transferred, or divulged and/ or disclosed to third party in full/part, not misused in any form whatsoever except to the extent for the execution of this work order.
This technical information, drawing and other related documents shall be returned to the Company with all approved copies and duplicates including drawing/plans as are prepared by the Bidder during the executions of this work order, if any, immediately after they have been used for agreed purpose.
In the event of any breach of this provision, the Bidder shall indemnify the Company against any loss, cost or damage or claim by any party in respect of such breach.

28. TERMINATION:

During the course of the execution, if at any time BSES observe and form an opinion that the work under the order is not being performed in accordance with the terms of this Agreement, BSES reserves its right to cancel this Agreement giving 15 days notice mentioning the reason for the termination of the agreement and BSES will recover all damages including losses occurred due to loss of time from Contractor.

29. QUALITY:

Contractor shall ensure that strict quality is maintained and execution of works under this Work Order and Works are executed in conformity with the Specification.

All tools, tackles, instruments and other equipments used in the execution of the Works shall be duly calibrated as required and Contractor shall maintain proper records of such tools, tackles, instruments and / or equipment.

30. ACCEPTANCE:

Acceptance of this work order implies and includes acceptance of all terms and conditions enumerated in this work order in the technical specification and drawings made available to you consisting of general conditions, detailed scope of work, detailed technical specification & detailed equipment, drawing. Complete scope of work and the Bidder's and Company's contractual obligation are strictly limited to the terms set out in the work order. No amendments to the concluded work order shall be binding unless agreed to in writing for such amendment by both the parties.

However, during the course of the execution of the work order, if at any time the Company's representative observe and form an opinion that the work under the work order is not being performed in accordance with the terms of this work order, the company reserves its right to cancel this work order forthwith without assigning any reason and the Company will recover all damages including losses occurred due to loss of time from the Bidder.

We request you to please sign the duplicate copy of this work order as a token of your acceptance and return to us.

BSES Yamuna Power Limited

APPENDIX II

FORMAT OF PERFORMANCE BANK GUARANTEE
(To be executed on a Non-Judicial Stamp Paper of appropriate value)

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

1. WHEREAS M/s BSES Yamuna Power Limited, a Company incorporated under the provisions of Companies Act, 1956 having its Registered Office at Shaktikiran Building, Karkardooma, Delhi 110032, India hereinafter referred to as the " Owner ", (which expression shall unless repugnant to the context or meaning thereof include its successors, administrators, executors and assigns).

2. AND WHEREAS the Owner has entered into a contract for _____(Please specify the nature of contract here) vide Contract No. _____dated _____(hereinafter referred to as the "Contract") with M/s._____, (hereinafter referred to as "the Supplier", which expression shall unless repugnant to the context or meaning thereof be deemed to mean and include each of their respective successors and assigns) for providing services on the terms and conditions as more particularly detailed therein.

3. AND WHEREAS as per clause ____of conditions of Contract, the Suppliers are obliged to provide to the Owners an unconditional bank guarantee for an amount equivalent to ten percent (10%) of the total Contract Value for the timely completion and faithful and successful execution of the Contract from **[_____]** *pl. specify the name of Bank)* having its head/registered office at **[_____]** through its branch in _____*(pl. specify the name of Branch through which B.G is issued)* hereinafter referred to as "the Bank", (which expression shall unless it be repugnant to the context or meaning thereof be deemed to include its successors and permitted assigns).

4. NOW THEREFORE, in consideration inter alia of the Owner granting the Suppliers the Contract, the Bank hereby unconditionally and irrevocably guarantees and undertakes, on a written demand, to immediately pay to the Owner any amount so demanded (by way of one or more claims) not exceeding in the aggregate [Rs.].....(*in words)* without any demur, reservation, contest or protest and/or without reference to the Supplier and without the Owner needing to provide or show to the Bank ,grounds or reasons or give any justification for such demand for the sum/s demanded.

5. The decision of the Owner to invoke this Guarantee and as to whether the Supplier has not performed its obligations under the Contract shall be binding on the Bank. The Bank acknowledges that any such demand by the Owner of the amounts payable by the Bank to the Owner shall be final, binding and conclusive evidence in respect of the amounts payable by the Supplier to the Owner. Any such demand made by the Owner on the Bank shall be conclusive and binding, notwithstanding any difference between the Owner and the Supplier or any dispute raised, invoked, threatened or pending before any court, tribunal, arbitrator or any other authority.

6. The Bank also agrees that the Owner at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor without proceeding against the Suppliers notwithstanding any other security or other guarantee that the Owner may have in relation to the Supplier's liabilities.

7. The Bank hereby waives the necessity for the Owner first demanding the aforesaid amounts or any part thereof from the Suppliers before making payment to the Owner and further also waives any right the Bank may have of first requiring the Owner to use its legal remedies against the Suppliers, before presenting any written demand to the Bank for payment under this Guarantee.

8. The Bank's obligations under this Guarantee shall not be reduced by reason of any partial performance of the Contract. The Bank's obligations shall not be reduced by any failure by the Owner to timely pay or perform any of its obligations under the Contract.

9. The Bank further unconditionally and unequivocally agrees with the Owner that the Owner shall be at liberty, without the Bank's consent and without affecting in any manner its rights and the Bank's obligation under this Guarantee, from time to time, to:

(i) vary and/or modify any of the terms and conditions of the Contract;

(ii) Forebear or enforce any of the rights exercisable by the Owner against the Suppliers under the terms and conditions of the Contract; or

(iii) Extend and/or postpone the time for performance of the obligations of the Suppliers under the Contract;

and the Bank shall not be relieved from its liability by reason of any such act or omission on the part of the Owner or any indulgence shown by the Owner to the Suppliers or any other reason whatsoever which under the law relating to sureties would, but for this provision, have the effect of relieving the Bank of its obligations under this Guarantee.

10. This Guarantee shall be a continuing bank guarantee and shall not be discharged by any change in the constitution or composition of the Suppliers, and this Guarantee shall not be affected or discharged by the liquidation, winding-up, bankruptcy, reorganisation, dissolution or insolvency of the Suppliers or any of them or any other circumstances whatsoever.

11. This Guarantee shall be in addition to and not in substitution or in derogation of any other security held by the Owner to secure the performance of the obligations of the Suppliers under the Contract.

12. NOTWITHSTANDING anything herein above contained, the liability of the BANK under this Guarantee shall be restricted to _____*(insert an amount equal to ten percent (10%) of the Contract Value)* and this Guarantee shall be valid and enforceable and expire on _____*(pl. specify date)* or unless a suit or action to enforce a claim under this Guarantee is filed against the Bank on or before the date of expiry.

13. On termination of this Guarantee, all rights under the said Guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities hereunder.

14. The Bank undertakes not to revoke this Guarantee during its validity except with the prior written consent of the Owner and agrees that any change in the constitution of the Bank or the Suppliers shall not discharge our liability hereunder.

15. Owner may assign this Guarantee to any Person or body whether natural, incorporated or otherwise under intimation to the Bank. The Bank shall be discharged of its obligations hereunder by performance in accordance with the terms hereof to such assignee without verifying the validity / legality / enforceability of the assignment.

16. This Guarantee shall be governed by the laws of India. Any suit, action, or other proceeding arising out of, connected with, or related to this Guarantee or the subject matter hereof shall be subject to the exclusive jurisdiction of the courts of **Delhi,** India.

Dated this …… day of …….. …20XX at …….

(Signature)

.....
(Name)
.....
(Designation with Bank Stamp)
Attorney as per
Power of Attorney No.....
Date.....

BSES Yamuna Power Limited

BYPL BANK DETAIL WITH IFSC CODE:

1. Name of the Bank:	Axis Bank Limited
2. Branch Name & Full Address:	C-58, Basement & Ground Floor, Preet Vihar, Main Vikas Marg, New Delhi 110092
3. Branch Code:	055
4. Bank Account No:	911020005246583
5. IFSC Code:	UTIB0000055

BSES Yamuna Power Limited

FORMAT OF WARRANTY/GUARANTEE CERTIFICATE

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

Ref. Purchase Order No. :

Dear Sir,

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

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

Vendors Name & Signature

UNDERTAKING GST

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

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

BSES Yamuna Power Limited

SUMMARY OF COMMERCIAL TERMS AND CONDITIONS

Sl No	Item Description	AS PER BYPL	BIDDER'S CONFIRMATION
1	Validity	120 days from the date of submission of bid	
2	Price basis	a) **"Firm"**, FOR Delhi store basis. Prices shall be inclusive of all taxes & duties, freight upto Delhi stores. b) Unloading at stores shall be in vendor's scope c) Transit insurance in Bidders scope	
3	Payment terms	As per NIT	
4	Delivery schedule	GTP/Drawings/QAP/etc to be submitted within 15 days to the concern official in BYPL for Transmittal approval. BYPL shall approve/ provide comments on the submitted drawings within 15 days of first submission. Delivery shall be completed within 14 Weeks from the LOI/PO date or completion as per the schedule	
5	Defect Liability period	60 months after commissioning or 66 months from the last date of dispatch, whichever is earlier	
6	Penalty for delay	1% per week of delay of the basic (ex-works) price of undelivered units or part thereof subject to maximum of 10% of total basic (ex-works) price of undelivered units	
7	Performance Bank Guarantee	10% of total PO value valid for 24 months after commissioning or 30 months from the last date of dispatch, whichever is earlier plus 3 months towards claim period	

BSES Yamuna Power Limited

COMMERCIAL TERMS AND CONDITIONS SUMMARY -I/T/C

Sl No	Item Description	AS PER BYPL	BIDDER'S CONFIRMATION
1	Validity	120 days from the due date of submission	
2	Price basis	a) Firm, basis. Prices shall be inclusive of all taxes & duties b) GST shall be paid extra at actual	
3	Payment terms	100% payment will be due after 30 days of submission of bills along with work completion certificate.	
4	Validity of Contract/Schedule of completion	Valid for one year/ each site completion within 30 days from the date of issue or order / intimation of site.	
5	Penalty for delay	0.5 % of the basic order value for each week or part there of delay until the actual date of completion up to a maximum deduction of 5% of basic order value	

BSES Yamuna Power Limited

VOLUME – II

PRICE BID FORMAT

BSES Yamuna Power Limited

GRAND SUMMARY

ALL PRICES IN INR (₹)

Package Name	Quantity (Nos) (Q)	Supply Prices- Landed (A)	Erection, Testing and commissioning prices (B)	Unit Package Cost (C=A+B)	Total Package Cost (D=C*Q)
SITC OF PACKAGE SUB-STATION WITH OIL TYPE DISTRIBUTION TRANSFORMER OF 400 KVA RATING WITH MOTORIZED RMU (PSS TYPE - III)	01				
SITC OF PACKAGE SUB-STATION WITH OIL TYPE DISTRIBUTION TRANSFORMER OF 630 KVA RATING WITH MOTORIZED RMU (PSS TYPE – II)	01				
SITC OF PACKAGE SUB-STATION WITH OIL TYPE DISTRIBUTION TRANSFORMER OF 1000 KVA RATING WITH MOTORIZED RMU (PSS TYPE -I)	01				

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

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

Date: Bidders Name:

Place: Bidders Address:

Signature: ..... Designation: .....

Printed Name: ..... Common Seal: .....

BSES Yamuna Power Limited

SUPPLY

ALL PRICES IN INR (₹)

S. No.	DESCRIPTION OF GOODS	HSN CODE (8 Digit Mandatory)	UoM	QTY **(A)**	UNIT BASIC PRICE INCL FREIGHT (₹) **(B)**	UNIT GST & CESS AS APPLICABLE (CGST & SGST/UTGST or IGST) (₹) **(C)**		UNIT LANDED COST (₹) **(D = B+C)**	TOTAL LANDED COST (₹) **(E = DXA)**
						%	AMT		
1	SUPPLY OF PACKAGE SUB-STATION WITH OIL TYPE DISTRIBUTION TRANSFORMER OF 400 KVA RATING WITH MOTORIZED RMU (PSS TYPE -III)		Nos	01					
2	SUPPLY OF PACKAGE SUB-STATION WITH OIL TYPE DISTRIBUTION TRANSFORMER OF 630 KVA RATING WITH MOTORIZED RMU (PSS TYPE – II)		Nos	01					
3	SUPPLY OF PACKAGE SUB-STATION WITH OIL TYPE DISTRIBUTION TRANSFORMER OF 1000 KVA RATING WITH MOTORIZED RMU (PSS TYPE -I)		Nos	04					
GRAND TOTAL LANDED COST (₹)									
In words									

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

BSES Yamuna Power Limited

I/T/C

ITEM DESCRIPTION/ WORK	QTY	UoM	UNIT RATE	GST AS APPLICABLE	TOTAL LANDED COST
I/T/C – PSS with OIL DT OF 400 KVA including Plinth Making, Earthing with GI Strip & making of end terminations as per SOW	01	Nos			
I/T/C – PSS with OIL DT OF 630KVA including Plinth Making, Earthing with GI Strip & making of end terminations as per SOW	01	Nos			
I/T/C – PSS with OIL DT OF 1000KVA including Plinth Making, Earthing with GI Strip & making of end terminations as per SOW	04	Nos			
Transportation of PSS from stores to site may also be furnished in case the site is not ready (i.e., Loading, Transportation & Unloading)	01	PU			

NOTE

1) Item-wise cost for Installation, erection, testing & Commissioning for the items indicated in BOQ-SUPPLY and as per Scope of Work
2) In addition, Unit Rates shall be submitted as indicated in BOQ-ERECTION

BSES Yamuna Power Limited

VOLUME – III

TECHNICAL SPECIFICATIONS

Specification for

11 KV Packaged Substation

(With 400 / 630/ 1000KVA Distribution Transformer - Hermetically Sealed Oil Type / Dry Type transformer)

Specification no – SP-PSSC-38-R6

PREPARED BY	REVIEWED BY	APPROVED BY	Rev	R6
SG	GS	AA	DATE	18/05/2017
			PAGE	01 OF 67

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Record of Revision

Revision No	Item / clause no.	Nature of Change	Approved By
R3	4.2.13, 14.24	Added- 02 no's Smoke detectors for each compartment	DS
R3	4.2.15	Fire extinguisher position is added.	DS
R3	5.2.5	Anti-theft hinges are changed to Internal anti-theft hinges with opening angle of 120 deg. minimum.	DS
R3	5.2.6	Added – Operating Handle support	DS
R3	5.2.15.2	Bus bar short time withstand capacity changed to 20kA for 3 sec	DS
R3	5.2.18	Routing of control / auxiliary wiring is added	DS
R3	5.2.24.1	Added – Avoid any type of Gaps or holes on the cable termination chamber wall.	DS
R3	5.2.24.2,3	Added – internal arc rating	DS
R3	5.3.3	Separate ON/OFF switching for each motor is added	DS
R3	5.3.9	LBS short time withstand capacity revised to 20kA for 3 sec	DS
R3	5.3.10	LBS fault making capacity revised to 50kA peak	DS
R3	5.3.11	Mechanism endurance class M1 and Electrical Endurance class E3 specified	DS
R3	5.3.12	Minimum no. of operations at rated fault current specified – Electrical endurance class E3	DS
R3	5.4.2	CB arc interruption medium only in Vacuum bottle	DS
R3	5.4.4	Added – Protective flap on Emergency PB	DS
R3	5.4.6	20kA short time withstand capacity specified	DS
R3	5.4.7	Mechanical – M1 & Electrical-E2 endurance class specified for circuit breaker module	DS
R3	5.4.8	CB fault making capacity revised to 50kAspecified	DS
R3	5.4.9	CB fault breaking capacity revised to 20kA	DS
R3	5.4.10	Electrical Endurance – Class E2 specified for CB at fault current	DS
R3	5.4.12	Protection CT type specified- cast resin ring type	DS
R3	5.5.7	No load mechanical endurance class M0 specified for earth switch	DS
R3	5.5.8	Making capacity endurance class E2 specified	DS

