

**GLOBAL Tender Enquiry of GENERATOR CIRCUIT BREAKER as per Technical Specification
No. PE-TS-417-510-E001 Rev00 for 5X800 MW YADADRI TPS**

ENQ. NO. PE/PG/YAD/E-6244/2019

DATE: 21/06/2019

DUE DATE
12.07.2019
BY 2:00:00 PM (IST)

Subject: GLOBAL Tender Enquiry of GENERATOR CIRCUIT BREAKER as per Technical Specification No. PE-TS-417-510-E001 Rev00 for 5X800 MW YADADRI TPS.

BHEL invites offer from reputed Vendors (Refer pre-qualifying requirements enclosed in the Tender Documents uploaded on our websites www.bhelpem.com, www.bhel.com & CPP portal (www.eprocure.gov.in)) for GENERATOR CIRCUIT BREAKER of 5X800 MW YADADRI TPS . Detailed scope of work & equipment details shall be as per technical specification. PE-TS-417-510-E001 Rev00 & other details hosted on above indicated BHEL-websites.

Your offer shall be submitted in two parts strictly as per Clause-2.0 of the "Instructions to Bidders" of GCC, Rev. 06 in 2 sets, in sealed covers for the below mentioned equipment/system.

Item Description – GENERATOR CIRCUIT BREAKER	
Project	Technical Specification no.
5X800 MW YADADRI TPS	PE-TS-417-510-E001 Rev00

Your best quotation/offer for the above requirement, in line with our terms and conditions (hosted on our website, as indicated above), should either be delivered in person or sent by **COURIER/REGISTERED** or SPEED POST, to the following address only:

Tender Room
Bharat Heavy Electricals Ltd.
Project Engineering Management
PPEI Building, HRD & ESI Complex,
Plot No. 25, Sector – 16A,
NOIDA – 201 301 (U.P.)

Attention: 1) Mr. AMIT MEENA, (DY. MANAGER/PG-II)
2) Mr. ANIL KUMAR PAL, (SR. MANAGER/PG-II)
E-MAIL: amitmeena@bhel.in; anilkumarpal@bhel.in;
Ph. No. 01204213613

It shall be the responsibility of the bidder to ensure that the tender is delivered on or before the due date by 2:00 PM (IST). The offer has to be deposited in tender box only. Part-I bids shall be opened at 3:00 PM (IST) on the due date in the presence of authorized representatives of the bidders, who may like to be present.

Handwritten signature and date 21/06/19

AMIT MEENA
DY. MANAGER/PG-II, BHEL/PS-Project Engineering Management,
Power Project Engineering Institute,
Plot no. 25, Sector – 16A, Noida (UP) 201301, INDIA
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Important Note to be considered by All Bidders:

The offers of the bidders who are on the banned list as also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site www.bhel.com.

ENQUIRY TERMS AND CONDITIONS

Please refer to GCC Rev. 06 (available on <https://www.bhelpem.com/Documents/GCC/GCC-Rev.06.pdf>) in conjunction with GST related corrigendum to GCC Rev. 06 (enclosed herewith). Bidders are requested to go through the same while submitting the offer.

1. Offers should be submitted in **Tender box** in two parts as follows:

Part-I: **TECHNO-COMMERCIAL BID**

Part-II: **PRICE BID**

For detailed instructions, please see clause no. 2 of "Instructions to Bidders of GCC Rev. 06".

2. **Integrity Pact (IP):**

- a) IP is a tool to ensure that activities and transactions between the Company and its Bidders/ Contractors are handled in a fair, transparent and corruption free manner. Following Independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

Sl	IEM	Address	Phone & Email
1	Shri D.R.S Chaudhary, IAS (Retd.)	E-1/164, Arera Colony Bhopal 462016 (M.P.)	dilip.chaudhary@icloud.com
2	Mrs. Pravin Tripathi, IA & AS (Retd.)	D-243, Anupam Gardens, Lane IB, Neb Sarai, Sainik Farms, New Delhi - 110068	pravin.tripathi@gmail.com

- b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/ three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.
- c) Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through email only.

Note:

No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are provided below:

Details of contact person(s):

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Mr. Amit Meena, Dy. MGR, PG-II M/s. Bharat Heavy Electricals Ltd., Project Engineering Management, Power Project Engineering Institute, HRD & ESI Complex, Plot No 25, Sector-16 A, Noida-201301,U.P.,INDIA E-MAIL: amitmeena@bhel.in Ph. No. +91-120-4213613	Mr. Anil Kr Pal, Sr. MGR, PG-II M/s. Bharat Heavy Electricals Ltd., Project Engineering Management, Power Project Engineering Institute, HRD & ESI Complex, Plot No 25, Sector-16 A, Noida-201301,U.P.,INDIA E-MAIL: anilkumarpal@bhel.in Ph. No. +91-120-4368597
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3. Pre-Qualifying Requirements:

Bidder has to provide the required details as per TECHNICAL PQR & FINANCIAL PQR (enclosed as NIT Tender Documents) in its Techno-Commercial offer and has to note that bids of only those bidders shall be evaluated who meet the Technical and Financial Pre-Qualifying requirements.

4. Bidder has to note that this is a conditional Global Tender enquiry. Price bid (Part-II) opening/RA participation of the bidder is subjected to following:

- 1) Qualifying Technical & Financial PQR
- 2) Approval by End Customer (M/s TSGENCO)
- 3) Techno-Commercial recommendation by BHEL

Approval shall be taken up by BHEL with customer based on the credentials/reference list. Hence, Bidders are requested to upload the following (as part of their credentials) on or before Part-I opening/due date:-

- Company Profile
- Recent Purchase orders copies
- Reference list indicating PO details, customer name, PO date, execution date etc.
- Performance certificate issued by the clients.

5. Bidder has to note that following forms the part of Tender Documents:

- General Conditions of Contract (GCC) Rev 06 & GST related corrigendum to GCC Rev. 06
Link to GCC Rev. 06 : <https://www.bhelpem.com/Documents/GCC/GCC-Rev.06.pdf>
- **Technical Specification:** PE-TS-417-510-E001, Rev. 0
- Technical PQR, Financial PQR & General PQR
- BOQ CUM Price Schedule & Special Conditions of Contract (SCC)
- NIT CONDITIONS along with Enquiry letter

Offers are to be submitted strictly in accordance with the requirements of the above Tender Documents. All the above referred Tender Documents shall automatically become the part of the Order/Contract after its finalisation.

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21/06/19

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6. Bidder must enclose the Quality Plan in the prescribed format for approval. Item/Equipment/System will be dispatched only after Purchaser's/Owner's inspection at the hold points specified in the approved Quality Plan and issue of Material Dispatch Clearance Certificate (MDCC).