R3	5.7.5.1	Added – Prevent electrical operation if handle is inserted for manual operation	DS
R3	5.7.5.2	Added – Supply to the motor shall be disconnected after certain time period if LBS fails to operate.	DS
R3	5.9.0	Sticker type mimic diagram non acceptance specified	DS
R3	5.9.2.5, 7.3.1.5, 7.19.1.5, 14.2	Added – Ref. IS / IEC No. on name plate	DS
R3	6.8, 7.3.8.1, 8.3.4.7	HV side bushings of transformer- Epoxy cast, 630 A, Interface type 'C'	
R3	7.2.2.6.5	Delta connection leads for Oil type transformer are defined to be with flexible cable connection	DS
R3	7.3.10.4, 5 and 8.3.5.3 and 4	Accuracy class and VA rating of the LTCT changed to 0.5s and 5 VA respectively.	DS
R3	8.5	Control / Auxiliary cables are changed to FRLS.	DS
R3	13.23	Specified – Internal arc classification	DS
R3	15.1.1, 15.2	Name plate materials are defined to be of SS material including BSES insignia and danger plate.	DS
R3	4.6, 9.2.0	Number of outgoing feeders specified Type I- 07 No's Type II- 05 No's Type III- 03 No's	DS
R3	4.2.2, 5.1.1	Requirement of 4 way RMU has been added for PSS type - I	DS
R4	2	IS 1180(2014) added	KKA
R4	7.2.1	Rating 990KVA changed to 1000KVA as per IS 1180 (2014)	KKA
R4	7.2.4	Impedance of 400KVA & 630KVA changed 4.5 %	KKA
R4	7.2.5.1 & 7.2.5.2	Total losses at 50% & 100% load updated as per IS 1180(2014)	KKA
R4	7.2.8	Flux density at 10% over excitation changed to 12.5% over excitation	KKA
R4	7.2.10	Tapping range changed to +5% to -10%	KKA
R4	7.3.5.2	Core material M4 to M3	KKA
R4	7.3.11.1	Range /Step changed to +5% to -10% in step of 2.5%	KKA
R4	8.3.1.2 & 8.3.1.3	Core material grade changed to M4 to M3 & Max Lamination Thickness changed .27mm to .23mm	KKA

R4	8.3.2.1 & 8.3.2.2	Winding material changed Electolytic ALuminum and Max Current density 1.5A/Sqmm	KKA
R5	4.2.5, 4.2.6 4.2.7 & 10.2.5	ACB rating and MCCB details updated	DS
R5	5.4.14	CT burden added	DS
R5	7.2.5.1 & 7.2.5.2	Total losses at 50% & 100% load updated as per IS 1180(2014)	DS
R5	7.2.6 & 7.2.7	Temperature rise top oil and temperature rise of winding updated	DS
R5	7.8.23 &7.8.24	Fittings added	DS
R5	9.3	Outgoing MCCB bus bar size updated	DS
R5	9.7	Busbar rating updated	DS
R5	10.0	ACB and MCCB details updated	DS
R6	7.2.5.1 & 7.2.5.2	Total losses at 50% & 100% load updated as per IS 1180(2014)	AA

1.0 Scope

i. Design, manufacture, testing at manufacturer works before dispatch, packing, and delivery of Packaged Substation (PSS) as per this specification and supply of commissioning spares.
ii. Supply of all installation/commissioning accessories for PSS.
iii. Submission of documentation of PSS.
iv. Supervision of testing & commissioning of PSS at site.

2.0 Codes & standards

Materials, equipment and methods used in the manufacture of 11kV Packaged Substation shall conform to the latest edition of following –

Standard	Title
Indian Electricity Rules	With latest amendments
Indian electricity act	IE act 2003
	CBIP manual on transformers
IEC 60076	Power transformers
IEC:60616	Terminal and Tapping Markings for Power Transformers
IEC:60726	Dry-Type Power Transformers
IEC: 60529	Degrees of Protection Provided by Enclosures (IP Code).
IEC:60905	Loading Guide for Dry-Type Power Transformers
IEC 60694	Specification for high voltage switchgear
IEC 60439-1	Low voltage switchgear & control gear assemblies
IEC 60529	Degree of enclosures provided by enclosures
IEC 60664-1	Insulation coordination for low voltage systems
IEC 62262	Degree of protection provided by enclosure against mechanical shocks
IEC 62271-202	High voltage switchgear & control gear - prefabricated substation
IEC 60044	Instrument transformers - Current & voltage transformers
IEC 60225	Electrical relays
IEC 60625	High voltage switches
IEC 60502	Power cables
IEC 60947-2	Low-voltage switchgear and control gear : Circuit-breakers
IS 1180	Outdoor Type Oil Immersed Distribution Transformers Up to and Including 2500 kVA, 33kVSpecification
IS 2026	Power transformers
IS 11171	Dry type transformers
IS 6600	Loading of power transformers

IS 13947	Low voltage switchgear & control gear
IS 2099	Bushings for voltages above 1000v
IS 3156	Voltage transformers
IS 2705	Current transformers
IS 1554	PVC cables
IS 7098	XLPE cables
IS 2629	Recommended Practice for Hot-Dip Galvanizing of Iron and Steel
IS 4759	Hot-dip zinc coatings on structural steel and other allied products
IS 13585	Shunt capacitors
IS 13340	Shunt capacitors
IS 3043	Code of practice for Earthing
IS 335	Insulating oils
IS 8130	Conductors for insulated cables
IS 5	Ready mixed paints

In the event of direct conflict between various order documents, the precedence of authority of documents shall be as follows -

i. Guaranteed Technical Particulars (GTP)

ii. Specification including applicable codes & standards

iii. Approved Vendor Drawings

iv. Other documents

3.0 Electrical Distribution System Data

3.1.1	HT supply System	3 phase AC, 3 wire
3.1.2	Voltage	11000 volt ±10%
3.1.3	Frequency	50 Hz ± 5%
3.1.4	Fault level	350MVA – 18.5kA
3.1.5	System neutral	Earthed at upstream 11kV source
3.2.1	LT supply system	3 phase AC, 4 wire
3.2.2	Rated voltage	415V +/-10%
3.2.3	Rated frequency	50 Hz ± 5%
3.2.4	Fault level	35MVA – 50kA

4.0 PSS Configuration

4.1	PSS Type	On the basis of transformer rating
4.1.1	PSS Type – I	With 1000KVA oil filled transformer / 1000KVA cast resin transformer
4.1.2	PSS Type – II	With 630KVA oil filled transformer / 630KVA cast resin transformer
4.1.3	PSS Type – III	With 400KVA oil filled transformer / 400KVA cast resin transformer
4.1.4	Transformer type	As per enquiry
4.2	Major Components	For all PSS Types
4.2.1	Enclosure	Metallic painted GI enclosure with steel base frame for overall package
4.2.2	11kV Ring main unit	
4.2.2.1	PSS Type – I	1. The 3 Way with 02 nos. load break switches (LBS) + 01 no. circuit breaker (CB). Or 2. The 4 Way with 02 nos. Load break switches (LBS) + 02 nos. Circuit breaker (CB). LBS may be manual type or motorized as specified in the enquiry
4.2.2.2	PSS Type – II & III	1. The 3 Way with 02 nos. load break switches (LBS) + 01 no. circuit breaker (CB). LBS may be manual type or motorized as specified in the enquiry.
4.2.3	11kV XLPE Aluminium cable with termination kit along with cold applied boots	For CB feeder termination & transformer side termination.
4.2.4	Low voltage bus bar system	Insulated /sleeved with epoxy insulators
4.2.5	Low voltage system configuration for PSS type-I	2000A ACB incomer and 07 nos. 630A MCCB (utilization category- B) as outgoing
4.2.6	Low voltage system configuration for PSS type-II	2000A ACB incomer and 05 nos. 630A MCCB (utilization category- B) as outgoing. Provisions shall also be made in LT panel to increase LT outgoing by 02 no's by adding MCCB's in future.
4.2.7	Low voltage system configuration for PSS type-III	1250A ACB incomer and 03 nos. 630A MCCB (utilization category- B) as outgoing. Provisions shall also be made in LT panel to increase LT outgoing by 02 no's by adding MCCB's in future.
4.2.8	APFC system for PSS type-I	300kVAR APFC system with control relay & 630amp incomer MCCB (utilization category- B)

4.2.9	APFC system for PSS type-II	200kVAR APFC system with control relay & 630amp incomer MCCB (utilization category- B)
4.2.10	APFC system for PSS type-III	200kVAR APFC system with control relay & 630amp incomer MCCB (utilization category- B)
4.2.11	Energy meter box	To be provided on transformer LT side along with wiring.
4.2.12	Space for customer FRTU	300D x 600W x 900H (mm) space to be provided in HV or LV compartment.
4.2.13	Smoke detectors	Minimum 02 nos. in each LT, HT and Transformer compartment. These detectors shall be connected to local controller / alarm module.
4.2.14	Hooter with automatic timer reset	For operator alarm in case of PSS door open position
4.2.15	Fire Extinguisher	2Kg CO^2 Type shall be placed in HT Compartment
4.2.16	Other requirements	Substation internal cabling, lighting & earthing system along with required hardware, gaskets, gland plates etc.

5.0 11KV Ring Main Unit

5.1.0	RMU Configuration	
5.1.1	RMU Configuration	
5.1.1.1	PSS Type – I	1. Two Load break switches (LBS) + one transformer circuit breaker (TCB) or 2. Two Load break switches (LBS) + two transformer circuit breaker (TCB). Selection between the above configurations shall depend upon the purchaser's requirement.
5.1.1.2	PSS Type – II & III	Two Load break switches (LBS) + Two transformer circuit breaker (TCB)
5.1.2	Extensibility	Non extensible type
5.1.3	Load break switch, Circuit breaker & earth switch in RMU panel	All shall be non draw out type, fixed position
5.1.4	Insulation Medium	
5.1.4.1	For panel	SF6 gas or Dry air in sealed metallic tank
5.1.4.2	For Breakers	SF6 gas or Vacuum type (with disconnector & earth switch)
5.1.4.3	For load break switches	SF6 gas or Vacuum type (With Earth Switch)
5.1.5	Arc interruption chamber for breaker	Arc interruption chamber of breakers shall be separate from the main insulated tank. (Desirable

		feature)
5.1.6	Maximum dimensions of RMU	1250 mm(W) X 800 mm (D) X 2000 mm (H)
5.2.0	RMU Panel Construction	
5.2.1	Panel type	Metal enclosed, framed, Compartmentalized panel construction
5.2.2	Service Location	Indoor, non air conditioned environment
5.2.3	Mounting	Free Standing
5.2.4	Overall Enclosure Protection	IP4X minimum, vermin proof
5.2.5	Doors	Front access with internal anti theft hinge arrangement with minimum opening angle of 120º, minimum three hinges (desirable)
5.2.6	Covers	Bolted for rear access, with handles. Support for handle shall be provided at suitable place on RMU body. All the accessible bolts / screws shall be vandal proof. One set of required Special tools per RMU (if any) shall be in the scope of supply.
5.2.7	Construction	Sheet metal 2.5mm thick CRCA
5.2.8	Base frame	a) made of CRCA steel b) Raised frame of 300 mm height
5.2.9	Foundation bolts + Fixing bolt for RMU & frame (in case the frame is supplied loose)	Shall be in scope of vendor
5.2.10	HDPE clits	Shall be provided as cable supporting clamps for each power cable (to suit the cable size from 150 to 300 sq mm PILC / XLPE cable. Exact size shall be provided during drawing approval stage.)
5.2.11	Lifting lugs	Four numbers
5.2.12	Cable Entry	Bottom
5.2.13	Gland plate	Separate for control cable & power cable 3mm metallic, removable type & split type in two parts, with 1 no ,90mm diameter knockout punch/ hole in the centre.
5.2.14	Cable termination	
5.2.14.1	Cable type & size	3C X 150 / 240 / 300 sq mm Aluminium conductor XLPE/ PILC with armor & PVC outer sheath
5.2.14.2	Terminals for 11kv cable termination	With right angled cold applied boots (3M or Raychem make), set of required size of Brass Nut bolt – M 16 size & Bimetallic washers.
5.2.14.3	Termination type	Suitable for heat shrinkable type
5.2.14.4	Termination height	700mm minimum, from gland plate

5.2.15	Bus bar	Tinned copper with sleeve (Sizing Calculation to be submitted in support of its Guaranteed S.C. rating / Capability)
5.2.15.1	Bus bar continuous rated current	630amp
5.2.15.2	Bus bar short time withstand capacity	20 KA for 3 sec
5.2.15.3	Bus bar support insulator material	SMC / DMC resin
5.2.15.4	Maximum temperature rise above reference ambient	In line with Table 3 of IEC60694
5.2.16	Earth bus bar	Aluminum / Copper sized for rated fault duty for 1 sec
5.2.16.1	Earth bus internal connection to all noncurrent carrying metal parts	By 2.5 sq mm copper flexible wire, Earth connection point maximum 1 meter away from cable test facility
5.2.16.2	Earth bus external connection to owners earth	Studs on both sides with holes for M10 bolt + hardware to readily receive purchaser earth connection
5.2.17	Cooling arrangement	By natural air without fan
5.2.18	Panel internal wiring	Multi strand flexible color coded PVC insulated Cu wire 1 sq mm (SCADA) / 2.5 sq mm (for CT's) 1100 volt grade (R phase - Red, Y phase – Yellow, B phase – Blue, AC- black, DC – grey, Earth – green) with ferrules at both ends. All the internal control / auxiliary wiring shall be routed through proper conduit.
5.2.19	Hardware (Nut, bolts & handle)	Stainless steel (Except termination nut-bolts which are Brass / Tinned Copper)
5.2.20	Gasket	Neoprene rubber
5.2.21	Marshalling terminal blocks	1 Sq mm, Nylon 66 material, screw type + 20% spare in each row of TB.
5.2.22	Panel cover fixing bolts	Allen head 6mm with hexagonal slot
5.2.23	Padlock facility	Required for all earth switches & all handles
5.2.24	Internal Arc classification	
5.2.24.1	Explosion vents	To ensure operator's safety, design should ensure that gases / flames generated during flash over / blast in any of the compartment, must not come out from the front of RMU as well shall not go to adjacent cable compartment. Internal arc test report (for Cable compartment & other compartments) must be submitted to support above, along with RMU GA drawing indicating these vents. There shall not be any type of holes, gaps etc on the walls of cable termination compartment.

5.2.24.2	Internal Arc rating	20 kA for 1s
5.2.24.3	Internal arc classification	IAC AFL
5.3.0	Load break switch / Isolator (LBS)	
5.3.1	Type	Three poles operated simultaneously by a common shaft
5.3.2	Arc interruption in dielectric medium	SF6 or Vacuum
5.3.3	Operating mechanism for close / open	Motorized/Manual as per enquiry. In case of motorized LBS, manual operation should also be possible (without removal of motor). Also, each motorized LBS shall be provided with separate MCB and Local-Remote switch.
5.3.4	Addition / removal of motor	Without overhaul of operating mechanism
5.3.5	RMU without motor	Complete with power & control wiring so that only motor can be added at later date
5.3.6	Motor rated voltage	24V DC
5.3.7	Battery type & size	Only if ordered with Motorized RMU: a) SMF lead acid battery b) Battery provided in enclosure shall be rated for 10 close & 10 open operations of LBS + 2 hrs back up for SCADA FRTU load (10watt) and FPI. c) Battery rating 20AH d) Charger rating 10A
5.3.8	Continuous rating of LBS	630 Amp at design
5.3.9	Short time withstand capacity	20 KA for 3 sec
5.3.10	Fault making capacity	50 kA peak
5.3.11	Minimum number of operations at rated current (as per IEC 62271-102)	Mechanical Endurance – Class M1(1000 operations) Electrical Endurance – Class E3 (100 operations)
5.3.12	Minimum number of operations at rated fault current (as per IEC IEC 62271-102)	Class E3 (Min 10 operations)
5.3.13	Fault passage indicator (FPI)	To be provided on right hand side of one LBS.
5.4.0	Circuit breaker	For controlling transformer, manual operation only
5.4.1	Type	Three pole, operated simultaneously by a common shaft
5.4.2	Arc interruption medium	Vacuum Bottle
5.4.3	Operating mechanism	Manual spring charged stored energy type

5.4.4	Emergency trip / open push button	On panel front with Protective flap to prevent any accidental tripping of breaker.
5.4.5	Continuous rating	630amp
5.4.6	Short time withstand capacity	20 KA for 3 sec
5.4.7	Minimum number of operations at rated current (as per IEC 62271-100)	Mechanical Endurance – Class M1(2000 operations) Electrical Endurance – Class E2
5.4.8	Fault making capacity	50 KA peak
5.4.9	Fault breaking capacity	20 KA Minimum
5.4.10	Maximum number of operations at rated Fault current (as per IEC 62271-100)	Electrical Endurance – Class E2. To be guaranteed by manufacturer with authorized lab test reports
5.4.11	Breaker status auxiliary contact	2NO + 2NC wired to terminal block
5.4.12	Current transformer	a) 80-150 / 1 amp b) Resin Cast Ring type c) Considering three core cable terminations, mounting flexibility shall be provided for CT's (in horizontal & vertical direction both). Additionally, CAUTION marking (by sticker/ paint) shall be provided to avoid CT's installation above the screen of cable. (I.e. earth potential point.)
5.4.13	CT accuracy class	10P10 minimum
5.4.14	CT burden	CT burden should be 20% higher than the connected relay burden.
5.4.15	Protection relay	Self powered, Microprocessor based Numerical relay (with backlit LCD display), IDMT over current / earth fault protection with high set element, manual reset type, flush mounted on panel front
5.4.16	Relay auxiliary contacts for remote indication	Potential free contact 1NO + 1NC wired to terminal block
5.4.16	Shunt trip 230v AC (for WTI trip & door limit switch & for remote trip from SCADA.)	To be wired to terminal blocks (If the functional requirement is achieved by the Protection relay, then shunt trip is not required.
5.5.0	Earth switch	
5.5.1	Type	Three Pole, operated simultaneously by a common shaft, for each Circuit breaker & Load break switch.
5.5.2	Dielectric medium	Dry Air in sealed medium or SF6 gas
5.5.3	Operating mechanism for close & open	Manual
5.5.4	Fault making capacity	50 kA (Desirable)

5.5.5	Auxiliary contacts	1NO+1NC wired to terminal block
5.5.6	Disconnect switch (if provided in series with vacuum bottle)	Desirable to be located on purchaser cable connection side of vacuum bottle
5.5.7	Minimum number of operations at no load (as per IEC 62271-102)	Mechanical Endurance – Class M0(1000 operations)
5.5.8	Making capacity endurance of earth switch (as per IEC IEC 62271-102)	Class E2 (Min 10 operations)
5.6.0	Requirements of sealed housing live parts (RMU SF6 gas chamber)	
5.6.1	Enclosure	Stainless steel enclosure suitable for IP67
5.6.2	SF6 gas pressure low alarm	To be given
5.6.3	Provision for SF6 gas filling	To be given (For ‘sealed for life’ design of RMU, this is not applicable)
5.6.4	Provision for SF6 gas pressure indication	Manometer with non return valve
5.6.5	Arc interruption method for SF6 breaker / Load break switch	Puffer type / rotating arc type
5.6.6	Potential free contacts for SF6 gas pressure low	1NO +1NC (Desirable)
5.7.0	RMU operation interlocks	
5.7.1.1	Interlock type	Mechanical
5.7.1.2	Load break switch & respective earth switch	Only one in ‘close’ condition at a time
5.7.1.3	Circuit breaker & respective earth switch	Only one in ‘close’ condition at a time
5.7.2	Prevent the removal of respective cable covers if load break switch or circuit breaker is ‘ON’	Electrical / Mechanical
5.7.3	Prevent the closure of load break switch or circuit breaker if respective cable cover is open	Electrical / Mechanical
5.7.4	Cable test plug for LBS/CB accessible only if Earth switch connected to earth	Mechanical
5.7.5.0	For motorized RMUs	
5.7.5.1	Prevent motorized operation of LBS / CB during manual operation	Electrical / Mechanical Electrical signal shall cut-off completely during manual operation. If LBS fail to operate, the supply to motor shall be disconnected after certain time period to

		prevent burning of motor due to continuous supply.
5.7.5.2	Prevent motorized operation of more than one LBS / CB at a time	Necessary feature (Electrical)
5.8.0	Indication & signals	for SCADA / Local
5.8.1	Operation counter on front / Inside the RMU LT chamber	To be provided for each LBS & Circuit breaker, with minimum four digits & non resettable type
5.8.2	Cable charge status indication for all LBS & CB	Capacitor type voltage indicators with LED on all the phases (Shall be clearly visible in day light)
5.8.3	Spring charge status indication	On front for breaker
5.8.4	Earth switch closed indication (For Each LBS)	On front
5.8.5	Load break switch ON/OFF indication	Green for OFF / Red for ON
5.8.6	Circuit breaker On/OFF indication	Green for OFF / Red for ON
5.8.7	Circuit breaker protection relay operated on fault	Flag
5.8.8	Fault passage indication on LBS	Flag
5.8.9	Status signals to SCADA-to be wired to marshalling terminal block	2NO + 2NC
5.8.9.1	LBS close / open	potential free contacts
5.8.9.2	LBS & CB Earth Switch close /open	potential free contacts
5.8.9.3	Battery charger Fail	potential free contacts
5.8.9.4	CB close / open	potential free contacts
5.8.9.5	Protection relay operated	potential free contacts
5.8.9.6	FPI operated	potential free contacts
5.8.9.7	SF6 gas pressure low	potential free contacts
5.8.10.1	Commands from SCADA- to be wired to marshalling terminal block	LBS close / open TCB close / open FPI Reset
5.9.0	Mimic diagram, labels & finish	a) Mimic diagram (Shall not be accepted with Stickers) b) On panel front with description of function & direction of operation of handles/buttons
5.9.1	Operating Instructions	Operating instruction chart and Do's & Don'ts in Hindi / local language to be displayed on left / front side of panel enclosure on anodized Al Sheet 16SWG, duly affixed on panel.

5.9.2	Name plate on panel front	Fixing by rivet only
5.9.2.1	Material	Anodized aluminum 16SWG / SS
5.9.2.2	Background	SATIN SILVER
5.9.2.3	Letters, diagram & border	Black
5.9.2.4	Process	Etching
5.9.2.5	Name plate details	Month & year of manufacture, equipment type, input & output rating, purchaser name & order number, guarantee period
5.9.3	Labels for meters & indications	Anodized aluminum with white character on black background OR 3 ply lamicoid
5.9.4	Danger plate on front & rear side	Anodized aluminum 16 SWG with white letters on red background
5.9.5	Painting surface preparation	Shot blasting or chemical 7 tank process
5.9.6	Painting external finish	Powder coated epoxy polyester base grade A, shade - RAL 7032, uniform thickness 60 micron minimum
5.9.7	Painting internal finish	Powder coated epoxy polyester base grade A, shade - white, uniform thickness 60 micron minimum

6.0 11KV XLPE Cable & termination kit

The 11kv XLPE cable connection from RMU to distribution transformer shall be conforming to IS 7098 and shall have all the following features -

6.1	Cable type & size	XLPE insulated armoured / un armoured cable 3C x 150 sqmm Aluminium conductor
6.2	Cable voltage grade	11KV
6.3	XLPE insulation thickness	3.14 mm minimum
6.4	Aluminium conductor no of strands	As per Table 2 of IS 8130
6.5	Insulation screen	With semi conducting extrusion, copper tape & water swellable tape
6.6	Type of armour	GI flat as per table 4 of 7098 part 2
6.7	11KV end termination at RMU	By 11kv grade end termination kit, heat shrink type
6.8	11KV end termination at Distribution transformer	By screened separable connector kit suitable for 630 A 'C'-interface epoxy cast bushings.
6.9	Cable support from RMU to transformer HT side cable box	GI cable tray 300mm wide

7.0 Oil Type Sealed Distribution Transformer

7.1.0	Major Design criteria	
7.1.1	Voltage variation on supply side	+ / - 10 %
7.1.2	Frequency variation on supply side	+/ - 5 %
7.1.3	Combined variation of voltage and frequency	- 20 % or + 10 %
7.1.4	Service Condition	Refer Annexure B
7.1.5	Insulation level	
	One minute power frequency withstand voltage	3KV for 415V system & 28KV for 11KV system
	Lightning impulse withstand voltage	75KV peak for 11KV system
7.1.6	Short Circuit withstand level	
	Three phase dead short circuit at secondary terminal with rated voltage maintained on the other side	For 3 sec
7.1.7	Overload capability	As per IS 6600
7.1.8	Noise level	Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard running measured as per IEC 551 / NEMA standard
7.1.9	Radio Influence Voltage	Maximum 250 microvolt
7.1.10	Harmonic currents	Transformer to be designed for suppression of 3rd, 5th, 7th harmonic voltages and high frequency disturbances.
7.1.11	Partial Discharges	Transformer to be free from partial discharge up to 120% of rated voltage as the voltage is reduced from 150% of rated voltage i.e. there shall be no significant rise above background level.
7.1.12	Parallel operation with existing transformer z= 5%	Shall be designed to operate in parallel
7.2.0	Major Parameters	
7.2.1	Rating	1000KVA/ 630 KVA/ 400 KVA
7.2.2	Voltage Ratio	11kv / 433 volts
7.2.3	Vector Group	Dyn11
7.2.4	Impedance at 75 deg C	4.5 % for 400KVA & 630KVA tolerance as per IS 5% for 1000KVA tolerance as per IS
7.2.5	Losses at 75 deg C	With ONAN cooling

7.2.5.1	Total Loss –Max in KW at 50% Load **[R6]**	1000KVA	630KVA	400KVA
		2.79	1.86	1.225
7.2.5.2	Total Loss –Max in KW at 100% Load **[R6]**	1000KVA	630KVA	400KVA
		7.7	5.3	3.45
7.2.6	Temperature rise top oil – within enclosure	40 Deg C max over ambient 40 Deg C		
7.2.7	Temperature rise winding – within enclosure	45 Deg C max over ambient 40 Deg C		
7.2.8	Flux density	1.7 Tesla at 100% rated voltage 1.9 Tesla at 112.5% rated voltage		
7.2.9	Current density	3 amp / sqmm for HV & LV winding		
7.2.10	Tapping on HV winding	Off circuit + 5% to -10% in 2.5% step		
7.2.11	Design Clearances	Phase - phase	Phase – earth	
	11kv system	180mm	120mm	
	415v system	25mm	25mm	
7.3.0	Transformer construction			
7.3.1	Type	Double Copper wound, three phase, oil immersed, with ONAN cooling		
7.3.2	Tank	Type tested design		
7.3.2.1	Design	a) Completely sealed type with corrugated fins and without conservator b) Completely oil filled or N2 cushion at top filled with positive pressure. N2 shall be technical grade in accordance with IS:1747 c) With bolted / welded cover		
7.3.2.2	Plate / Corrugated fin / tank features	a) Adequate for meeting mechanical & electrical withstand requirements, as per applicable standard. b) The tank and its sealing (gaskets, o-rings, etc.) shall be of adequate strength to withstand positive and negative pressures built-up inside the tank while the transformer is in operation. The maximum pressure generated inside the tank should not exceed 40kPa, positive or negative. c) Corrugated fins shall be built up of CRCA sheets of minimum 1.2mm thick. d) The corrugated tank wall shall ensure sufficient cooling of the transformer and compensate for the changes in the oil volume during operation. e) The transformer shall be capable of giving continuous rated output, without exceeding the specified temperature rise. f) Internal clearance of tank shall be such that, it shall facilitate easy lifting of core with coils from the tank and HV & LV bushings mounted on Top cover.		

		g) All joints of tank and fittings shall be oil tight. The tank design shall be such that the core and windings can be lifted freely with cover. The tank plate shall be of such strength that the complete transformers when filled with oil may be lifted bodily by means of lifting lugs. h) Tanks with corrugations & without conservator shall be tested for leakage at a pressure as per the applicable standard.
7.3.2.3	Material of Construction	Mild steel plate with low carbon
7.3.2.4	Plate Thickness	To meet the requirements of pressure and vacuum type tests as per CBIP manual
7.3.2.5	Welding features	a) All seams and joints shall be double welded b) All welding shall be stress relieved for sheet thickness greater than 35 mm c) All pipes, stiffeners, welded to the tank shall be welded externally d) All corrugated fins or expansion bellows provided shall be double welded.
7.3.2.6	Tank features	a) Bottom with stiffeners & adequate space for collection of sediments b) No external pocket in which water can lodge c) Tank bottom with welded skid base d) Strength to prevent permanent deformation during lifting, jacking, transportation with oil filled. e) Minimum disconnection of pipe work and accessories for cover lifting f) Tank to be designed for oil filling under vacuum g) Tank cover fitted with lifting lug
7.3.3	Inspection cover for bushing & Core / Wind	As per manufacturer standard
7.3.4	Fittings and accessories on main tank	As per clause 7.3.0
7.3.5	Core	
7.3.5.1	Material	High grade , non ageing, low loss, high permeability, grain oriented, cold rolled silicon steel lamination
7.3.5.2	Grade	Minimum M3 or better

7.3.5.3	Core Design Features	a) Magnetic circuit designed to avoid short circuit paths within core or to the earthed clamping structures. b) Magnetic circuit shall not produce flux components at right angles to the plane of lamination to avoid local heating. c) Least possible air gap and rigid clamping for minimum core loss and noise generation. d) Adequately braced to withstand bolted faults on secondary terminals without mechanical damage and damage/ displacement during transportation and positioning. e) Percentage harmonic potential with the maximum flux density under any condition limited to avoid capacitor overloading in the system. f) All steel sections used for supporting the core shall be thoroughly sand blasted after cutting, drilling, welding. g) Provision of lifting lugs for core coil assembly. h) Supporting framework designed not to obstruct complete drainage of oil from transformer
7.3.6.0	Winding	
7.3.6.1	Material	Electrolytic Copper
7.3.6.2	Maximum Current Density allowed	Maximum 3 amp / sqmm
7.3.6.3	Winding Insulating material	Class A, non catalytic, inert to transformer oil, free from compounds liable to ooze out, shrink or collapse.
7.3.6.4	Winding Insulation	Uniform
7.3.6.5	Design features	a) Stacks of winding to receive adequate shrinkage treatment. b) Connections braced to withstand shock during transport, switching, short circuit, or other transients. c) Minimum out of balance force in the winding at all voltage ratios. d) Conductor width on edge exceeding six times its thickness. e) Transposed at sufficient intervals. f) Coil assembly shall be suitably supported between adjacent sections by insulating spacers + barriers. g) Winding leads rigidly supported, using guide tubes if practicable. h) Winding structure & insulation not to obstruct free flow of oil through ducts. i) Delta connection shall be done using Flexible cable.