7. Delivery Schedule : -

For Main Supply (including start-up & commissioning spares, special Tools & Tackles, Spare pole assembly): Stage-I qty. (for Unit-1 & Unit-2):

05 months from drg/docs approval in Cat I by BHEL/Customer or manufacturing clearance issued by BHEL, whichever is earlier, subject to bidder's first submission of drg/docs as per document submission schedule Annexure -IV of technical specification no. PE-TS-417-510-E001 within two (02) weeks from the date of PO. Vendor to resubmit documents, if any, within seven (07) days of comments received from BHEL, taking care of all the comments of BHEL/Customer. In case, there are delays in submission/re submission (by vendor) of documents beyond the stipulated time frame indicated above, then, that much days of delay would be reduced from the delivery period. Delay in submission/resubmission of secondary documents specified in Annexure -IV shall not be considered for LD purpose.

Stage-II qty. (for Unit-3, Unit-4 & Unit-5):

06 months from the date of BHEL clearance. Separate manufacturing clearance shall be given for Stage II quantities.

LD on supply shall be applicable stage wise as per GCC clause no. 16.2.1 Note-3.

Note: - Trial operation date of this project is 16/10/2021. Stage -II qty manufacturing clearance shall be given on or before 16/10/2021.

Mandatory Spares (for Stage I & Stage II both):

Delivery along with last consignment of Stage II Main Supply quantities.

Supervision of Erection, Testing & Commissioning: Vendor to deploy its Service Engineer/ Supervisor at project site for Supervision of Erection, Testing & Commissioning within 30 days from BHEL intimation, failing which LD @ 0.5% per week or part thereof of total Supervision value shall be levied limited to 10% of total Supervision value.

* Foreign bidder will have to quote on C&F (Cost & Freight) Mumbai Port.

8. Bidders have to note that Payment Terms for Training of Engineers shall be, '100% payment shall be released after successful completion of the activity, on BHEL/CUSTOMER CERTIFICATION/FEEDBACK REPORT'.

9. Bank Guarantee & LD shall be applicable PO wise.

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10. Documents as mentioned in Annexure –III of Section-I of Technical specification no. PE-TS-417-510-E001, Rev. 00 shall be submitted by the Bidders along with their offer.
11. Evaluation will be done on overall L1 (Total cost to BHEL excluding GST) basis, with necessary loadings as applicable.
12. CIF is available for this package. The bidder has to indicate in its offer, the import contents (if any) i.e. list of items along with qty., currency of import, country of import & CIF value, as per enclosed annexure-A. Bidder has to enclose the un-priced copy of CIF contents (Annexure-A) in its Techno-Commercial offer and priced copy in its sealed price bid.
13. Prices are firm.
14. Over all (%) Quantity Variation on overall package value due to changes in the scope shall be 0% of the total contract value.
15. Additional Overhead Charges shall be 5% instead of 30% as mentioned in clause No. 26.2 of GCC Rev. 06 for risk & purchase clause.
16. Indigenous Bidders needs to indicate the freight charges in percentage of total Quoted Ex-works in its unpriced format.
17. Insurance for evaluation purposes shall be @ 0.1 % of quoted C&F price.
18. Indigenous Bidders to quote on FOR site basis and Foreign bidders to quote on C&F basis (Port – Mumbai). INSURANCE (Ocean & Inland) shall be in BHEL scope as per clause no. 17.0 of GCC Rev.06. However, FOR site price for foreign bidder will be calculated by loading their C&F (Port- Mumbai) price as per GCC Rev.06 & GST related Corrigendum to GCC Rev.06.
19. For Foreign bidders, Freight is to be quoted as inclusive in basic price and is not to be quoted separately.
20. For this procurement, Public Procurement (Preference to Make in India), Order 2017 dated 15.06.2017 & 28.05.2018 and subsequent Orders issued by the respective Nodal Ministry shall be applicable even if issued after issue of the NIT but before finalization of contract/ PO/WO against the NIT. In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and / or local content in respect of this procurement, same shall be applicable. The package is divisible in nature.

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Bidders are required to provide the following certificate along with the part-1 bid:

- (i) A certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.
- (ii) Provide the details of the location(s) at which the local value addition shall be made.

21. The bidders (who are not registered with BHEL-PEM)- Online Registration Portal is operational in BHEL. Non-registered bidders, who wish to apply for registration with BHEL-PEM, may apply through Online Registration Portal available at www.bhelpem.com → vendor section → Online Supplier Registration. All credentials and/or documents duly signed and stamped related to registration has to be uploaded on the website and submit the application for registration. One set of hard copy of the filled-up SRF downloaded from Online Registration Portal duly signed and stamped has to be submitted.
22. If any bidder has mentioned the term **Not applicable/Not required/Not quoted** in BHEL price format, the bidder needs to substantiate the same. If the same item will be required in future for the system, the same will be supplied free of cost by the bidder.
23. The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.
 - In case of joint bidding, Bidders shall be required to furnish scope matrix which should be clearly defined between foreign bidder and their Indian representative along with the offer for the Main Supply and Erection & Commissioning.
 - Bidders to note Model Conciliation Clause under BHEL Conciliation Scheme, 2018 as available at bhelpem website at Tender section - Important Instructions for Bidders.



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24. MSME/Start up Bidders to submit applicable documents along with their offer for availing the benefits as per GOI guidelines. Further PEM is already registered with RXIL(TReDS) Platform. Bidders are requested to get registered with RXIL(TReDS) Platform to avail the facility as per GOI guidelines.
25. BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on www.bhel.com) instead of opening the price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'Process compliance form' (to the designated service provider) as well as 'Online sealed bid' in the Reverse Auction. Non-submission of 'Process compliance form' or 'Online sealed bid' by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/contractors (*as available on www.bhel.com*).

The bidders have to necessarily submit online sealed bid less than or equal to their price bid already submitted to BHEL along with the offer. ***The price bid of successful L1 bidder in RA, if conducted, shall also be opened after RA and the order will be placed on lower of the two bids (RA closing price & submitted price bid price) thus obtained. The bidder having submitted this offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rates.***

If it is found that L1 bidder has quoted higher in online sealed bid in comparison to submitted price bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/contractors (*as available on www.bhel.com*)."

Detailed guidelines of **Reverse Auction 2016** are available in "information section" of www.bhelpem.com.

IMPORTANT INSTRUCTION TO BIDDERS IN CASE OF REVERSE AUCTION

"The Bidder has to quote the Single Price (i.e. Total Cost to BHEL availing input tax credit & excluding GST) in Reverse Auction. Price are to be inclusive of Packing & Forwarding charges, all the routine & type tests as per tender scope, Freight as applicable, including loading (if any)."

26. Bidders have to note that Deviations from NIT are generally not acceptable. Deviations, if any, are to be listed out clearly, as per Annexure-II, of GCC Rev 06, in techno-commercial offer. Any deviation mentioned or shown separately or found hidden in offer, will not be taken cognizance of.

In case of deviations from NIT, the bidder shall give the cost of withdrawal of such deviation in Price Bid, as per Annexure-II, Deviation Sheet (Cost of Withdrawal) of GCC Rev-06. For multiple deviations,

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all deviations are to be mentioned in "Deviation Sheet" and "cost of withdrawal" must be mentioned separately against each deviation.