7.3.7.0	Transformer Oil	As per Annexure – C, Class 1 new mineral insulating oil, shall be certified not to contain PCBs. Naphthalene base with anti oxidant inhibitor subject to Purchaser's specification in Annexure - C
7.3.8.0	Bushings and Terminations	
7.3.8.1	Type of HV side bushing	Epoxy cast bushing, 630 Amp, interface type 'C' as per EN50180 and EN50181.
7.3.8.2	Type of LV side bushing	Indoor, Epoxy resin cast, 1kv voltage class and creepage 31mm/KV
7.3.8.2.1	Essential provision for LV side line bushing	It shall be complete with copper palm suitable for tinned copper busbar of size 100x12 mm
7.3.8.2.2	Essential provision for LV side neutral bushing	In case of neutral bushing the stem and bus bar palm shall be integral without bolted, threaded, brazed joints. Bus bar size shall be 100x12 mm
7.3.8.3	Arcing Horns	Not required
7.3.8.4	Support insulators inside HV cable box if provided	Epoxy resin cast, 12KV rated voltage
7.3.8.5	Termination on HV side bushing	Cable connection by screened separable connector kit.
7.3.8.6	Termination of LV side bushing	Bus bar connection
7.3.8.7	Minimum creepage distance of all bushings and support insulators.	31mm/kv
7.3.8.8	Protected creepage distance	At least 50 % of total creepage distance
7.3.8.9	Continuous Current rating	Minimum 20 % higher than the current corresponding to the minimum tap of the transformer
7.3.8.10	Rated thermal short time current	26.3kA for 3 sec
7.3.8.11	Atmospheric protection for clamp and fitting of iron and steel	Hot dip galvanizing as per IS 2633
7.3.8.12	Bushing terminal lugs in oil and air	Tinned copper
7.3.8.13	Sealing washers /Gasket ring	Nitrile rubber/ Expanded TEFLON (PTFE) as applicable
7.3.9.0	HV cable box	N.A
7.3.9.1	Material of Construction	N.A
7.3.9.2	Cable entry	As per design
7.3.9.3	Cable size for HV	3C X150sqmm A2XWY 11KV
7.3.9.4	Connection on LV phase	Bus bar 100x12mm copper
7.3.9.5	Bus bar size for LV Neutral	Same as phase bus

7.3.9.6	Detachable Gland Plate material for HV cable box	N.A
7.3.9.7	Gland plate thickness for HV	N.A
7.3.9.8	Cable gland for HV	N.A
7.3.9.9	Cable lug for HV	Suitable for cable 3CX150 mm^2 11KV
7.3.9.10	Essential parts for HV cable box	N.A
		a) Flange type removable front cover with handles min two no's b) Tinned Cu Bus bar c) Earthing boss for the HV cable box. d) Earthing link for the gasketed joints at two point for each joint e) Earthing provision for cable Armour/ Screen f) Drain plug g) Danger / caution plate
7.3.9.11	Terminal Clearances HV phase – phase & phase - earth	180mm / 120mm
7.3.9.12	Termination height required for cable termination	750mm
7.3.10.0	Current Transformers	
7.3.10.1	Requirement	All three phases and neutral on LV side
7.3.10.2	Mounting	LV side bushings on all three phases and neutral with the help of fibre glass mounting plate affixed to main tank by nut bolt arrangement
7.3.10.3	Maintenance requirements	Replacement should be possible by removing fixing nut of mounting plate without disturbing LT bushing
7.3.10.4	Accuracy Class & ISF	0.5s / 10
7.3.10.5	Burden	5 VA
7.3.10.6	Type	Resin Cast Ring type suitable for outdoor use
7.3.10.7	CT ratio	a) 400/630KVA -1000/5 Amps b) 1000KVA -1500/5 Amp
7.3.11	Off Circuit tap Switch	On HV winding
7.3.11.1	Range /Step	+ 5 % to -10% in steps of 2.5 %
7.3.11.2	Type	Rotary type, 3 pole gang operated,
7.3.11.3	Operating Voltage	11kV
7.3.11.4	Rated Current for tap Switch	a) 100amp for 1000KVA /630KVA b) 60 amps for 400KVA
7.3.11.5	Operating Handle	External at suitable height to be operated from ground level.

7.3.11.6	Tap position indicator	With direction changing facility, locking arrangement, caution plate metallic fixed by rivet.
7.3.12	Pressure Relief Device	Required
7.4.0	Hardware	
7.4.1	External	Stainless Steel
7.4.2	Internal	Cadmium plated except special hardware for frame parts and core assembly as per manufacturer's design
7.5.0	Gasket	
7.5.1	For Transformer, surfaces interfacing with oil like inspection cover etc.	Nitrile rubber based / cork
7.5.2	For Cable boxes, Marshalling box, etc.	Neoprene rubber
7.6.0	Valves	
7.6.1	Material of construction	Brass / gun metal
7.6.2	Type	Both end flanged gate valve / butterfly valve depending on application
7.6.3	Size	As per manufacturer's standard
7.6.4	Essential provision	Position indicator, locking rod, padlocking facility, valve guard, cover plate.
7.7.0	Painting of transformer.	
7.7.1	Surface preparation	By shot blasting method
7.7.2	Finish on internal surfaces of the transformer	Bright Yellow heat resistant and oil resistant paint two coats. Paint shall neither react nor dissolve in hot transformer insulating oil.
7.7.3	Finish on outer surface of the transformer-frame parts	Battle ship Grey shade 632 Poly urethane paint two coats, minimum dry film thickness 80 microns
7.8.0	Fittings & accessories	
7.8.1	Rating and Diagram Plate	Required
7.8.1.1	Material	Anodized aluminium 16SWG
7.8.1.2	Background	SATIN SILVER
7.8.1.3	Letters, diagram & border	Black
7.8.1.4	Process	Etching
7.8.1.5	Rating and Diagram Plate details	

		a) Following details shall be provided on rating and diagram plate as a minimum. b) Type/kind of transformer with winding material. c) IS/ IEC standard to which it is manufactured. d) Manufacturer's name. e) Transformer serial number. f) Month and year of manufacture. g) Rated frequency in HZ. h) Rated voltages in KV. i) Number of phases. j) Rated power in KVA. k) Type of cooling (ONAN). l) Rated currents in Amp. m) Vector group connection symbol. n) 1.2/50µs wave impulse voltage withstands level in KV. o) Power frequency withstands voltage in KV. p) Impedance voltage at rated current and frequency in percentage at principal, minimum and maximum tap q) Load loss at rated current. r) No-load loss at rated voltage and frequency s) Continuous ambient temperature at which ratings apply in deg c t) Top oil and winding temperature rise at rated load in deg c; u) Winding connection diagram with taps and table of tapping voltage, current and power v) Transport weight of transformer w) Weight of core and windings x) Total weight y) Volume of oil z) Weight of oil aa) Name of the purchaser bb) PO no and date cc) Guarantee period
7.8.2	Terminal marking Plate for Bushing, anodized aluminium black lettering on satin silver background both inside cable boxes near termination and on cable box cover (all fixed by rivet)	Required
7.8.3	Company Monogram Plate fixed by rivet	Required
7.8.4	Lifting Lug to lift complete transformer with oil	Required
7.8.5	Lifting lug for top cover	Required

7.8.6	Lashing Lug	Required
7.8.7	Jacking Pad with Haulage hole to raise or lower complete transformer with oil	Required
7.8.8	Detachable Bidirectional flat roller Assembly	Required
7.8.9	Pockets for ordinary thermometer on tank cover with metallic identification plate fixed by rivet.	Required
7.8.10	Drain valve (gate valve) for the main tank with cork above ground by 150mm minimum with padlocking and valve guard with metallic identification plate fixed by rivet.	As per manufacturer design
7.8.11	Filter valve (gate valve) at top with padlocking and valve guard with metallic identification plate fixed by rivet.	As per manufacturer design
7.8.12	Air Release Plug on tank cover with metallic identification plate fixed by rivet.	As per manufacturer design
7.8.13	Oil level indicator with low level switch	As per manufacturer design
7.8.14	Earthing pad on tank for transformer earthing complete with non ferrous nut bolt, washers, spring washers etc. with metallic identification plate fixed by rivet	Required
7.8.15	Rain hood for vertical gasket joints	Desirable
7.8.16	Earthing bridge by copper strip jumpers on all gasket joints at at least two points for electrical continuity	Required
7.8.17	Skid base welded type with haulage hole	Required
7.8.18	Core , Frame to tank Earthing	Required
7.8.19	Danger plate made of Anodized aluminum with white letters on red	Required

	background on Transformer, cable boxes (all fixed by rivet)	
7.8.20	Caution plate for Off Circuit tap changer fixed by rivet.	Required
7.8.21	Pressure Relief Device	Required
7.8.22	Gas-inlet valve of non-return type	Required (for transformers with nitrogen blanket above oil)
7.8.23	Oil filling hole having(1-1/4" nominal size thread) with cover	Required
7.8.24	An extended pipe connection on upper end with welded cover. Pipe shall be suitably threaded over a sufficient length to enable use of refilling /siphon connection after removing the welded connection or any other similar arrangement capable of reuse.	Required
7.8.25	User manual for Hermetically Sealed Transformers must be provided for review as a part of the technical proposal. The manual must be provided with, but not limited to, maintenance schedule, frequency & method of oil- sampling, procedures for oil-filling & oil-filtration, etc.	Required

8.0 Dry Type Transformer (1000KVA/ 630KVA/ 400KVA)

8.1.0	Major Design criteria	
8.1.1	Voltage variation on supply side	+ / - 10 %
8.1.2	Frequency variation on supply side	+/ - 5 %
8.1.3	Transient condition	- 20 % or + 10 % combined variation of voltage and frequency

8.1.4	Service Condition	Refer Annexure B, the transformer enclosure in PSS is to be designed for outdoor location with service condition as specified, but its full rating shall be available if located indoor in poorly ventilated atmosphere		
8.1..5	Insulation Level			
	One minute power frequency withstand voltage	28KV for 11KV system & 3KV for 415 V system		
	Lightning impulse withstand voltage	75KV peak for 11KV system		
8.1.6	Short Circuit withstand Capacity of the transformer			
8.1.6.1	Three phase dead short circuit at secondary terminal with rated voltage maintained on the other side	For 3 secs.		
8.1.6.2	Single phase short circuit at secondary terminal with rated voltage maintained on other side voltage maintained on other side	For 3 secs.		
8.1.7	Overload capability	As per IEC 60905		
8.1.8	Noise level	Shall not exceed limits as per NEMA TR-1 with all accessories running measured as per IEC 551 / NEMA standard		
8.1.9	Radio Influence Voltage	Maximum 250 Microvolt		
8.1.10	Harmonic currents	Transformer to be designed for suppression of 3rd, 5th, 7th harmonic voltages and high frequency disturbances.		
8.1.11	Partial Discharges	Transformer to be free from partial discharge upto 120 % of rated voltage as the voltage is reduced from 150 % of rated voltage i.e. there shall be no significant rise above background level		
8.1.12	Parallel operation	Shall be designed to operate in parallel with existing transformer. Details of existing transformers shall be forwarded to the bidder on request		
8.2.0	Major Parameters			
8.2.1	Rating	1000KVA/ 630KVA/ 400KVA		
8.2.2	Voltage Ratio	11kv / 433 volts		
8.2.3	Vector Group	Dyn11		
8.2.4	Impedance	5%, tolerance as per IS		
8.2.5	Losses at 130 deg C			
8.2.5.1	No load Loss –Max in KW	1000 KVA	630 KVA	400 KVA
		1.78	1.2	0.9

8.2.5.2	Load losses at principal tap- Max in KW	1000 KVA	630 KVA	400 KVA
		7.5	5.4	3.4
8.2.6	Temperature rise winding	Outside PSS without enclosure	Inside PSS max.	
		80°C	90°C	
8.2.7	Flux density	Maximum flux density at 10 % over excitation /overfluxing-1.9 Tesla maximum		
8.2.8	Tapping on HV winding	Off Circuit taps on HV winding , + / - 5 % in steps of 2.5 % , change of taps by link		
8.2.9	Design Clearances	Phase – phase	Phase - earth	
	11KV system	180mm	120mm	
	415V system	25mm	25mm	
	415V system	25mm	25mm	
8.3	Construction & Design			
8.3.1	Core			
8.3.1.1	Material	High grade , non ageing, low loss, high permeability, grain oriented, cold rolled silicon steel lamination		
8.3.1.2	Grade	Premium grade minimum M3 or better		
8.3.1.3	Lamination thickness	0.23mm (Max)		
8.3.1.4	Design Flux Density at rated conditions at principal tap	1.7 Tesla		
8.3.1.5	Maximum Flux Density at 10 % over excitation / over fluxing	1.9 Tesla maximum allowed		
8.3.1.6	Core Design Features	a. All steel sections used for supporting the core shall be thoroughly sand blasted after cutting , drilling, welding. b. Provision of lifting lugs for core coil assembly		
8.3.2	Winding			
8.3.2.1	Material	Electrolytic Aluminum		
8.3.2.2	Maximum Current Density allowed	Maximum allowed 1.5 A per sqmm		
8.3.2.3	Winding Insulating material	Class F minimum, free from compounds liable to ooze out, shrink or collapse. Uniform insulation shall be applied to the windings and overall winding shall be epoxy cast resin		
8.3.2.4	Tapping	Off Circuit taps on HV winding , + / - 5 % in steps of 2.5 % , change of taps by link		
8.3.2.5	Essential provision for tap links	Shall be shrouded with cover made from insulating material. To prevent deposit of dust.		

8.3.2.6	Design features	a) Stacks of winding to receive adequate shrinkage treatment b) Connections braced to withstand shock during transport, switching, short circuit, or other transients. c) Minimum out of balance force in the transformer winding at all voltage ratios. d) Conductor width on edge exceeding six times its thickness e) The termination bus-bar coming out from winding shall be tinned Copper f) Transposed at sufficient intervals. g) Threaded connection with locking facility. h) Winding leads rigidly supported, using guide tubes if practicable i) Provision of taps as indicated in the technical particulars
8.3.2.7	Essential provision of HV and LV winding leads	Phase marking required near termination on both HV and LV side. Phase colour coding required on insulating sleeves on both HV and LV side. Phase sequence 1U, 1V, 1W from left to right looking inside from the HV side door. Phase sequence 2n, 2u, 2v, 2w from right to left looking inside from LV side door Adequate HV termination clearance. Provision of check nut in all HV and LV winding lead connection.
8.3.3	Vibration Isolator	Vibration isolation pads shall be installed between core and coil assembly and enclosure base assembly to prevent the transmission of structure borne vibrations.
8.3.4	Bushings/Support Insulator/ terminations	
8.3.4.1	Type of HV and LV Bushings, support insulators	Epoxy Resin Cast
8.3.4.2	Minimum Creepage of bushings and support Insulators	31 mm / kV
8.3.4.3	Arcing horns	Not required
8.3.4.4	Termination on HV side	By cable within main enclosure by separable connector
8.3.4.5	HV side cable size	11 kV (E) grade , A2XCEWY 3C x 150 sqmm
8.3.4.6	Cable lugs	Long barrel medium duty Aluminium lug with knurling on inside surface. and suitable for cable size for 11 kV (E) grade , A2XCEWY 3C x 150 sqmm
8.3.4.7	HV side bushing	Epoxy cast bushing, 630 Amp, interface type ‘C’ as per EN50180 and EN50181.
8.3.4.7	Termination on LV side	Suitable bus bar as per PSS spec
8.3.5	Current Transformers	

8.3.5.1	Mounting	On LV side terminal busbars on all three phases and neutral with the help of fibre glass mounting plate
8.3.5.2	Maintenance requirements	Replacement should be possible without dismantling LV side support insulators
8.3.5.3	Accuracy Class	0.5s
8.3.5.4	Burden	5VA
8.3.5.5	Type	Resin Cast Ring type suitable for outdoor use
8.3.5.6	CT ratio	a) 400/630KVA -1000/5 Amps b) 1000KVA -1500/5 amp
8.3.6	Hardware	
8.3.6.1	External	Stainless Steel only
8.3.6.2	Internal	Cadmium plated except special hardware for frame parts and core assembly as per manufacturer's design
8.4	Gasket	Neoprene rubber based gasket across all doors & covers
8.5	Control cable specification (to be used by the vendor)	PVC insulated, extruded PVC inner sheathed, FRLS , armoured, extruded PVC outer sheathed 1100 V grade control cable as per latest edition of IS 1554 part 1 minimum 2.5 sqmm for signals and 4 sqmm for CT with multistrand copper conductor
8.6	Terminal Blocks to be used by the vendor	Nylon 66 material, minimum 4 sq mm, screw type for control wiring and potential circuit.
8.6.1	Essential provision for CT terminals	Sliding link type disconnecting terminal block screwdriver operated stud type with facility for CT terminal shorting material of housing melamine/ Nylon66
8.7	Painting of WTI box	
8.7.1	Surface preparation	By 7 tank pre-treatment process or shot blasting method
8.7.2	Finish on internal / external surfaces	Polyurethane based painting, min. Dry film thickness 80 microns
8.7.3	Insulating support material for base plate for mounting components	Bakelite shall not be used as a base plate for mounting any components, insulating material non hygroscopic insulating material like FRP shall be used.
8.8	Minimum Protective devices on Transformer	
8.8.1	Surge Arrestor	Required, Connected on Transformer Primary side on all three phases
8.8.1.1	Type	Metal oxide
8.8.1.2	Housing	Polymeric preferable
8.8.1.3	Rating	9 KV.
8.8.1.4	Continuous operating voltage , kV rms	6.35
8.8.1.5	Maximum Continuous	7.65

	operating voltage, kV rms	
8.8.1.6	Nominal Discharge Current, kA peak	5
8.8.1.7	Energy Absorption Capability, kJ/kV	Greater than 2.5
8.8.1.8	Creepage factor	31 mm /kV
8.8.1.9	Reference std	IS 3070 part 3 and IEC 99-4
8.8.2	Winding Temperature scanner	Required
8.8.2.1	No of RTD inputs	Five (Three for windings, one for enclosure & one shall be spare) RTD for enclosure temperature monitoring shall be fixed at enclosure Top from inside to give max enclosure temp reading & shall be wired up to temp. scanner to indicate the reading
8.8.2.1.1	Location of winding RTD	At location of winding where maximum temperature is expected.
8.8.2.2	No of potential free trip contacts	Two
8.8.2.3	No of potential free Alarm contacts	Two
8.8.2.4	Auxiliary supply	240 V AC, 1 phase, 50 Hz. Tapped from LV side busbar through a MCB located inside box
8.8.2.5	Winding Temperature Scanner terminal Box	Required
8.8.2.5.1	Size	As per Manufacturer's Standard
8.8.2.5.2	Fixing of instrument within box	On base plate
8.8.2.5.3	Fixing of terminals within the box	On C channel available with the terminals
8.9	Fitting and accessories	
8.9.1	Rating & Diagram plate	Required
8.9.1.1	Material	Anodized aluminum 16SWG
8.9.1.2	Background	SATIN SILVER
8.9.1.3	Letters, diagram & border	Black
8.9.1.4	Process	Etching
8.9.1.5	Name plate details	Following details shall be provided on rating and diagram plate as a minimum a) Type of transformer i.e cast resin or VPI etc. With winding material b) IS / IEC standard to which it is manufactured c) Manufacturer's name; d) Transformer serial number; e) Month and year of manufacture f) Rated frequency in HZ g) Rated voltages in KV h) Number of phases

		i) Rated power in KVA j) Type of cooling k) Rated currents in a l) Vector group symbol m) 1.2/50µs wave impulse voltage withstand level in KV n) Power frequency withstand voltage in KV o) Impedance voltage at rated current and frequency in percentage at principal, minimum and maximum tap at highest temperature p) Load loss at rated current at highest temperature q) No-load loss at rated voltage and frequency r) Auxiliary loss s) Continuous ambient temperature at which ratings apply in c t) Winding connection diagram with taps and table of tapping voltage, current and power u) Transport weight of transformer v) Weight of core and windings w) Weight of enclosure and fittings x) Total weight y) Tapping details z) Phase ct details aa) Class of insulation bb) IP protection rating of the enclosure cc) Name of the purchaser dd) Po no and date ee) Guarantee period
8.9.2	Detachable Bi-directional flat Roller Assembly	Required
8.9.2.1	Roller center to center distance	Minimum 900 mm on the side of HV and LV termination Maximum 800 mm on the other side (perpendicular to HV, LV termination). and LV termination Maximum 800 mm on the other side (perpendicular to HV, LV termination).
8.9.2.2	Essential provision	Roller dia. 150 mm min., roller to be fixed in such a way so that the lowermost part of the skid is above ground by at least 100 mm when the transformer is installed on roller.
8.9.3	Earthing pad on enclosure for transformer earthing complete with Stainless Steel nut, bolt, washers, spring washers etc.	Required with identification plate on outside of enclosure.
8.9.4	Core, Frame to tank Earthing	Required
8.9.5	Off Circuit tapping link	Required
8.9.6	Tap link position plate	Required inside HV side door

8.9.7	Danger plate made of Anodized aluminium with white letters on red background on HV and LV side	Required
8.9.8	Skid with Haulage lugs	Required
8.9.9	Lifting lugs for complete transformer as well as enclosure	Required
8.9.9.1	Essential provision for lifting lugs	Lifting lugs for core coil assembly shall be provided in such a way that the weight shall not come on canopy while lifting Lifting lugs for canopy/ enclosure shall be provided in such a way that the weight shall not come on canopy while lifting , it shall be borne by supporting members.
8.9.10	Caution Plate for tap links	Required
8.9.11	Ventilation louvers with stainless steel wire mesh and rain water guard	Required as per Manufacturer's design, but it is to be provided minimum required preventing ingress of excessive dust.
8.9.12	Surge Arrestor & its Grounding bushing	Required
8.9.12.1	Essential provision	Surge arrestor shall be erected vertically in such a way that the surge arrestor can be removed at site without removing HV cable lug. Surge arrestor shall not be used for any kind of support. Surge arrestor grounding strip to be routed to the surge arrester grounding bushing near bottom of enclosure with proper support. Surge arrestor grounding bushing shall be identified by identification plate on outside of enclosure. Surge arrestor grounding bushing shall be supplied with all hardware to readily connect purchaser's ground lead.
8.9.13	LV additional neutral earthing bushing	Required
8.9.13.1	Essential provision	Busbar connecting the neutral to additional neutral bushing shall be properly supported and additional neutral bushing shall be identified by identification plate on outside of enclosure. Additional neutral bushing shall be supplied with all hardware to readily connect purchaser's ground lead.
8.9.14	Winding temperature scanner	Required
8.9.15	RTD in Winding and near top of enclosure.	Required
8.9.16	Space heater inside enclosure	Thermostatically controlled space heater inside enclosure required, supply of space heater from feeder pillar through MCB fixed properly inside enclosure.
8.9.1	Mounting of space heater	By suitable spacers so that heater does not come in contact with panel wall directly.
8.9.17	Copper earthing link	Across all gasketted joints in the enclosure body.

9.0 Low Voltage Bus bar system

9.1	LV bus bar	From transformer LV bushing to ACB and from ACB to MCCBs
9.2	Type of connection on transformer	By flexible copper link rated 2000 Amp
9.3	Bus bar size for phase & neutral	a) 100x12 mm tinned copper / Eqvt Size Aluminum. b) Connection to each MCCB by 50X10 tinned copper bar.
9.4	Bus bar support insulators	1 KV voltage class, SMC epoxy
9.5	Insulator creepage distance	31mm / KV
9.6	Bus bar sleeve insulation	Color coded, for 1kv
9.7	Bus bar rated current	Type I & II:2000 Amp Type III:1250 Amp
9.8	Bus bar short circuit withstand	27.7kA for 1 sec
9.9	Maximum temperature rise	20º C

10.0 Low voltage switchgear, ACB and MCCB

10.1.0	Air Circuit Breaker	
10.1.1	Rated Current at 40 deg C	Type I &II :2000A Type III:1250A as per configuration. De-rating @50 deg C shall be mentioned separately.
10.1.2	Number of Phases	Three Phase
10.1.3	ACB mounting	Fixed type
10.1.4	Line-Load Reversibility	Required
10.1.5	Terminals	Suitable for connection with aluminium busbars with phase barriers & shrouds
10.1.6	Operating mechanism	Electrical and manual spring charging, stored energy type
10.1.7	Operation counter	4 digit minimum, non reversible
10.1.8	Operating handle	Required
10.1.9	ACB indications	Separate ON / OFF / TRIP & spring charge status
10.1.10	ACB ingress protection (without enclosure)	IP2X minimum
10.1.11	Pollution degree as per IS	2 – non conductive pollution
10.1.12	Rated Operational Voltage(V)	415V
10.1.13	Rated Insulation Voltage (V)	1000V
10.1.14	Rated Impulse Voltage	8 kV for main circuit

10.1.15	Category of utilization	B
10.1.16	Rated Ultimate breaking capacity at rated voltage	Icu = 50kA minimum
10.1.17	Rated Service breaking capacity at rated voltage Ics	Ics =100% Icu
10.1.18	Rated short term withstand current for 1 sec at rated voltage - Icw	Icw = 100% Icu
10.1.19	Rated making current capacity -Icm	Icm = 220% Icu
10.1.20	Number of operating cycles at rated current (open + close) without changing arcing contact	5000
10.1.21	Number of mechanical operating cycles (open + close)	20000
10.1.22	ACB temperature rise limits	As per table 2 & 3 of IS 13947-1
10.1.23	Product Information marking on ACB	As per clause 5 of IS: 13947 Part-I. In addition name of purchaser shall be marked on front of device
10.1.24	ACB operation control - Manual	ON / OFF push buttons or lever with transparent shutter & locking facility
10.1.25	ACB auxiliary contacts	6 NO + 6 NC minimum
10.1.26	ACB operating knob sealing	Possible in OFF condition
10.1.27	Fault indication on front panel	Required
10.1.28	Release and Tripping mechanism	Microprocessor based release with true RMS based sensing
10.1.28.1	Protections Required	Overload, short-circuit & earth fault
10.1.28.2	Continuous operating temperature	50 degree C
10.1.28.3	Tripping characteristic	With long time & short time characteristics
10.1.28.4	Overload setting	40% -100% In, steps of 10%.
10.1.28.5	Overload setting time delay	2.5 s to 40 s minimum three settings
10.1.28.6	Short Circuit Setting	100% - 800% of In, steps of 10%.
10.1.28.7	Short Circuit Setting time delay	100ms - 400 ms in steps of 100ms
10.1.28.8	Instantaneous setting	400% - 1500% of In & OFF
10.1.28.9	Earth fault setting	10- 100 % of In, steps of 10%
10.1.28.10	Earth fault setting time delay	100ms - 400 ms in steps of 100ms

10.1.28.11	Power requirement	self powered, not tapped from neutral
10.2.0	MCCB	
10.2.1	Standard current rating at 40 deg C	630A (De-rating @50 deg C shall be mentioned separately)
10.2.2	Construction	The MCCBs shall comprise of triple poles in a single construction. All the parts shall be enclosed in a moulded insulating material housing.
10.2.3	Type	The MCCBs shall be trip free type with quick make and break design.
10.2.4	Indications	MCCBs shall be provided with mechanical position indicator with shrouded terminals. MCCB's shall have ON/OFF/trip positions. MCCB's shall be put 'ON' only after 'RESET'.
10.2.5	Protection	Microprocessor release with over load protection and short circuit protection. Short circuit protection should be provided for both overcurrent and earthfault.
10.2.5.1	Overload Characteristic	Inverse time characteristic
10.2.5.2	Overload Range	40 -100%
10.2.5.3	Overcurrent Characteristic	Instantaneous
10.2.5.4	Overcurrent Setting	200 – 1000%
10.2.5.5	Earthfault Characteristic	Instantaneous
10.2.5.6	Earthfault setting	20 -100%
10.2.6	MCCB auxiliary contacts	2 N/O + 2 N/C minimum
10.2.7	Ingress protection (without enclosure)	IP2X minimum
10.2.8	Pollution degree as per IS	2 – non conductive pollution
10.2.9	Number of Phases	Three phase and neutral
10.2.10	Rated Operational Voltage(V)	415V
10.2.11	Rated Insulation Voltage (V)	1000V
10.2.12	Rated Impulse Voltage	8kV for main circuit
10.2.13	Category of utilization	B
10.2.14	Rated Ultimate breaking capacity at rated voltage	Icu = 50kA minimum
10.2.15	Rated Service breaking capacity at rated voltage Ics	Ics =100% Icu
10.2.16	Rated short term withstand current for 1 sec at rated voltage - Icw	Icw = 100% Icu
10.2.17	Rated making current capacity -Icm	Icm = 220% Icu

10.2.18	Connection to ACB main bus	By 50X10 mm size Cu busbar with double PVC insulation
10.2.19	Connection to outgoing cables	By terminals suitable for 2X3CX300sqmm , AYFY 1100 volt grade cable

11.0 Automatic Power Factor Correction system

The APFC equipment shall be located in LV compartment of package enclosure either as a separate panel or integrated along with LV Switchgear and shall have all the following features –

11.1	APFC Output	a) Type I :300 KVAR @ 400 V b) Type II and III :200 KVAR @ 400 V However APFC should be rated at 440 V. Manufcatuerer needs to spcify rated output @ 440V.
11.2	APFC mounting	All components mounted in shelf type arrangement on package substation enclosure LV compartment wall or RMU compartment wall or Part of LT Panel
11.3	APFC relay & data logger	Mounted on base plate supported on compartment wall by three hinges
11.4	APFC system bus bar power connection to transformer LT side	By 4CX300sqmm AYFY 1100v grade cable to or Bus Bars
11.5	APFC system bus bar size	50x10mm tinned copper mounted on SMC insulators 1100V grade
11.6	APFC system CT input signal	From CT on transformer LV side by 7CX2.5sqmm YY 1100V grade cable
11.7	APFC capacitor modules	Type I:12x25KVAR three phase compensation Type II & III:8x25KVAR three phase compensation
11.8	Capacitor duty contactor for each capacitor module	Utilization category 6b as per IS
11.9	MCCB for each capacitor module	100amp, Three Pole, Ics=Icu=35kA
11.10	Connection to each MCCB from APFC system bus	By 35sqmm copper wire double insulated with tinned copper lugs
11.11	APFC control supply	Through 415/240v transformer, 2amp / 6amp SP MCB
11.12	APFC relay	Microprocessor based relay for automatic control of minimum 12 capacitors in sequential or cyclic switching fashion with settable time delay 0 -180 sec
11.13	APFC relay LCD display with self monitoring feature	To show no. of capacitors energized, actual PF & target PF, voltage & current
11.14	Target power factor setting range	0.8 lag to 0.9 lead in steps of 0.1
11.15	APFC relay sensing	3 phase CT input 5 amp to sense max load current
11.16	No volt protection in relay	To switch OFF all capacitors

11.17	Capacitor unit 25KVAR type	Double layer All Poly Propylene (APP) or Mixed Poly Propylene (MPP)
11.18	Capacitor unit construction	1.5mm thick sheet metal welded tank or Al cylindrical construction
11.19	Capacitor unit impregnant	Dry type filler or non PCB liquid
11.20	Capacitor unit conducting layer	Al foil or metalized film
11.21	Capacitor sealing	Hermetic sealing after vacuum process
11.22	Capacitor unit safety	Pressure sensitive dis-connector or internal fuse for each element
11.23	Discharge resistor	Between all three phases of capacitor unit, to reduce the voltage across the capacitor to 50V or less in one minute
11.24	Terminal bushings	For rated voltage class 1 KV Suitable wires / terminals brought out from capacitor unit is also acceptable.
11.25	Earth connection for individual capacitor container	To be done & connected to main earth bus bar of the panel
11.26	APFC Operational features	
11.26.1	Automatic power factor correction	To achieve target lagging power factor without hunting
11.26.2	Operation for rated output	At continuous rated voltage (440 V) & frequency (50 Hz)
11.26.3	Operation with over voltage	115% of rated voltage for 12 hours in a day
11.26.4	Operation with harmonic distortion	THD voltage – 5% & THD current 3%
11.26.5	Maximum permissible over current	1.3 times rated current, continuous
11.26.6	Dielectric loss	0.2 watt per KVAR maximum
11.26.7	Temperature Category & Maximum temperature rise	- 5 / 60 deg C Not exceeding 10 deg C over 60 deg C.
11.26.8	Residual voltage after disconnection from mains	50 volts maximum after 60 seconds
11.26.9	Design life of capacitor unit	Minimum 10 years
11.27.0	Data Logger	(approved by requisite authority / Electrical inspector)
11.27.1	General	Accuracy class 0.5, microprocessor based with LCD display, with 3 CTs for measurement of cumulative KWH, power factor, voltage & current of transformer secondary, THD of voltage.
11.27.2	Data logging and Software	Data logging of KWH value at every 30 minutes to give cumulative reading of KWH for 45 days minimum, data downloadable in ASCII-II or MS Excel format. Software for downloading the data from data logger to be provided by data logger vendor.

11.27.3	Display and communication	Display of DATE, TIME, station ID -Display & log power parameters phase wise & total (load current, kVA, kW & PF). -Display & log kVAr phase wise & total. -Display TDH V or current. -The logger shall be with built in communication facility of RS485 / RS232 to down load all parameters on demand.

12.0 Energy Meter Box

12.1	Energy meter	In the scope of purchaser
12.2	Location	To be provided mounted on enclosure wall in LV compartment.
12.3	Energy meter box Size	650 mm height x 450 mm width x 275 mm depth.
12.4	Box door design	With antitheft hinge, padlock facility, door fixed by stainless steel Allen screw M6 size.
12.5	Fixing of energy meter within box	On slotted horizontal channel 40 x 12 mm size, channel shall be movable on vertical slotted angle 40 x 40 mm size at two ends.
12.6	Meter reading window	Front door shall be with acrylic sheet for viewing the energy meter.
12.7	Sealing arrangement	02 no's sealing arrangement shall be provided on meter box's door.
12.8	Data downloading port	Slot shall be provided on door of meter box for fixing 9 pin DB connector (RS232 serial port).
12.9	Test Terminal Block	No Test terminal block shall be provided.
12.10	Cables and wires	PVC insulated, extruded PVC inner sheathed, armored, extruded PVC outer sheathed 1100 V grade control cable as per latest edition of IS 1554 part 1 minimum 2.5 sq mm for PT and 4 sq mm for CT with multi strand copper conductor.
12.11	Cable Glands	Nickel plated brass double compression weatherproof cable gland.
12.12	Wiring diagram	To be fixed on the back of door along with CT spec. etched on Anodised Aluminium plate fixed by rivet.
12.13	CT / PT Secondary wires	All CT and PT's Secondary wires shall be routed through metallic conduit. All secondary wires shall be bunched and kept for termination without any terminal/ TTB in between.