27. In case of joint bidding, scope matrix should be clearly defined between Foreign bidder and their Indian representative along with the offer.
28. In case of joint bidding, consent letter is also required for acceptance of part order by foreign bidder and balance by Indian bidder. Total overall responsibility including submission of BG of the contract shall be of the foreign bidder.
29. Foreign Suppliers & Indian agents of foreign suppliers: - Please refer our website <http://www.bhelpem.com/Tenders.aspx> for details.
30. **Please contact to BHEL (via email or phone) for any clarification (technical or commercial) at least before 02 days of due date (Techno-Commercial bid opening).**
31. All other terms & conditions shall be as per GCC Rev-06 in conjunction with GST related corrigendum, SCC for 5X800 MW YADADRI TPS and Notice Inviting Tender (NIT) conditions. Order of precedence shall be NIT/RFQ, Special Conditions of Contract (SCC), and General Conditions of Contract (GCC Rev. 06) in conjunction with GST related corrigendum.
32. **L1 bidder has to submit BG as per format enclosed with Enquiry Letter (NIT) instead of format mentioned in GCC, Rev.06.**
33. MSE Bidder has to declare UAM number on CPPP, failing which such bidder will not be able to enjoy the benefits as per Public Procurement Policy for MSEs order 2012.
34. All corrigenda, agenda, amendments, time extensions, clarifications etc to the tender will be hosted on BHEL website (www.bhel.com) & BHEL-PEM website (www.bhelpem.com) only. Bidders should regularly visit websites to keep themselves updated.
35. **For further terms and condition, please refer enclosed Annexure-I to NIT.**

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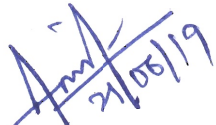
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36. All correspondence thereof, shall be addressed to the undersigned by name & designation and sent at the following address:

Mr. Amit Meena, Dy. MGR, PG-II M/s. Bharat Heavy Electricals Ltd., Project Engineering Management, Power Project Engineering Institute, HRD & ESI Complex, Plot No 25, Sector-16 A, Noida-201301,U.P.,INDIA E-MAIL: amitmeena@bhel.in Ph. No. +91-120-4213613	Mr. Anil Kr Pal, Sr. MGR, PG-II M/s. Bharat Heavy Electricals Ltd., Project Engineering Management, Power Project Engineering Institute, HRD & ESI Complex, Plot No 25, Sector-16 A, Noida-201301,U.P.,INDIA E-MAIL: anilkumarpal@bhel.in Ph. No. +91-120-4368597
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Note: In case you are not making an offer against this enquiry, you are requested to send a regret letter so as to reach us on or before the due date & time.

Thanking You,


21/06/19

For and on behalf of BHEL
Amit Meena
Dy. MGR/PGII/BHEL-PEM

Enclosures:

1. Annexure-I to NIT for additional terms and conditions.
2. Technical Specification for the package, Ref. No. PE-TS-417-510-E001, Rev. 00
3. GCC Rev. 06 & GST related corrigendum to GCC Rev. 06(available at www.bhelpem.com)
4. Technical PQR
5. Financial PQR
6. General PQR
7. Integrity Pact format
8. Annexure-II for cost of withdrawal of Deviations.
9. SCC Rev 01 for 5X800 MW YADADRI TPS
10. Annexure-I: BOQ CUM UnPrice Schedule
11. Bank Guarantee Format
12. CIF Sheet-Annexure A
13. BHEL corporate circular AA:MM:AGENCY dated 06th August 2010

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ANNEXURE-I TO NIT

Following deviations have already been accepted in past projects like Ennore, Maitree Projects etc. and shall be part of NIT.

1) Clause no 14 of GCC Rev 06

Bidder shall arrange for inspection of completed GCB at its works free of charges. Bidder will not have to bear the to /fro boarding, lodging charges of BHEL/end customer's official visiting from INDIA to vendor works if visit is envisaged as per approved QAP. Only charges limited to local third party inspector for witness of test is to be borne if at all envisaged as per approved QAP apart from conducting Routine /FAT test as per GCB applicable standard/approved QAP. If inspection extend beyond one day as per approved QAP, if required, cost shall be borne by the bidder.

2) Payment Term: -

(i) 90% payment shall be as per clause no-9.1.1 of GCTC of GCC Rev 06. Payment shall be through LC which shall be opened by BHEL 30 days prior to the date of dispatch. Usance period shall be 90 days for LC payment which shall start from the date of Bill of lading/Air Way Bill.

For claiming payment under clause 9.1.1, bill of lading shall be considered as receipted LR

LC opening charges shall be borne by BHEL. LC confirmation charges shall be borne by bidder. Bidder will not be held responsible for any delay at C&F Mumbai Port.

(ii) 10% payment towards Material Receipt Certificate- Payment shall be paid through RTGS as per GCC rev 06 upon submission of INVOICE along with MRC which shall be given by BHEL within 30 days of site receipt or 180 days from the date of Bill of Lading whichever period concludes earlier.

(iii) 100% Payment towards Supervision of Erection, testing & commissioning: Payment terms shall be as per clause no-9.5 of GCTC of GCC Rev 06. Payment shall be through RTGS.

(iv) Payment for training of Engineers:

100% payment shall be released after completion of activity on BHEL/CUSTOMER CERTIFICATION/FEEDBACK REPORT

3) Clause no 12.6

The Warranties and remedies provided for in this clause 12 are to the exclusion of ~~any implied by law~~ warranties.

4) Clause no 16

Damages for breach of order/contract shall be limited to Liquidated damages as per cl. no. 16.2.1 and payment of Liquidated Damages shall be the Buyer's sole and exclusive ~~remedy in case of delay~~, other than the right to cancel the Order / Contract if the delivery time line has been reached as agreed in PO. BHEL will send 3 official reminders via email/letter within a total period of 21 days.

4.1) 16.2.2. & 16.2.3. BHEL will exercise its rights under these ~~clauses after sending~~ due official reminders 3 times in a total period of 21 days.

5) For Clause 26,

Risk purchase clause: - Risk purchase is invoked if supplier is unable to dispatch the material even after reminder/meeting/notices etc.

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ANNEXURE-I TO NIT

BHEL right to cancel the Order/Contract: if the delivery time line has been reached as agreed in PO and subsequent thru an official reminder via letter by BHEL in a total period of 21 days and the Seller still not replied the time line of delivery or production schedule.

Further except for clause no. 26.2, vendor's maximum liability shall be limited to the total contract value including taxes, duties & freight.

Recovery on account of purchases made by purchaser at the risk and cost of seller/contractor shall be worked out as per clause no.26.2 of GCC Rev 06.

With reference to clause no 26, 5% overhead charges shall be considered instead of 30%.

6) Clause no 27.1

"Purchaser shall have the right to cancel Order/ Contract, wholly or in part, in case they are obliged to do so on account of any decline, diminution, curtailment or stoppage of their business and in that event, the Seller/ Contractor compensation claim shall be settled mutually as per documentary evidence."