13.0 Enclosure for packaged substation

13.1	Service conditions	For outdoor use
13.2	Material for enclosure	Galvanised Sheet steel 2mm thick with outer finish painting
13.3	Enclosure construction	Frame supported construction with all doors, covers welded with steel channel ribs at every

		1000mm minimum
13.4	Lifting lugs for site handling / lifting by crane	Four numbers on top to enable lifting of total package unit without any problem
13.5	Doors for RMU compartment & LV compartment	With internal anti theft hinge with minimum opening angle of 120º , minimum 3 nos., with lockable handle & with padlocking facility
13.6	Two side covers for transformer compartment	Bolted with Allen head type bolts to main frame
13.7	Top & other side walls of package substation enclosure	Welded sheet metal to main frame
13.8	Removable canopy above top cover	2mm thick sheet metal with 10º slope
13.9	Enclosure integral steel base frame	'I' section of suitable size to support total static and dynamic load
13.10	Base frame bottom support pads for fixing by bolt to foundation	Minimum six numbers to rest on foundation
13.11	Enclosure compartments	Separate compartments for RMU, transformer & LV switchgear/APFC
13.12	Separation between RMU & transformer compartment	By sheet steel 2mm thick
13.13	Separation between transformer compartment & LV compartment	By sheet steel 2mm thick
13.14	Degree of ingress protection against solids & water as per IS12063	IP53 for RMU compartment IP23 for transformer compartment IP33 for LV compartment
13.15	Louvers on side covers of transformer compartment & side walls of LV compartment	To be provided with steel wire mesh welded from inside so as to meet IP requirement as above
13.16	Louver area on cover / side wall	1500mm height x 1500mm desirable
13.17	Louver position from bottom level	Minimum 200mm above bottom
13.18	Exhaust Fans	Mounted in LV compartment to discharge air in transformer compartment & Controlled by SPMCB & thermostat to operate above 35 deg C, 2x150CFM, 1 ph 230v 50Hz
13.19	Gland plate for RMU compartment	3 mm thick MS plate suitable for 3x3c300sqmm AYFY 11kv cable
13.20	Gland plate for LV compartment	3 mm thick MS plate suitable for 10x 4c400sqmm cable + 10x7c2.5sqmm cable
13.21	Door Opening Provision	Type I, II & III : With 3 side door opening

13.22	Class of enclosure as per IEC 62271-202	10K
13.23	Internal Arc classification	IAC AB 20 KA, 1s
13.24	Limiting dimensions of package enclosure	
13.25 a	Type I (1000KVA Transformer):	3400(L) x 2900(W) x 2800(H)
13.25.b	Type II & III (400KVA /630KVA Transformer)	3400(L) x 2600(W) x 2600(H)

14.0 Other Provisions: Earthing, Illumination, Hooter & Smoke Detector

14.1.1	Earth bus connection brought out of package substation enclosure to earth pad for connection to earth pit	a) Two earth pads for RMU, transformer & LV compartment each. b) Two earth pads for transformer neutral
14.1.2	Earth bus size	50 x6 GI flat
14.1.3	Earth bus fault current capacity	26.3kA for 1 sec
14.1.4	Earth connection of all covers, doors & structural parts to GI bus	By metallic jumper connection
14.1.5	Earth connection of RMU, ACB & transformer body parts to GI bus	By two numbers of 50x6mm GI flat per equipment
14.1.6	Earth bus identification	Shown by letter 'E'
14.2.1	RMU, transformer & LV compartment illumination	By 36w CFL fixture controlled through SPMCB & door limit switch
14.2.2	RMU, transformer & LV compartment power socket	5/15amp 3 pin socket through 15 amp SPMCB
14.24	Smoke Detector in each compartment	Minimum 02 no's Smoke Detectors in each LT, HT and Transformer compartment with potential free auxiliary contact for tripping the RMU, Alarm and SCADA. All detectors shall be wired upto controller cum alarm unit suitable.
14.25	Hooter	Required with timer reset for operator alarm on opening of PSS door

15.0 Labels & painting

15.1	Name plate on package enclosure	Fixing by rivet only
15.1.1	Material	Anodized aluminum 16SWG / Stainless Steel (SS)

15.1.2	Background	SATIN SILVER
15.1.3	Letters, diagram & border	Black
15.1.4	Process	Etching
15.2	Name plate details	Month & year of manufacture, transformer rating, purchaser name & order number, guarantee period, Ref. IS / IES No. Shall be provided inside enclosure as well as outside enclosure.
15.3	Labels for meters & indications	Anodized aluminium with white character on black background OR 3 ply Lamicoid
15.4	Danger plate on doors of RMU compartment & LV compartment	Etched on 16 swg anodised aluminium / SS plate with white letters on red background
15.5	BSES Insignia	a) 02 no's b) HV and LV side of PSS enclosure. c) Shall be etched on anodized aluminium 16SWG / SS plate. d) Details shall be finalized during drawing approval.
15.6	Enclosure painting surface preparation	Shot blasting or 7 tank chemical process
15.7	Enclosure painting external finish Powder coated epoxy polyester base	Hot dip galvanizing – 80 micron thick grade A, shade - RAL 7032, uniform thickness 60 micron minimum .
15.8	Enclosure painting internal finish	Powder coated epoxy polyester base grade A, shade -white, uniform thickness 80 micron minimum

16.0 Approved makes

16.1.0	RMU	
16.2.0	FPI	EASI/ EMG
16.3.0	Protection Relay	Ashida / C&S- CSDPRV2
16.4.0	Oil type transformer	ABB/ Schneider/ CGL/ Shilchar or any other make approved by BSES.
16.5.0	Dry type transformer	ABB/ Schneider/ CGL/ Voltamp or any other make approved by BSES.
16.6.0	Pressure relief valve	Sukrut / VIAL
16.7.0	Bushings make	Baroda bushing / CJI / Jaipur
16.8.0	Winding Temperature Indicator	Precimeasure/ Pecon
16.9.0	ACB	L&T / Schneider-MG / AREVA / GE / Siemens / ABB
16.10.0	MCCB	GE / Merlin Gerin / ABB
16.11.0	APFC	
16.11.1	Switch	ABB / Siemens / L&T (Salzer)
16.5.2	HRC Fuse Links	Alstom / Siemens / L&T / GE

16.5.3	Load manager	L&T / Enercon / AE / DUCATI / Phasetrac M-40 / TAS POWERTECH
16.5.4	APFC relay	Beluk / ABB / Fraco / Ducati/ TAS / POWERTECH
16.5.5	AC Contactors	ABB / Schneider
16.5.6	Push buttons / Actuator	L&T / Teknic / Siemens
16.5.7	MCCB	ABB / L&T / Siemens/Schneider –MG
16.5.8	Capacitors	FRACO / DUCATI/ABB
16.5.9	Fans	EBM Nadi
16.6.0	Terminals	Connectwell / Elmex
16.7.0	Transformer Bushings (HV side)	Euromold (Nexan)/ Elmek/ H.J. International/ Pfisterer any other vendor approved by BSES
16.8.0	Termination kits for RMU	3m/ Raychem/ Denson
16.9.0	Termination kits for Transformer	3M/ Raychem/ Denson / any other make approved by BSES
16.9.1	Cold applied cable boots	3M/ Raychem

17.0 Quality assurance

17.1	Vendor quality plan	To be submitted for purchaser approval for all components listed in clause 4.0 For transformer, RMU & APFC panel sub vendor quality plan to be submitted.
17.2	Inspection points in quality plan	To be mutually identified & agreed
17.3	Quality – Process Audits	BSES shall carryout vendor process audits.
17.4	Field quality plan	Bidder to submit field quality plan along with the bid
17.5	Spare part list	Bidder to submit detailed spare part list along with the bid
17.6	Maintenance manual	Bidder to submit maintenance manual along with the bid

18.0 Inspection & testing

18.1	Type test as per IS / IEC	a) Only type tested quality equipment(s) shall be offered. b) Type test certificates mentioned in this clause shall be submitted along with offer for scrutiny c) The test report should not be more than 5years old. d) If identical rating type test reports for transformers are not available vendor to carryout Short circuit withstand test, Lightning impulse test & temperature rise test without any additional cost.
18.1.1	Package substation assembly	As per IEC 62271-202
18.1.2	11kv RMU, transformer, ACB, MCCB, APFC system and capacitor units	As per relevant IS/ IEC
18.2	Routing tests	

18.2.1	Routine tests of PSS	As per IEC 62271-202
18.2.2	Routine tests of transformer, RMU, LT panel & APFC	As per relevant IS/ IEC
18.3	Inspection and acceptance testing	a) Purchaser reserves the right to inspect /witness all tests on the meters at manufacture's works at any time, prior to dispatch, to verify compliance with the specification/ standards. b) Manufacturer should have all the facilities/ equipments to conduct all the acceptance tests during inspection. All the testing equipment should be calibrated. c) Stage and / or final inspection call intimation shall be given at least 15 days in advance to the purchaser.
18.3.1	Stage inspection of transformer	Purchaser shall inspect transformers at the core and coil assembly stage at the manufacturer's premises.
18.3.2	Final inspection of transformers	The sequence of testing shall be as follows a) Visual and dimension check for completely assembled transformer. b) Measurements of voltage ratio. c) Measurements of winding resistance at principal tap and two extreme taps. d) Vector Group and polarity test. e) *Measurements of insulation resistance and polarization index. f) Separate sources voltage withstand test. g) Measurement of iron losses and exciting current at rated frequency and 90%, 100% and 110% rated voltage. h) Induced voltage withstand test. i) Load losses measurement. j) Impedance measurement of principal tap (HV and LV) of the transformer. k) Measurement of Iron loss (to be repeated if type test are conducted). l) Measurement of capacitance and Tan Delta for HV and LV bushings and Tan Delta for transformer oil (for all transformers). m) Oil leakage test on assembled transformer n) Magnetic balance test. o) Power frequency voltage withstand test on all auxiliary circuits p) Measure of zero seq. impedance (Cl. 16.10 IS 2026 Part I). q) Measurement of acoustic noise level (Cl. 16.12 of IS 2026 Part I). r) Measurement of harmonic level on no load current. *Insulation resistance measurement shall be carried

		out at 5kV for HV and 1kV for LV. Value of IR should not be less than 1000 Mohms. Polarization Index (PI = IR10min/IR1min) should not be less than 1.5 (If one minute IR value is above 5000 Mohms and it is not be possible to obtain an accurate 10 minutes reading, in such cases polarization index can be disregarded as a measure of winding condition.)
18.3.3	Final Inspection of package substation after complete assembly	As per IEC 62271-202 and relevant IS/ IEC of equipment. a) Visual check b) Dimensional and sheet thickness check c) Verification of Wiring & BOM d) Paint thickness inside and outside of PSS enclosure. e) Functional test i. Operation of switchgear and control gear. ii. Mechanical operation and alignments of PSS doors. iii. Fixing of insulating barriers. iv. Voltage indication check v. Checking of temperature and liquid level of the transformer. vi. Fitting of earthing devices. vii. Cable testing viii. Replacement of LTCT ix. Operation of transformer tap changer x. Operation of illumination system xi. Trip function of HV switchgear. f) IR test g) HV test on power circuit h) HV test on auxiliary circuits i) Operational and interlocks check
18.3.4	Acceptance Test of RMU	a) Physical inspection , BOM & wiring checks b) Insulation Resistance test c) HV Test for one minute d) Operation & Interlock check e) Measurement of resistance of main circuit f) Voltage indication check of VPI g) Functional testing of FPI for alarm h) Primary current injection test for circuit breaker feeder on both ration's of all CT's with relay i) Breaker closing and opening time measurement
18.3.5	Acceptance Test of LT Panel / APFC Panel	a) Visual, dimension, wiring & BOM check. b) Operational check. c) IR Test. d) HV Test
18.4	Special acceptance tests	
18.4.1	Transformer	Temperature rise test shall be carried out on 01 no transformer of each rating randomly selected from the

		offered lot.
18.4.2	PSS	Temperature rise test of PSS along with transformer as per IEC 62271-202.
18.5	Right to waive off tests	Reserved by Purchaser

19.0 Shipping, Handling and Site support

19.1	Packing Protection	Against corrosion, dampness, heavy rains, breakage and vibration
19.2	Packing for accessories and spares	Robust wooden non returnable packing case with all the above protection & identification Label
19.3	Packing Identification Label (Anodized Aluminum Plate)	On each packing case, following details are required:
		a) Individual serial number
		b) Purchaser's name
		c) PO number (along with SAP item code, if any) & date
		d) Equipment Tag no. (if any)
		e) Destination
		f) Manufacturer / Supplier's name
		g) Address of Manufacturer / Supplier / it's agent
		h) Description of PSS.
		i) Country of origin
		j) Month & year of Manufacturing
		k) Case measurements
		l) Gross and net weights in kilograms
		m) All necessary slinging and stacking instructions
19.4	Shipping	The seller shall be responsible for all transit damage due to improper packing.
19.5	Handling and Storage	a) Manufacturer instruction shall be followed. b) Detail handling & storage instruction sheet / manual to be furnished before commencement of supply.

20.0 Deviations

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

21.0 Drawings Submission

21.1.0	To be submitted along with bid	The seller has to submit following:
21.1.1	GA drawing (Complete assembly, RMU, transformer, LT panel + other items)	
21.1.2	BOM of Packaged substation	
21.1.3	Calculation for sizing of Transformer	
21.1.4	Sizing Calculation of busbar in support of its Guaranteed S.C. rating / Capability	
21.1.5	Guaranteed technical particulars (GTP) of Packaged substation in the format as per annexure 'C'	
21.1.6	Clause wise deviation sheet as per clause no. 20.0	
21.1.7	Catalogues & manuals for Package substation + RMU + Transformer + LT switchgear items + APFC	
21.1.8	User manual for Hermetically Sealed Transformers. The manual must be provided with, but not limited to, maintenance schedule, frequency & method of oil- sampling, procedures for oil-filling & oil-filtration, etc.	
21.1.9	Quality plan for Packaged substation.	
21.1.10	Type test reports as per clause 18.1 of this specification.	
21.1.11	Recommended spare parts and consumable items for five years of operation and spare parts catalogue with price list	
21.2.0	After award of contract, Seller has to submit following drawings for buyer's Approval (A) / Reference (R)	
21.3.1	Program for production and testing (A)	
21.3.2	GTP of Packaged substation as per annexure 'C' of this specification.	
21.3.3	Deviation sheet, in case of any deviations finalized in technical bid evaluation.	
21.3.4	Design calculations for transformer	
21.3.5	Detailed GA drawing(s) (Complete assembly, RMU, transformer, LT panel + meter box + other items)	
21.3.6	Wiring/ schematic drawings (Complete assembly, RMU, transformer, LT panel + APFC + meter box + other items)	
21.3.7	Drawing details of Name plates, danger plates, BSES insignia, instruction sheets etc.	
21.3.8	Drawings of cable cleats/ clamps.	
21.3.9	Foundation drawing(s).	
21.3.10	BOM of Packaged substation	
21.3.11	Quality plan Packaged substation, RMU, Transformer, LT panel, APFC (panel and units etc.	
21.3.12	Installation, commissioning manual for all items in Packaged substation. (for information)	
21.3.13	Operation & maintenance manual for all items in Packaged substation. (for information)	
21.3.14	Transport / Shipping dimensions with weights, wheel base details, un tanking height	
21.4	Submittals required prior to dispatch	
21.4.1	As built Drawings	
21.4.2	Inspection and test reports, carried out in manufacturer's works	
21.4.3	Test certificates of all bought out items	

21.4.4	Operation and maintenance Instruction as well as trouble shooting charts/ manuals	
21.5	Drawing and document sizes	Standard size paper A3, A4
21.6	Number of Documents required at different stages	4 hard copies + 2 soft copies in CD Format at each stage
Note :	Duly signed & stamped copies of the drawings / documentation are required to be submitted to BSES for approval.	