7) Clause no 28

BHEL will approach third party supplier in case of bidder unable to supply the material even after several reminders, mail, letter etc. i.e the condition of risk purchase only.

8) Clause no 29.1

The following shall also be considered Force Majeure events: Delay due to any actions or omissions by any state authorities, sanctions, blockade, embargo, prohibition of exportation or importation of material and any change in laws applicable to the Contract and occurring after the date of the LOA/Purchase Order Acceptance.

9) Clause no 29.3

The right to termination in case of Force Majeure shall only apply after a continuous event of Force Majeure of 90 days. However, in the event of occurrence of Force Majeure BHEL will consider the case for equivalent time extension for performance. However, keeping in view the project time schedule, this shall be discussed and mutually agreed by both bidder and BHEL.

10) Clause no 30

With reference to clause no 30 please read "of whatsoever nature" instead of "pertaining to bodily injury, death or property damage arising out of Seller's gross negligence or wilful misconduct".

In addition to clause no-30 of GCC Rev 06, following clause is also included: -

Each of Buyer and Seller (as an "Indemnifying Party") shall indemnify the other party (as an Indemnified Party") from and against claims brought by a third party, on account of personal injury or damage to the third party's tangible property, to the extent caused by the negligence of the Indemnifying Party in connection with this Contract. In the event the injury or damage is ~~caused by joint~~ or concurrent negligence of Buyer and Seller, the loss or expense shall be borne by each party in proportion to its degree of negligence. For purposes of Seller's indemnity obligation, no part of the Products or Site is considered third party property.

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DATED: 21/06/2019

ANNEXURE-I TO NIT

11) Clause no 31.1

Settlement of disputes shall be subject to Arbitration as per clause 32.

12) Clause no 32.1

With reference to clause no. 32.1 line 6 of GCC Rev 06 "by the competent authority of Purchaser" shall be read as with "as per the following rule:

The number of Arbitrators shall be three: one Arbitrator shall be appointed by each party, the third and residing Arbitrator shall be appointed by those Arbitrators" and following shall be added at the end of 32.1. "The language of Arbitration shall be English".

13) Clause no 38

Limitation of Liability and exclusion of consequential losses - Notwithstanding anything to the contrary contained in these General Conditions, the Order / Contract or otherwise, the Seller's total liability in respect of any and all claims for damages or losses which may arise in connection with his performance or non-performance under the contract shall in no event exceed 100% of the total purchase price. In no event shall the Seller be liable for loss of production, loss of profit, loss of use, loss of contracts or for any consequential or indirect loss whatsoever. This limitation of liability shall not apply to the Seller's obligation to indemnify the Buyer as per Clause 30 (as amended above).

14) Annexure-IV

BHEL shall inform the Signing Authority of BG letter to bidder well in advance i.e 60 days before the final reminder on email regarding BG encashment.

15) Clause 16.0 of GCTC of GST related corrigendum of GCC Rev 06.

15.1) Purchaser reserves the right to recover from the Seller/Contractor, as agreed liquidated damages and not by the way of penalty, as sum equivalent to half (1/2) percent of the total contract price per week or part thereof, subject to a maximum of ten (10) percent of the total contract price.

Liquidated Damages shall be the Buyer's sole and exclusive remedy in case of delay, other than the right to cancel the Order/ / Contract if the maximum Liquidated Damages as defined in clause 16.2 (i.e. 10%) have been reached and the Seller has still not delivered.

AWB/BL date for C&F contracts shall be treated as the date of dispatch for levying LD as per Clause

15.2) In case of any amendment/ revision, LD shall be linked to the amended/ revised contract value and delivery date(s).

16) Following shipping documents shall be provided by the bidders in line with recent purchase orders for LC negotiation: -

- a) Original Invoices- 3 sets
- b) Packing List- 3 Sets.
- c) Certificate of Origin - 1 Set
- d) Copy of MDCC from Customer/BHEL - 1 set
- e) Guarantee Certificate as per GCC REV 06
- f) Bill of lading - 1 Set

17) BHEL will issue MDCC within 30 days from FAT/All test reports envisaged as per approved QAP. Any delay beyond 30 days due to delay in MDCC shall not be attributed to Supplier and shall be attributed to BHEL.

Amil
21/06/19

GLOBAL Tender Enquiry of GENERATOR CIRCUIT BREAKER as per Technical Specification No. PE-TS-417-510-E001 Rev00 for 5X800 MW YADADRI TPS

ENQ. NO. PE/PG/YAD/E-6244/2019

DATED: 21/06/2019

ANNEXURE-I TO NIT

18) Bidder shall provide all necessary documents complete in all respect required for custom clearance at destination port. Any deficiency in the required documents shall be to bidders account.

19) Shipped on board date mentioned on the clean Bill of lading or Air way bill, shall be treated as the date of Shipment/Dispatch for all contractual purposes including calculation of LD.

Amk
21/06/19

5 X 800 MW YADADRI TPS																		
GENERATOR CIRCUIT BREAKER																		
BOQ-CUM-UNPRICE SCHEDULE																		
SL. NO.	ITEM CODE	MAIN ITEM DESCRIPTION	UNIT	HSN CODE	Order Qty. For Stage 1 (Unit 1 & 2) + Stage 2 (Unit 3,4 & 5)	Quantity For Stage 1 (Unit 1 & 2)	Quantity For Stage 2 (Unit 3,4 & 5)	Unit Ex Works price (Duly packed) (INR)	Total Ex Works price (Duly packed) (INR)	FOR INDIAN BIDDER				FOR FOREIGN BIDDER			REMARKS	
										Freight Charges		Total prices (Ex Works + Freight) (INR)	Applicable GST Rate in % on (Total Ex works + Freight) Both (INR)		Total F.O.R prices with Taxes (INR)	Unit C&F Mumbai Port Price (Currency)		Total C&F Mumbai Port Price (Currency)
										% of Total Ex Works	Amount in (INR)		GST Rate in % on (Total Ex Works + Freight)	Total Amount in (INR)				
1	2	3	4	5	6	7	8	9	10=6*9	11A	11B=11A*10	12=10+11B	13A	13B=13A*12	15	16		
1	510-11003-A	GENERATOR CIRCUIT BREAKER INCLUDING ALL SUB-ASSEMBLY PARTS, ELECTRICAL SHORT CIRCUITING CONNECTION LINK, SURGE CAPACITORS, TWO SETS OF PT AND CONTROL PANEL ALONG WITH ITEMS AT S.NO. 1(a) & 1(i)	SET	9801	5	2	3										PRICE FOR ITEMS 1.0(a) & 1.0(i) ARE TO BE INCLUDE IN GCS (NO.1.0). HOWEVER, BIDDER TO INDICATE UNIT PRICES OF THESE TWO ITEMS FOR REFERENCE.	
1.0(a)	510-11044-A	SF6 GAS LEAKAGE DETECTORS	SET	8537	10	4	6											
1.0(b)	510-11042-A	CIRCUIT BREAKER OPERATION ANALYZER	SET	8537	5	2	3											
1.0(c)	510-11043-A	"SPARE POLE" ASSEMBLY COMPLETELY IDENTICAL TO MAIN POLE ASSEMBLY ALONG WITH ENCLOSURE SUITABLE FOR COMPLETE REPLACEMENT OF ANY OF THE MAIN POLES	NOS.	8537	2	2	0											
2	510-11007-A	START-UP AND COMMISSIONING SPARES	LOT	8537	5	5	0										BIDDER TO FURNISH THE LIST	
3	510-11008-A	SUPERVISION OF ERECTION, TESTING AND COMMISSIONING																
3.0(a)	510-11010-A	CHARGES PER VISIT	VISIT	8537	5	2	3										REFER NOTE-1 & 2	
3.0(b)	510-11009-A	MANDAYS CHARGES	DAYS	8537	20	8	12										REFER NOTE-1 & 2	
4	510-11011-A	SPECIAL TOOLS AND TACKLES	LOT	8537	5	5	0										BIDDER TO FURNISH THE LIST	
5	510-11000-B	MANDATORY SPARES	LOT	8537,10,10	1													
1.1		Support Insulator of each type	% of Total Qty		4													
1.1.1		Support Insulator of (Arching Chamber to ground)	PC		2												Qty. mentioned are minimum requirement, however bidder to provide actual qty. as per 1.1 above.	
1.1.2		Support Insulator of(Arching Chamber to disconnector)	PC		2												If bidder has different/extra components for 1.1 above, then same is to be quoted	
1.1.3		Support Insulator of (Arching Chamber to ground)	PC		2													
1.2		Circuit Breaker closing coil	NOS.		4													
1.3		Circuit Breaker Trip coil	NOS.		6													
1.4		Breaker fixed Contact (Main & arcing)	SETS		2													
1.4.1		Tulp Contact -Main Contact	PC		4												Qty. mentioned are minimum requirement, however bidder to provide actual qty. as per 1.4 above.	
1.4.2		Archng Ring -Main Contact	PC		4												If bidder has different/extra components for 1.4 above, then same is to be quoted	
1.4.3		Heater Split Ring -Main Contact	PC		4													
1.4.4		Contact Pin -Arching Contact	PC		2													
1.5		Breaker moving Contact (Main & arcing)	SETS		2													
1.5.1		Contact Ring-Operating Housing -Main Contact	PC		2												Qty. mentioned are minimum requirement, however bidder to provide actual qty. as per 1.5 above.	
1.5.2		Contact Ring-Connection Housing -Main Contact	PC		2												If bidder has different/extra components for 1.5 above, then same is to be quoted	
1.5.3		Contact Finger CPL -Main Contact	PC		240													
1.5.4		Centring Device -Main Contact	PC		6													
1.5.5		Contact Finger -Arching Contact	PC		792													
1.6		SF6 Bottle	NOS.		6													
1.7		Gas filling unit (for SF6 breaker)	NOS.		2													

6/10/2024
[Signature]

5 X 800 MW YADRI TPS

GENERATOR CIRCUIT BREAKER

BOQ-CUM-UNPRICE SCHEDULE

SL. NO.		ITEM CODE	MAIN ITEM DESCRIPTION	UNIT	HSN CODE	Order Qty. For Stage 1 (Unit 1 & 2) + Stage 2 (Unit 3,4 & 5)	Quantity For Stage 1 (Unit 1 & 2)	Quantity For Stage 2 (Unit 3,4 & 5)	Unit Ex Works price (Duly packed) (INR)	Total Ex Works price (Duly packed) (INR)	FOR INDIAN BIDDER				FOR FOREIGN BIDDER		REMARKS	
										Freight Charges			Applicable GST Rate in % on (Total Ex works + Freight) Both(INR)		Total F.O.R prices with Taxes (INR)	Unit C&F Mumbai Port Price (Currency)	Total C&F Mumbai Port Price (Currency)	
										% of Total Ex Works	Amount in (INR)	Total prices (Ex Works + Freight) (INR)	GST Rate in % on (Total Ex Works + Freight)	Total Amount in (INR)				
1	2	3	4	5	6	7	8	9	10=6*9	11A	11B=11A*10	12=10+11B	13A	13B=13A*12	14=12+13B	15	16	
1.8			VTS OF Different Rating (1 PHASE UNIT)				TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.8.1			VT-1- ON Generator Side	PC		4	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.8.2			VT-1- ON Transformer Side	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.9			Disconnecting Switch, earth Switch complete with Operating mechanism (1 phase unit)	NOS.		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.9.1			Disconnecting Switch complete	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.9.2			Disconnecting Switch Operating mechanism(1 phase unit)	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											Quantity mentioned are minimum requirement, however bidder to provide actual quantity as per 1.9 above.
1.9.3			Earth Switch complete	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											If bidder has different/extra components for 1.9 above, then same is to be quoted.
1.9.4			Earth Switch Operating mechanism (1 phase unit)	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.10			Surge capacitor (1 phase unit)	NOS.		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.10.1			Surge capacitor (Generator Side)	NOS.		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.10.2			Surge capacitor (Transformer Side)	NOS.		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.11			Circuit Breaker complete Operating mechanism	SETS		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.12			Isolating Switch, Selector Switch, breaker Control Switch, position indicators, Contactor/Relays, PB, Timer etc.	% of Total Qty		4	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.12.1			Isolating Switch - SF6 - Density Relay	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.12.2			Selector Switch	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.12.3			Breaker Control Switch	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.12.4			Position indicators	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.12.5			Contactors	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.12.6			Relay - Trip Circuit-Control-Relay	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											Quantity mentioned are minimum requirement, however bidder to provide actual quantity as per 1.12 above.
1.12.7			Relay - Time Relay	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											If bidder has different/extra components for 1.12 above, then same is to be quoted.
1.12.8			Relay - Auxiliary Relay for Multiple Function (Type 1)	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.12.9			Relay - Auxiliary Relay for Multiple Function (Type 2)	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.12.10			Relay - Auxiliary Relay for Multiple Function (Type 3)	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.12.11			Push Button -MIMIC Diagram	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											
1.12.12			Timer - Relay for Fan Change Over	PC		2	TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)											