Annexure A Service Conditions

The package substation shall be designed & tested to operate satisfactorily under following conditions -

Sr No	Description	Data by purchaser
1.	Location	Delhi
2.	Reference design ambient temperature	40°C for Delhi
3.	Maximum ambient temperatue	50°C for Delhi
4.	Relative humidity	85% for Delhi
5.	Seismic zone	Zone IV for Delhi

Annexure B Technical Specification for transformer oil

Transformer oil shall be new and conform to the following requirements:

1.0 Codes & standards

Latest revision of following codes & standards with all amendments –

	Standard no	Title
1.1	IS 335	New insulating oils
1.2	IS 1783	Drums for oils

1.1 Properties

The insulating oil shall have following features:

2.1	Appearance	Clear, transparent and free from suspended matter or sediments
2.2	Density at 29.5°C Max.	0.89 g/cm^3
2.3	Kinematics viscosity Max.	16 cSt at 27°C
		11 cSt at 40°C
2.4	Interfacial tension at 270C, min	0.04 N/m

2.5	Flash point Pensky-Marten (Closed), Min.	140°C
2.6	Pour Point, Max	- 15°C
2.6	Neutralization value	
	i) Total acidity, Max.	0.03 mg KOH/g
	ii) Inorganic acidity/ Alkalinity	Nil
2.7	Corrosive sulfur	Non-corrosive
2.8	Electric strength breakdown voltage	Average value of six samples
	i) New unfiltered oil. Min.	30 KV (rms)
	ii) After filtration Min.	50 KV (rms)
2.9	Dielectric dissipation factor (tan δ)	0.002 at 90 °C Max.
		0.0005 at 27 °C, Max
2.10	Specific resistance (resistivity)	
	i) At 90°C, Min	150 X 10^{12} ohm-cm
	ii) At 27°C, Min	3000 X 10^{12} ohm-cm
2.11	Oxidation stability	
	i) Neutralization value after oxidation, Max.	0.15 mg KOH/g
	ii) Total sludge, after oxidation, Max.	0.03 % by weight
	iii) Max Tan delta at 70 °C	0.1
2.12	Ageing characteristics after accelerated ageing	(open breaker method with copper catalyst)
	i) Specific resistance (resistivity)	
	a) At 27°C Min.	27 X 1012 ohm-cm
	b) At 90°C Min	2 X 1012 ohm-cm
	ii) Dielectric dissipation factor (tan δ) at 90°C Max	0.1
	iii) Total acidity, Max	0.05 mg KOH/g
	iv) Total sludge, Max	0.05 % by weight
2.13	Presence of oxidation inhibitor	no antioxidant additives
2.14	Water content (unfiltered oil) , Max	40 ppm
2.15	Max PCA (Poly cyclic aromatics) content	3%
2.16	PCB (Poly chlorinated biphenyl) content	Not detectable
2.17	Tests	As per IS 335

Annexure C Guaranteed Technical Particulars (Data by Supplier)

i. Bidder shall furnish the GTP format with all details against each clause.

ii. Bidder shall not change the format of GTP or clause description.

iii. Bidder to submit duly filled GTP in hard copy format with company seal.

Sr. No.	Description	Data to be filled by Manufacturer
1	Manufacturer Name	
2	Manufacturer Address	
2.1	Telephone no	
3	Manufacturer contact person	
4	Manufacturer brand name (Give catalogue reference)	
	Conformance to specification	Yes/No
	If NO for above, Submission of clause wise deviation sheet	Yes/No
5	RMU	
5.1	Equipment make	
5.2	Equipment type / brand name	
5.3	Panel overall dimensions in mm	
5.3.1	Width (measured from front)	
5.3.2	Depth	
5.3.3	Height	
5.4	Panel weight in kg	
5.5	Panel enclosure protection offered	
5.6	Panel tested for internal arc	Yes / No
5.7	Insulation level for complete panel	
5.7.1	Impulse withstand	(KV peak)
5.7.2	Power frequency withstand	(KV rms)
5.8	Bus bar	
5.8.1	Material & grade	
5.8.2	Bus bar cross section area in sq mm	
5.8.3	Bus bar rated current in amp	
5.8.4	Max temperature rise above reference ambient	
5.8.5	Short time current withstand capacity for 3 seconds (in KA)	
5.8.6	Bus bar clearances in mm P-P / P-E	
5.8.7	Bus bar with insulation sleeve / barriers	
5.8.8	Bus bar support insulator type	
5.8.9	Bus bar support insulator voltage class	
5.8.10	Bus bar support insulator minimum	

	creepage distance / mm	
5.9	Earth bus bar	
5.9.1	Earth bus bar material	
5.9.2	Earth bus bar size	
5.10	Circuit breaker type – SF6 or VCB	
5.10.1	Rated voltage & frequency	
5.10.2	Rated current in amp	
5.10.3	Rated breaking current – KA rms symmetrical	
5.10.4	Short time withstand capacity in KA for 3 sec	
5.10.5	Rated making current - KA peak	
5.10.6	Breaker total opening time at rated breaking capacity (in milliseconds)	
5.10.7	Number of breaks per pole	
5.10.8	Total length of contact travel in mm	
5.10.9	No of circuit breaker operation cycles (close & open) guaranteed at rated current	
	25% rated current -	
	50% rated current -	
	75% rated current -	
	100% rated current -	
5.10.10	No of breaker opening operations guaranteed at rated fault current	
5.10.11	No of breaker mechanical operation cycles (close & open) guaranteed at zero current	
5.10.12	Contact material	
5.10.13	Operating mechanism – trip free	
5.10.14	Manual Sprig charge type	
5.11	Load break switch type – SF6 or VCB	
5.11.1	Rated voltage & frequency	
5.11.2	Rated current in amp	
5.11.3	Load break switch total opening time at rated current (in milliseconds)	
5.11.4	Number of breaks per pole	
5.11.5	Total length of contact travel in mm	
5.11.6	No of LBS close & open operation cycles guaranteed at	
	25% rated current -	
	50% rated current -	
	75% rated current -	
	100% rated current -	

5.11.7	No of LBS making operations guaranteed at rated fault current		
5.11.8	No of LBS close & open operations guaranteed at zero current		
5.11.9	Contact material		
5.11.10	Operating mechanism type		
5.11.11	Operating motor voltage with acceptable % variation		
5.12	Minimum permissible SF6 gas pressure (For SF6 type RMU only)		
5.13	Capacitor type cable voltage indication provided?		Yes / No
5.14	Operation counter provided – Yes/ No		
5.15	One LBS open operation possible in the event of loss of SF6 gas –		Yes/No
5.16	HT Cable termination - 3c300sqmm AYFY cable– Height of power terminal from gland plate		mm
5.17	Mimic diagram, labels & finish as per specification		Yes / No
5.18	Submission of RMU / component catalogue		Yes/No
5.19	Fault passage indicator make on LBS		
5.20	Protection CT ratio, burden and accuracy		
6.0.0	11kv cable		from RMU to transformer
6.1.0	Cable size 3CX150 sqmm AYFY		Yes/No
6.2.0	Cable rated voltage - 11000v		Yes/No
6.3.0	Cable short circuit current capacity for 1 sec		kA
6.4.0	Type of insulation - XLPE		Yes/No
6.5.0	Outer insulation sheath – PVC with armor		Yes/No
6.6.0	Cable termination type & make		
7.0.0	400KVA /630KVA/1000KVA hermatically sealed type transformer		
7.1.0	Make		
7.2.0	Type - Oil immersed, core type, step down		Yes/No
7.3.0	Transformer continuous rating when placed in package substation enclosure	HV winding	LV winding
		KVA	KVA
7.4.0	Rated voltage (kV)	HV winding	LV winding
		11 KV	0.433 KV
7.5.0	Rated current	HV winding	LV winding

		Amps	Amps
7.6.0	Transformer vector group – Dyn11	Yes / No	
7.7.0	Impedance at principal tap rated current and frequency, ohm @75 °C	400KVA & 630KVA - 4.5.0 % & 1000KVA-5% with IS tolerance	
7.7.1	Impedance at lowest tap	Ω	
7.7.2	Impedance at highest tap	Ω	
7.8.0	Resistance of the winding at 75°C in ohm	HV winding	LV winding
		Ω	Ω
7.9.0	Zero sequence impedance in ohm	HV winding	LV winding
		Ω	Ω
7.10.0	Guaranteed maximum losses at principal tap full load and 75°C without any positive tolerance, kW		
7.10.1	No load losses (max.)	KW	
7.10.2	Load losses (max.)	KW	
7.10.3	Total losses (max.) at 50% and 100% load	KW	
7.10.4	No load loss at maximum permissible voltage and frequency (approx.),	KW	
7.11.0	Temperature rise over reference ambient		
7.11.1	Top oil by thermometer °C (within enclosure)	40°C	
7.11.2	Winding by resistance °C (within enclosure)	45 °C	
7.12.0	Efficiency	at 75°C and unity power factor	
7.12.1	at 100% load		
7.12.2	at 50% load		
7.12.3	at 25% load		
7.13.0	Efficiency	at 75°C and 0.8 power factor lag	
7.13.1	at 100% load		
7.13.2	at 50% load		
7.13.3	at 25% load		
7.14.0	Load and power factor at which Maximum efficiency occurs		
7.15.0	Regulation at full load at 75°C		
7.15.1	at unity power factor		
7.15.2	at 0.8 power factor lagging		
7.16.0	Regulation at 110% load at 75°C		
7.16.1	at unity power factor		
7.16.2	at 0.8 power factor lagging		
7.17.0	Tapping	Off circuit	
7.17.1	Capacity	Full capacity	
7.17.2	Range-steps x % variation		

7.17.3	Taps provided on HV winding	Yes / No
7.17.4	Rated current of rotary switch 100Amp	Yes / No
7.18.0	Transformer Tank	Corrugated plate tank
7.18.1	Cooling	ONAN
7.18.2	Tank material	Robust mild steel plate without pitting and low carbon content
7.18.3	Thickness of sides mm	
7.18.4	Thickness of bottom mm	
7.18.5	Thickness of cover mm	
7.18.6	Tank designed and tested for Vacuum, Pressure (Ref: CBIP Manual)	Yes/ No
7.18.7	Vacuum mm of Hg. / (KN/m^2)	
7.18.8	Pressure mm of Hg.	Twice the normal head of oil / normal pressure + $35kN/m^2$ whichever is lower, As per CBIP
7.18.9	Is the tank lid sloped?	Yes / No
7.18.10	Inspection cover provided	Yes / No
7.18.11	Location of inspection cover	Yes / No
7.19.0	Core	
7.19.1	Core material grade	Premium grade minimum M3 or better
7.19.2	Core lamination thickness	mm
7.19.3	Insulation of lamination	With insulation coating on both sides
7.19.4	Design flux density at rated condition at principal tap, Tesla	
7.19.5	Maximum flux density at 12.5 % over excitation / over fluxing,	1.9 Tesla
7.19.6	Equivalent cross section area	mm^2
7.20.0	Guaranteed No Load current at 100% rated voltage.	
7.20.1	HV	Amps
7.20.2	LV	Amps
7.21.0	Guaranteed No Load current At 110% rated voltage.	
7.21.1	HV	Amps
7.21.2	LV	Amps
7.22.0	Winding	
7.22.1	Type of Winding	
7.22.1	HV	
7.22.2	LV	
7.22.2	Conductor material	Electrolytic Copper
7.22.3	Current density (HV/LV)	Maximum allowed 3.0 A per mm^2.

7.22.4	Gauge/area of cross section of conductor	
	HV	mm^2
	LV	mm^2
7.22.5	Insulating material	type & thickness in mm
	HV Turn	mm
	LV Turn	mm
	LV Core	mm
	HV - LV	mm
7.23.0	Transformer insulation Polarization Index value (Min 1.3 as per CBIP)	
7.24.0	Transformer insulation IR value for HV winding (Min 2000Mega Ohm)	
7.25.0	Minimum design clearance, mm	
7.25.1	HV to earth in Air	
7.25.2	HV to earth in oil	
7.25.3	LV to earth in Air	
7.25.4	LV to earth in oil	
7.25.5	Between HV & LV in Air	
7.25.6	Between HV & LV in oil	
7.25.7	Top winding and yoke	
7.25.8	Bottom winding and yoke	
7.26.0	Transformer Insulating oil	
7.26.1	Quantity of oil	Ltrs
7.26.2	In the Transformer tank	
7.26.3	In each radiator	
7.26.4	Total quantity	
7.26.5	10% excess oil furnished?	Yes / No
7.26.6	Type of Oil	
7.27.0	Bushing / Support Insulator	
7.27.1	Make	
7.27.2	Type	
7.27.3	HV side	
7.27.4	LV side	
7.27.5	Reference Standard	
7.27.6	Voltage class, kV	
	HV side Bushing/ Support Insulator	12 kV
	LV side line and neutral bushing/ Support insulator	1.1 kV
7.27.7	Creepage factor for all bushing / Support Insulator mm/KV	31 mm / kV
7.27.8	Rated thermal short time current	
	HV bushing	KA

	LV line and neutral bushing	KA
7.27.9	Weight, Kg	
	HV bushing	KG
	LV line and neutral bushing	KG
7.27.10	Free space required for bushing removal	mm
	HV bushing	
	LV line and neutral bushing	
7.28.0	HV Termination arrangement	To 3CX150 mm^2 AYFY 11KV By screened separable connector kit
7.28.1	Phase to phase clearance ,	mm
7.28.2	Phase to earth ,	mm
7.29.0	L.V termination arrangement	To 100x12 mm for phase & neutral
7.29.1	Phase to phase clearance,	25 mm minimum
7.29.2	Phase to earth clearance ,	25 mm minimum
7.30.0	Current Transformer on LV phases	
7.30.1	Type	
7.30.2	Make	
7.30.3	Reference Standard	
7.30.4	CT Ratio	
7.30.5	Burden, VA	
7.30.6	Class of Accuracy / ISF	
7.30.7	CT terminal box size	
7.31.0	Pressure release device on tank - make	
7.31.2	Minimum pressure the device is set to rupture	
7.32.0	Fittings Accessories Each Transformer furnished as per Clause 7.8.0	Yes/No
7.33.0	Painting: as per clause for the transformer, cable boxes, Marshalling box	Yes/No
7.34.0	Over all transformer dimensions	
7.34.1	Length	mm
7.34.2	Breadth	mm
7.34.2	Height	mm
7.35.0	Weight data	
7.35.1	Core	KG
7.35.2	Winding	KG
7.35.3	Frame	KG
7.35.4	Tank	KG
7.35.5	Weight of oil in Tank	KG
7.35.6	Total Transport weight of the transformer	KG
7.36.0	Transformer total oil volume	liters

8.0.0	400/630/1000KVA Cast Resin Transformer		
8.1.0	Make		
8.2.0	Type- Cast Resin Dry Type		Yes / No
8.3.0	Transformer continuous rating when placed in package substation enclosure	HV winding	LV winding
		KVA	KVA
8.4.0	Rated voltage (kV)	HV winding	LV winding
		11 KV	0.433 KV
8.5.0	Rated current	HV winding	LV winding
		Amps	Amps
8.6.0	Transformer vector group – Dyn11		Yes / No
8.7.0	Impedance at principal tap rated current and frequency, ohm @130 °C		5.0 % with IS tolerance
8.7.1	Impedance at lowest tap		Ω
8.7.2	Impedance at highest tap		Ω
8.8.0	Resistance of the winding at 130°C in ohm	HV winding	LV winding
		Ω	Ω
8.9.0	Zero sequence impedance in ohm	HV winding	LV winding
		Ω	Ω
8.10.0	Guaranteed maximum losses at principal tap full load and 130°C without any positive tolerance, kW		
8.10.1	No load losses (max.)		KW
8.10.2	Load losses (max.)		KW
8.10.2	Total losses (max.),		KW
8.10.4	No load loss at maximum permissible voltage and frequency (approx.),		KW
8.11.0	Temperature rise over reference ambient		
8.11.1	Winding by resistance: Outside the PSS enclosure / inside the PSS enclosure $_0$ C		80°C/ 90°C
8.11.2	Maximum hot spot temperature, Deg. C		°C
8.12.0	Efficiency		at 130°C and unity power factor
8.12.1	at 110% load		%
8.12.2	at 100% load		%
8.12.2	at 80% load		%
8.12.3	at 60% load		%

8.12.4	at 40% load	%
8.12.5	at 20% load	
8.13.0	Maximum hot spot temperature, Deg. C	at 130°C and 0.8 power factor lag
8.13.1	Efficiency	%
8.13.2	at 110% load	%
8.13.3	at 100% load	%
8.13.4	at 80% load	%
8.13.5	at 60% load	%
8.13.6	at 40% load	%
8.14.0	Maximum efficiency at 130°C	%
8.14.1	% Load and power factor at which it occurs	
8.15.0	Regulation at full load at 130°C	
8.15.1	at unity power factor	
8.15.2	at 0.8 power factor lagging	
8.16.0	Regulation at 110% load at 130^0 C	
8.16.1	at unity power factor	
8.16.2	at 0.8 power factor lagging	
8.17.0	Core	
8.17.1	Core material grade	Premium grade minimum M3 or better
8.17.2	Thickness of lamination mm	mm
8.17.3	Insulation of lamination	
8.17.4	Design Flux Density at rated condition at principal tap, Tesla- 1.7 Tesla (Max)	
8.17.5	Maximum flux density at 10 % over excitation /overfluxing, Tesla -1.9 Tesla (Max)	
8.17.6	Equivalent cross section area	
8.18.0	Guaranteed No Load current At 100% rated voltage , Amps	
8.18.1	HV	
8.18.2	LV	
8.19.0	Guaranteed No Load current At 110% rated voltage, Amps	
8.19.1	HV	
8.19.2	LV	
8.20.0	Type of Winding	
8.20.1	HV	
8.20.2	LV	
8.20.3	Conductor material	
8.20.4	Current density Amps/sqmm	

	HV winding		
	LV winding		
8.20.5	Gauge/area of cross section of conductor, sqmm		
	HV		
	LV		
8.21.0	Tapping - Off Ckt		Yes / No
8.21.1	Capacity		Full Capacity
8.21.2	Range- steps X % variation		
8.21.3	Taps provided on HV winding		Yes / No
8.21.4	Tap link Current rating , A		
8.22.0	Insulating material and thickness	Material	Thickness
8.22.1	HV Turn		mm
8.22.2	LV Turn		mm
8.22.3	LV to Core		mm
8.22.4	HV to LV		mm
8.23.0	Minimum design clearance, mm		
8.23.1	HV to earth in Air		mm
8.23.2	LV to earth in Air		mm
8.23.3	Between HV & LV in Air		mm
8.23.4	Top winding and yoke		mm
8.23.5	Bottom winding and yoke		mm
8.24.0	Bushing / Support Insulator		
8.24.1	Make		
8.24.2	Type		
8.24.3	Reference Standard		
8.24.4	Voltage class, kV		
8.24.5	HV side Bushing / Support insulator		
8.24.6	LV side line and neutral bushing / Support insulator		
8.24.7	Creepage factor for all bushing		mm / KV
8.24.8	Weight		KG
8.24.9	HV bushing / Support insulator		
8.24.10	LV line and neutral bushing / Support insulator		
8.24.11	Free space required for bushing / Support insulator removal, mm		
8.24.12	HV bushing / Support insulator		
8.24.13	LV line and neutral bushing / Support insulator		
8.25.0	HV Termination arrangement		Suitable for 3CX150 mm^2 AYFY 11KV

8.25.1	Phase to phase clearance	mm
8.25.2	Phase to earth clearance	mm
8.25.3	HV side bus bar size	
8.25.4	HV Termination height	mm
8.26.0	L.V termination arrangement	Suitable to 100x12 mm for phase & neutral
8.26.1	Phase to phase clearance,	25 mm minimum
8.26.2	Phase to earth clearance ,	25 mm minimum
8.26.3	LV side bus bar size	
8.26.4	LV Termination Height	mm
8.27.0	Current Transformer on LV phases	
8.27.1	Type	
8.27.2	Make	
8.27.3	Reference Standard	
8.27.4	CT Ratio	
8.27.5	Burden, VA	
8.27.6	Class of Accuracy	
8.28.0	WT scanner terminal box size	
8.29.0	Alarm and Trip contact ratings of protective devices	
8.29.1	Rated / making/ breaking currents , Amp @ Voltage for	
8.29.2	Winding temperature scanner	
8.30.0	Fittings and Accessories as per Cl. 8.9 provided	(YES / NO)
8.31.0	Over all transformer dimensions	
8.31.1	Length	mm
8.31.2	Width	mm
8.31.3	Height	mm
8.32.0	Weight data	
8.32.1	Core	KG
8.32.2	Frame parts, kG	KG
8.32.3	Core and frame, kG	KG
8.32.4	Total Winding, kG	KG
8.32.5	Core , Frame, Winding, kG	KG
8.32.6	Enclosure, kG	KG
8.32.7	Total Transport weight of the transformer, kG	KG
8.32.8	Total weight of the transformer with all accessories	KG
8.33.0	Shipping Data	
8.33.0	Weight of heaviest package, kG	KG
8.33.0	Dimensions of the largest package (L x B x	mm

	H)	
8.34.0	Surge Arrestor requirement	
8.34.1	Type	
8.34.2	System Voltage , kV rms	
8.34.3	Rated Voltage of Arrestor, kV rms	
8.34.4	Continuous operating voltage , kV rms	
8.34.5	Maximum Continuous operating voltage, kV rms	
8.34.6	Nominal Discharge Current, kA peak	
8.34.7	Energy Absorption Capability, kJ/kV	
8.34.8	Creepage factor	
8.34.9	Reference std	
8.35.0	WTI Scanner Details	
8.35.1	Make	
8.35.2	Model no.	
8.35.3	No of Channel / Input	
8.35.4	Manual submitted	
9.0.0	Low voltage bus bar system	To connect transformer LV side to ACB & to MCCB
9.1.0	Bus bar material tinned copper	Yes / No
9.2.0	Bus bar size	sqmm
9.3.0	Bus bar continuous current rating	Amp
9.4.0	Bus bar insulator voltage class	kV
9.5.0	Bus bar droppers size from ACB to MCCB (50X10 tinned copper)	
9.6.0	Maximum bus bar temperature rise	
10.0.0	ACB, MCCB	As per IS 13947
10.1.0	ACB make	
10.1.1	ACB rated voltage 415v +/- 10%	
10.1.2	ACB 3 pole with isolable neutral link	Yes / No
10.1.3	ACB continuous current capacity at 415v 50Hz, at 50 deg C	amp
10.1.4	ACB short circuit breaking capacity Ics =Icu = 50kA minimum	kA
10.1.5	ACB SC making current capacity 100kAp	kA peak
10.1.6	ACB short time current withstand capacity for 1 sec (Icw= 50kA)	kA
10.1.7	ACB rated impulse withstand voltage for main & aux circuit in kv	
10.1.8	ACB closing time in ms	
10.1.9	ACB opening time in ms	
10.1.10	Guaranteed number of close & open	

	operations at no load	
10.1.11	Guaranteed number of close & open operations at rated load	
10.1.12	ACB dimensions	
10.1.13	ACB operating mechanism -Trip free, anti pumping type, manual as well as motor	Yes / No
10.1.14	Spring charging motor supply	volt
10.1.15	Close & trip coil supply	volt
10.1.16	ACB utilization category -B as per IS	
10.1.17	ACB indications - ON, OFF & TRIP	
10.1.18	ACB operation - manual - ON, OFF by push buttons	
10.1.19	ACB operation – electrical - ON, OFF by TNC switch	
10.1.20	ACB overload, short circuit & earth fault protection - By static or micro processor based releases	
10.1.21	Inbuilt CT burden, ration & class	
10.1.22	Overload release setting range	
10.1.23	Short circuit release setting range	
10.1.24	Earth fault release setting range	
10.2.0	MCCB make	
10.2.1	MCCB type -3 pole, one break / pole	Yes / No
10.2.2	MCCB - On & OFF by Manual handle	Yes / No
10.2.3	MCCB Neutral connection - Fully isolable link sized for rated current	
10.2.4	MCCB rated voltage 415v +/- 10% at 50Hz	
10.2.5	MCCB rated continuous current (630 amp MCCB as per enquiry)	630 amp
10.2.6	MCCB 3 ph short circuit breaking capacity Ics = Icu =35kA	
10.2.7	MCCB 3 ph short circuit withstand capacity, Icw =8kA for 1 sec	
10.2.8	MCCB SC making current capacity	
10.2.9	MCCB rated insulation level	
10.2.10	MCCB mechanical & electrical endurance as per IS 13947 / IEC	
10.2.11	MCCB category of duty - B as per IS / IEC 947	Yes / No
10.2.12	MCCB indications -ON, OFF & TR	
10.2.13	MCCB protection - Microprocessor release + earth fault	

10.3.0	Connection to ACB main bus by Cu bar with double PVC insulation	Yes / No
10.3.1	630 amp MCCB	
10.4.0	Connection to outgoing cables by bus bar terminals suitable for 2x4CX300sqmm AYFY 1100 volt grade cable	
10.4.1	MCCB– 7 nos. for Type–I , 5 nos. for Type–II & 3 for Type-III & 630 Amp three phase + neutral link	(YES/ NO)
10.4.2	Only for Type II & III- Provisions in LT panel to increase LT outgoing by 02 no's by adding MCCB's in future.	(YES/ NO)
11.0.0	APFC system	
11.1.0	Rating of APFC system	KVAR
11.2.0	Rated voltage & frequency	Volts at 50Hz
11.3.0	Rated line current of APFC system	Amp
11.4.0	Rated capacitance	micro Farad
11.5.0	Capacitor steps – Type I: 12x25KVAR? Type II: 8 X 25 KVAR?	Yes / No
11.6.0	Rated current of each 25KVAR unit	Yes / No
11.7.0	Rated capacitance – 25KVAR unit	micro Farad
11.8.0	Three phase connection – star / delta	
11.9.0	Capacitor dielectric type –	APP / MPP
11.10.0	No of series group / capacitor unit	
11.11.0	No. of parallel elements / series group	
11.12.0	Thickness of PP film in micron	
11.13.0	Thickness of Al foil in micron	
11.14.0	No. of PP film layers	
11.15.0	Maximum voltage stress per each PP film layer	
11.16.0	Discharge device material	
11.17.0	Capacitor tank steel thickness	mm
11.18.0	Capacitor unit dimension (L x D x H)	
11.19.0	APFC dimensions in mm (L x D x H)	
11.20.0	APFC system weight in kg	
11.21.0	Heat generated by APFC in Kw with all capacitor steps ON	
11.22.0	Operation with over voltage 115% of rated voltage for 12 hours in a day	
11.23.0	Operation with harmonic distortion THD 5% voltage & current	
11.24.0	Maximum permissible over current of	
11.25.0	1.3 times rated current continuous	

11.26.0	Dielectric loss less than 0.2w / KVAR	
11.27.0	Guaranteed minimum capacitor switching operations (ON/OFF) per year	
11.28.0	Maximum temperature rise above ambient of 45 Deg C	Deg C
11.29.0	Residual voltage after de-energiszation & at 60 seconds	
11.30.0	Design life of capacitor unit	
11.31.0	APFC panel insulation level	
11.32.0	1 minute power frequency withstand	KV
11.33.0	Impulse withstand voltage	KVp
11.34.0	Main bus bar material / size (sqmm)	
11.35.0	Main bus bar rated current	
11.36.0	Main bus bar short time withstand	
11.37.0	CT make & accuracy class	
11.38.0	CT ratio & burden (VA)	
11.39.0	APFC relay make / type	
11.40.0	APFC relay catalogue enclosed?	Yes / No
11.41.0	Data logger make / type	
11.42.0	Data logger catalogue enclosed?	Yes / No
11.43.0	AC contactor make	
11.44.0	AC contactor rating	Amp
11.45.0	AC contactor utilization category as per IS	
11.46.0	100amp MCCB make	
11.47.0	100amp MCCB current breaking capacity Ics=Icu=35kA	
11.48.0	Copper wire size from MCCB to contactor & capacitor – 35sqmm Cu	
12.0.0	Energy meter box as per specification provided?	Yes / No
13.0	Enclosure for package substation	
13.1	Service conditions for outdoor use	Yes / No
13.2	Material for enclosure – Galvanised Sheet steel 2.5mm thick CRCA for all side doors, covers with painting	Yes / No
13.3	Enclosure construction -Frame supported construction with all doors, covers welded with steel channel ribs at every 1000mm minimum	Yes / No
13.4	Lifting lugs for site handling / lifting by crane - qnty	
13.5	Doors for RMU compartment & LV compartment with anti theft hinge minimum 3 nos., with lockable handle & with padlocking facility	Yes / No

13.6	Two side covers for transformer	Yes / No
	compartment bolted with Allen head type bolts to main frame	
13.7	Top & other side walls of enclosure welded sheet metal	
13.8	Removable canopy above top cover -2.5mm thick sheet metal with 10º slope	Yes / No
13.9	Enclosure integral steel base frame 'I' section size	
13.10	Base frame bottom support pads for fixing by bolt to foundation - minimum six numbers to rest on foundation	Yes / No
13.11	Enclosure compartments -separate compartments for RMU, transformer & LV switchgear/APFC	Yes / No
13.12	Separation between RMU & transformer compartment by sheet steel 2.5mm thick	Yes / No
13.13	Separation between transformer compartment & LV compartment by sheet steel 2.5mm thick	Yes / No
13.14	Degree of ingress protection against solids & water as per IS12063	
a	IP53 for RMU compartment	
b	IP23 for transformer compartment	
c	IP33 for LV compartment	
13.15	Louvers on side covers of transformer compartment & side walls of LV compartment with steel wire mesh welded from inside so as to meet IP requirement as above	Yes / No
13.16	Louver area on cover / side wall -1500mm height x 1500mm minimum	
13.17	Exhaust fans mounted for APFC system to discharge air in transformer compartment - Controlled by SPMCB & thermostat to operate above 35 deg C, 2x150CFM, 1 ph 230v 50Hz	
13.18	Gland plate for RMU compartment - 2.5mm thick MS plate suitable for 3x3c300sqmm AYFY 11kv cable	
13.19	Gland plate for LV compartment -2.5mm thick MS plate suitable for 10x4c400sqmm cable + 10x7c2.5sqmm cable	
13.20	Class of enclosure as per IEC 62271-202 = 10K	Yes / No
13.21	Overall dimensions of package substation (LxWxH)	In mm

13.22	Overall weight of package substation	Kg
14.0	Enclosure earthing & illumination	
14.1	Two earth bus connection brought out of package substation enclosure to earth pad for connection to earth pit -Two earth pads for RMU, transformer & LV compartment each -One earth pads for transformer neutral	
14.2	Earth bus size 50X 6 mm GI flat	
14.3	Earth bus fault current capacity 26.3kA for 1 sec	
14.4	Earth connection of all covers, doors & structural parts to GI bus by metallic jumper connection	Yes / No
14.5	Earth connection of RMU, ACB & transformer body parts to GI bus by two numbers of 50x6mm GI flat per equipment	
14.6	Earth bus identification shown by letter 'E'	Yes / No
14.7	RMU, transformer & LV Compartment illumination by 36w CFL fixture controlled through SPMCB & door limit switch	
14.8	RMU, transformer & LV compartment power socket - 5/15amp 3 pin socket controlled through 15 amp SPMCB	
14.9	Paint shade external for enclosure	
14.10	Paint shade internal for enclosure	
14.11	Paint material & thickness	
14.12	Name plate & labels as per specification provided?	Yes / No
14.13	Smoke Detector	Yes / No
14.13.1	Make	
14.13.2	No Of Aux Contacts	
14.14	Hooter	Yes / No
15.0	Type test report submitted with GTP for RMU, transformer, ACB, MCCB, APFC system?	Yes / No
15.1	GA drawing of package substation submitted with GTP?	Yes / No
15.2	Bill of material submitted with GTP?	Yes / No
15.3	Clause wise deviation to technical specification submitted?	Yes / No

Bidder / Vendor seal / signature ----------

Name of the bidder	
Address of bidder	

Name of contact person	
Telephone no & email id	

Annexure D Recommended spares (Data by supplier)

List of recommended spares as following

Sr No	Description of spare part	Unit	Quantity
1		No	
2		No	
3			
4			
5			
6			