10/10/19

5 X 800 MW YADRI TPS

GENERATOR CIRCUIT BREAKER

BOQ-CUM-UNIT PRICE SCHEDULE

SL. NO.		ITEM CODE	MAIN ITEM DESCRIPTION	UNIT	HSN CODE	Order Qty. For Stage 1 (Unit 1 & 2) + Stage 2 (Unit 3,4 & 5)	Quantity For Stage 1 (Unit 1 & 2)	Quantity For Stage 2 (Unit 3,4 & 5)	Unit Ex Works price (Duly packed) (INR)	Total Ex Works price (Duly packed) (INR)	FOR INDIAN BIDDER				FOR FOREIGN BIDDER		REMARKS	
											Freight Charges (11)		Applicable GST Rate in % on (Total Ex works + Freight) Both(INR) (13)		Total F.O.R prices with Taxes (INR)	Unit C&F Mumbai Port Price (Currency)		Total C&F Mumbai Port Price (Currency)
											% of Total Ex Works	Amount in (INR)	Total prices + (Ex Works + Freight) (INR)	GST Rate in % on (Total Ex Works + Freight)	Total Amount in (INR)			
1	2		3	4	5	6	7	8	9	10=6*9	11A	11B=11A*10	12=10+11B	13A	13B=13A*12	14=12*13B	15	16
1.13			Power and Control fuses / Circuit Breakers of diff Ratings	% of Total Qty		4		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
1.13.1			Power And Control Fuses : Motor Protection Switch for Earth Switch & Disconnector Switch	PC		2		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
1.13.2			Power And Control Fuses : Motor Protection Switch Ventilation Control- B	PC		2		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
1.13.3			Circuit Breakers- Ventilation Control	PC		2		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
1.13.4			Circuit Breaker -DC Voltage Fault	PC		2		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
1.13.5			Circuit Breaker - Main AC Supply	PC		2		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
1.13.6			Circuit Breaker - Main DC Supply-2	PC		2		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
1.13.7			Circuit Breaker - Main DC Supply-1	PC		2		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
1.14			Indicating lamp	% of Total Qty		4		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
1.14.1			Indicating lamp -Red	PC		8		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
1.14.2			Indicating lamp- Green	PC		8		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
1.14.3			Indicating lamp - Pressure Cap Red	PC		8		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
1.14.4			Indicating lamp - Pressure Cap Green	PC		8		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
1.14.5			Indicating lamp - Pressure Cap Yellow	PC		8		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
1.15			Auxiliary Switch assembly	SETS		2		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
6	510-1102-A		TRAINING OF ENGINEERS 6 ENGINEERS	SET	8537	1		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
6.0(a)			BASIC COST (IRRESPECTIVE OF NO. OF ENGINEERS)	SET		1		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
6.0(b)			ADDITIONAL VARIABLE COST PER ENGINEER PER DAY	NOS.		6		TOTAL QUANTITY FOR BOTH STAGES(STAGE 1 & 2)										
FOR OPERATION, TROUBLESHOOT & MAINTENANCE																		

NOTES:-

- FOR EACH GCB 1(ONE) VISIT AND 4(FOUR) MANDAYS TO BE CONSIDERED. THE PRICES SHALL BE INCLUSIVE OF CHARGES OF AIRFARE, BOARDING/LODGING, VISA, MEDICAL, INSURANCE ETC.
- AMOUNT PAYABLE PER VISIT = 1 VISIT CHARGES AS PER SL. NO. 3.0(a) ABOVE (+) MANDAYS CHARGES AS PER SL. NO. 3.0(b) ABOVE (+) NO. OF DAYS AT SITE (TO BE CERTIFIED BY BHEL SITE)
- WHEREVER SET IS INDICATED ABOVE, IT MEANS THE TOTAL PARTS/ACCESSORIES REQUIRED TO REPLACE THE PARTICULAR ITEM FOR A GIVEN EQUIPMENT.

Amal Bhatia

TELANGANA STATE POWER GENERATION CORPORATION
LIMITED (TSGENCO)

5 X 800 MW YADADARI TPS

VOLUME – II

TECHNICAL SPECIFICATION FOR
GENERATOR CIRCUIT BREAKER (GCB)

SPECIFICATION NO : PE-TS-417-510-E001
REV-00



BHARAT HEAVY ELECTRICALS LIMITED
POWER SECTOR
PROJECT ENGINEERING MANAGEMENT
NOIDA, UTTAR PRADESH, INDIA – 201301



TECHNICAL SPECIFICATION FOR GENERATOR CIRCUIT BREAKER

5 X 800 MW YADADARI TPS

SPECIFICATION NO. PE-TS-417-510-E001

VOLUME II

CONTENTS SHEET

REVISION 0 | DATE: 31.05.2019

SHEET 1 OF 1

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	ANNEXURE – II (GEN., GT, UT, ST (IF APPLICABLE) SYSTEM DATA)	(04)
	ANNEXURE – III (DOCUMENTS REQUIRED ALONG WITH TECHNICAL OFFER)	(01)
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	DATA SHEET – A	(03)
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TOTAL NUMBER OF SHEETS: 50

**TECHNICAL SPECIFICATION FOR
GENERATOR CIRCUIT BREAKER****5 X 800 MW YADADARI TPS****SPECIFICATION NO. PE-TS-417-510-E001****VOLUME II****COMPLIANCE CERTIFICATE****REVISION 0 | DATE: 31.05.2019****SHEET 1 OF 1****COMPLIANCE CERTIFICATE**

The bidder shall confirm compliance to the following by signing/ stamping this compliance certificate and furnishing same with the offer.

1. The scope of supply, technical details, construction features, design parameters etc. shall be as per technical specification & there are no exclusion/ deviation with regard to same.
2. There are no deviation with respect to specification other than those furnished in the 'schedule of deviations'
3. Only those technical submittals which are specifically asked for in NIT to be submitted at tender stage shall be considered as part of offer. Any other submission, even if made, shall not be considered as part of offer.
4. Any comments/ clarifications on technical/ inspection requirements furnished as part of bidder's covering letter shall not be considered by BHEL, and bidder's offer shall be construed to be in conformance with the specification.
5. Any changes made by the bidder in the price schedule with respect to the description/ quantities from those given in Annexure-A [BOQ-Cum-Price schedule] of the specification shall not be considered (i.e., technical description & quantities as per specification shall prevail).

BIDDER'S STAMP & SIGNATURE



**TECHNICAL SPECIFICATION FOR
GENERATOR CIRCUIT BREAKER**

5 X 800 MW YADADARI TPS

SPECIFICATION NO. PE-TS-417-510-E001

VOLUME II

SECTION - I

REVISION 0 | DATE: 31.05.2019

SHEET 1 OF 26

SECTION – 'I'

SPECIFIC TECHNICAL REQUIREMENTS



TECHNICAL SPECIFICATION FOR GENERATOR CIRCUIT BREAKER

5 X 800 MW YADADARI TPS

SPECIFICATION NO. PE-TS-417-510-E001

VOLUME II

SECTION - I

REVISION 0 | DATE: 31.05.2019

SHEET 2 OF 26

1.0 SCOPE OF ENQUIRY

- 1.1 This specification covers design, manufacture, assembly, inspection & testing at manufacturer's works, proper packing, delivery and supervision of E&C of Generator Circuit Breaker (GCB) as mentioned in different sections of this specification, complete with all accessories for efficient and trouble-free operation.
- 1.2 It is not the intent to specify completely herein all details of the design and manufacture. However, the equipment shall conform in all respects to high standards of design engineering and workmanship and shall be capable of performing in continuous commercial operation up to bidder's guarantee.
- 1.3 Standard technical requirements of the GCB are indicated in Section-II. Project specific requirements/changes are listed in Section-I.
- 1.4 The requirements of Section-I shall prevail and govern in case of conflict between the corresponding requirements of Section-I and Section-II.
- 1.5 The documents shall be in English language and MKS system of units.

2.0 BILL OF QUANTITIES:

- 2.1 Quantity requirements shall be as per BOQ-cum-price schedule as part of NIT.

3.0 SPECIFIC TECHNICAL REQUIREMENTS

S.No.	Reference Clause No. of Section- II	Specific Requirement/ Change
1.	1.01.01	Following auxiliary equipment shall be supplied a. Ten (10) sets of SF6 gas leakage detectors b. Five (5) sets of Circuit Breaker operation analyser.
2.	1.01.01	Recommended spares for three (3) years of plant operation & maintenance is not applicable.
3.	1.01.01	For the complete project total two (2) nos. "Spare Pole" assembly completely identical to main pole assembly along with enclosure suitable for complete replacement of any of the main poles shall be provided.
4.	1.01.01	Suitable handling arrangement for GCB as well as "Spare Pole" (as mentioned in above clause) to be provided.
5.	3.07.00, 3.11.00	Starting Switch is not applicable.
6.	3.13.07	Number of spare terminals shall not be less than 20%.
7.	4.00.00	The colour of paint shall be RAL-7032.
8.	5.02.00	All equipment offered shall be of type tested design. Type Test report of GCB shall be as per standard IEEE C37.013 or IEC/IEEE 62271-37-013. Type test report of series isolator and earth switch shall be as per IEC 62271-102.

4.0 DOCUMENTATION

- 4.1 Documents required along with technical offer shall be as per Annexure-III.
- 4.2 Documents required after award of LOI shall be as per Annexure-IV.



TECHNICAL SPECIFICATION FOR GENERATOR CIRCUIT BREAKER

5 X 800 MW YADADARI TPS

SPECIFICATION NO. PE-TS-417-510-E001

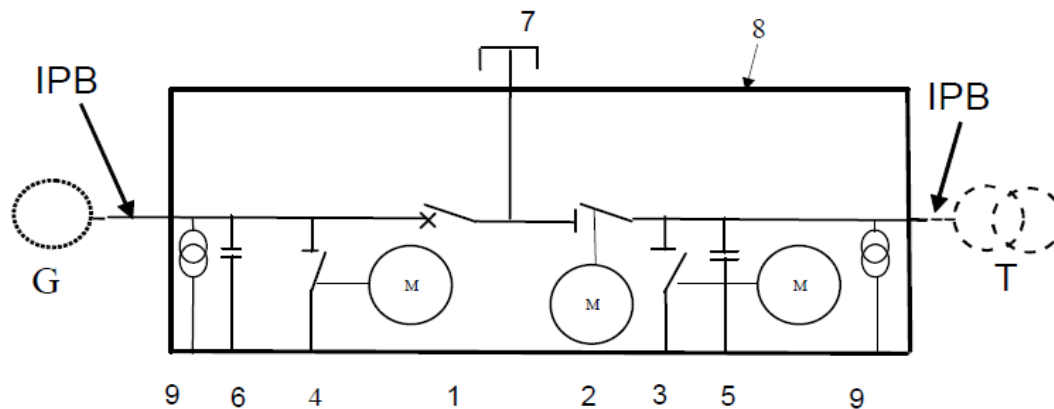
VOLUME II

SECTION - I

REVISION 0 | DATE: 31.05.2019

SHEET 3 OF 26

ANNEXURE – I



- 1 Circuit-breaker
- 2 Disconnector
- 3, 4 Earthing switches
- 9 Voltage Transformer

- 5, 6 Surge capacitors
- 7 Short-circuiting/braking switch
- 8 System enclosure

SINGLE LINE CONFIGURATION OF GENERATOR CIRCUIT BREAKER



TECHNICAL SPECIFICATION FOR GENERATOR CIRCUIT BREAKER

5 X 800 MW YADADARI TPS

SPECIFICATION NO. PE-TS-417-510-E001

VOLUME II

SECTION - I

REVISION 0 | DATE: 31.05.2019

SHEET 4 OF 26

ANNEXURE – II **GENERATOR, IPBD, GT ,UT ,ST (IF APPLICABLE) , SYSTEM AND MOTOR DATA**

SL. NO.	DESCRIPTION	UNIT	VALUE
A	GENERATOR PARAMETERS		
1	RATED POWER	MVA	941
		MW	800
	POWER UNDER VVO CONDITION	MVA	988
		MW	840
2	RATED FREQUENCY	Hz	50
3	RATED VOLTAGE	KV	27
4	VOLTAGE VARIATION	%	+/- 5
5	RATED POWER FACTOR		0.85
6	REACTANCE VALUE (SATURATED):		
6 a	SYNCHRONOUS REACTANCE, DIRECT AXIS, X_d	pu	1.818
6 b	TRANSIENT REACTANCE, DIRECT AXIS, X_d'	pu	0.233
6 c	SUB TRANSIENT REACTANCE, DIRECT AXIS, X_d''	pu	0.15
6 d	SYNCHRONOUS REACTANCE, QUADRATURE AXIS, X_q	pu	2.103(Unsaturated)
6 e	TRANSIENT REACTANCE, QUADRATURE AXIS, X_q'	pu	0.641 (Unsaturated)
6 f	SUB TRANSIENT REACTANCE, QUADRATURE AXIS, X_q''	pu	0.155
7	ZERO SEQUENCE REACTANCE	pu	0.0895
8	NEGATIVE SEQUENCE REACTANCE	%	16.9
9	TOLERANCE IN GENERATOR REACTANCES	%	+/-15
10	STATOR RESISTANCE (R_a)	OHMS	0.001078 at 20°C 0.001304 at 75°C
11	FIELD CURRENT AT GENERATOR RATED VOLTAGE AND POWER FACTOR	AMPS	5549
12	TIME CONSTANTS (SHORT CIRCUIT TIME CONSTANTS):		
12 a	TRANSIENT TIME CONSTANT, DIRECT AXIS, T_d'	s	0.831
12 b	SUB TRANSIENT TIME CONSTANT, DIRECT AXIS, T_d''	s	0.031
12 c	TRANSIENT AXIS TIME CONSTANT, QUADRATURE AXIS, T_q'	s	0.519
12 d	SUB TRANSIENT TIME CONSTANT, QUADRATURE AXIS, T_q''	s	0.08



TECHNICAL SPECIFICATION FOR GENERATOR CIRCUIT BREAKER

5 X 800 MW YADADARI TPS

SPECIFICATION NO. PE-TS-417-510-E001

VOLUME II

SECTION - I

REVISION 0 | DATE: 31.05.2019

SHEET 5 OF 26

12 e	ARMATURE TIME CONSTANT	s	0.285
13	SPEED	rpm	3000
14	GENERATOR NEUTRAL EARTHING		High Resistance (Through Transformer loaded with Resistance on secondary)
15	NGT PARAMETERS PRIMARY VOLTAGE SECONDARY VOLTAGE NGR (AT SECONDARY OF NGT)	KV KV OHMS	DDE
B	GENERATOR ISOLATED PHASE BUS DUCT (IPBD) DETAILS <u>[GCB to comply to these requirements]</u>		
1	Type		Isolated phase bus duct
2	Overall diameter of enclosure (Inside)	mm	1584 (approx.)
3	Thickness of enclosure	mm	8 (approx.)
4	Phase-phase spacing	mm	2000 (approx.)
5	Enclosure material		Al. alloy
6	Conductor material		Al. alloy
7	Conductor profile		Round
8	Cooling of IPBD		Natural
9	Pressurization System provided		Yes
10	Pressure of air inside the enclosure	mm of water col.mn	100 mm water column
11	Maximum temperature of enclosure at 50°C	°C	30
12	Maximum temperature of silver plated conductor joints at 50°C	°C	55
C	GENERATOR TRANSFORMER PARAMETERS		
1	RATED MVA	MVA	990
2	HV SIDE VOLTAGE	KV	400
3	MAXIMUM HV VOLTAGE	KV	420
4	MINIMUM HV VOLTAGE	KV	380
5	LV VOLTAGE	KV	27
6	FREQUENCY	HZ	50



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7	X/R RATIO		50
8	SHORT CIRCUIT IMPEDANCE	P.U.	0.20
9	TOLERANCE IN SHORT CIRCUIT IMPEDANCE	%	7.5
D	UNIT TRANSFORMER PARAMETERS (UT#1)		
1	RATED MVA	MVA	65
2	NUMBER OF WINDINGS (2 / 3)		2
3	HV SIDE VOLTAGE	KV	27
4	MAXIMUM HV VOLTAGE	KV	28.35
5	MINIMUM HV VOLTAGE	KV	25.65
6	LV VOLTAGE	KV	11.5
7	FREQUENCY	HZ	50
8	X/R RATIO		34.1
9	SHORT CIRCUIT IMPEDANCE	P.U.	0.115
10	TOLERANCE IN SHORT CIRCUIT IMPEDANCE	%	7.5
11	MOTOR LOADS CONNECTED TO UNIT TRANSFORMER	MVA	42 (Approx.)
12	MOTOR RATED VOLTAGE	KV	11
13	MOTOR STARTING CURRENT (TIMES FULL LOAD CURRENT)	TIMES	4.5
E	UNIT TRANSFORMER PARAMETERS (UT#2)		
1	RATED MVA	MVA	65
2	NUMBER OF WINDINGS (2 / 3)		2
3	HV SIDE VOLTAGE	KV	27
4	MAXIMUM HV VOLTAGE	KV	28.35
5	MINIMUM HV VOLTAGE	KV	25.65
6	LV VOLTAGE	KV	11.5
7	FREQUENCY	HZ	50
8	X/R RATIO		34.1
9	SHORT CIRCUIT IMPEDANCE	P.U.	0.115
10	TOLERANCE IN SHORT CIRCUIT IMPEDANCE	%	7.5
11	MOTOR LOADS CONNECTED TO UNIT TRANSFORMER	MVA	25 (Approx.)
12	MOTOR RATED VOLTAGE	KV	11
13	MOTOR STARTING CURRENT (TIMES FULL LOAD CURRENT)	TIMES	4.5
F	STATION TRANSFORMER PARAMETERS (IF APPLICABLE)		NOT APPLICABLE



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1	RATED MVA	MVA	
2	NUMBER OF WINDINGS (2 / 3)		
3	HV SIDE VOLTAGE	KV	
4	MAXIMUM HV VOLTAGE	KV	
5	MINIMUM HV VOLTAGE	KV	
6	LV VOLTAGE	KV	
7	FREQUENCY	HZ	
8	X/R RATIO		
9	SHORT CIRCUIT IMPEDANCE	P.U.	
10	TOLERANCE IN SHORT CIRCUIT IMPEDANCE	%	
11	MOTOR LOADS CONNECTED TO UNIT TRANSFORMER	MVA	
12	MOTOR RATED VOLTAGE	KV	
13	MOTOR STARTING CURRENT (TIMES FULL LOAD CURRENT)	TIMES	
G	SYSTEM PARAMETERS		
1	RATED VOLTAGE	KV	400
2	MAXIMUM VOLTAGE	KV	420
3	MINIMUM VOLTAGE	KV	380
4	RATED FREQUENCY	HZ	50
5	MAXIMUM THREE PHASE SHORT CIRCUIT CURRENT	KA	50
6	X/R RATIO		14

NOTE: PLEASE REFER ATTACHED SINGLE LINE DIAGRAM (ANNEXURE VI) FOR CONFIGURATION

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- a] Filled in Data Sheet -B.
- b] Technical leaflet/ catalogue.
- c] Correction curves/ tables to arrive at current rating of GCB and series isolator at various ambient temperatures.
- d] Complete detailed calculation for short circuit capability of GCB for Generator Side and system side fault contribution.
- e] General Arrangement drawing of GCB showing various dimensions, space required for operation and maintenance, weight etc.
- f] Summary of Type tests certificates indicating key test results, clause & standard reference, date and place of testing.
- g] Write up on operating mechanism of GCB.
- h] Schedule of deviations.
- i] Schedule of BOQ cum price schedule. (Unpriced)
- j] Schedule of start-up and commissioning spares. (Unpriced)
- k] Schedule of Mandatory spares. (Unpriced)
- l] Schedule of special tools and tackles. (Unpriced)
- m] Reference list.
- n] Signed and stamped copy of "COMPLIANCE CERTIFICATE".

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SL. No.	DOCUMENT TITLE	DWG. / DOCUMENT No.	Document Type	First Submission	Resubmission
1	TECHNICAL DATASHEET FOR GENERATOR CIRCUIT BREAKER	PE-V0-417-510-E001	Primary	Within 2 week of award of contract.	Within 1 week of comments#
2	GA AND FOUNDATION PLAN FOR GENERATOR CIRCUIT BREAKER	PE-V0-417-510-E002	Primary	Within 2 week of award of contract.	Within 1 week of comments#
3	CONTROL & SCHEME DRAWING FOR GENERATOR CIRCUIT BREAKER	PE-V0-417-510-E004	Primary	Within 2 week of award of contract.	Within 1 week of comments#
4	NAME PLATE FOR GENERATOR CIRCUIT BREAKER	PE-V0-417-510-E005	Primary	Within 2 week of award of contract.	Within 1 week of comments#
5	SIZING CALCULATIONS INCLUDING SHORT CIRCUIT CALCULATIONS AS PER IEEE	PE-V0-417-510-E007	Primary	Within 2 week of award of contract.	Within 1 week of comments#
6	SF6 PRESSURE SCHEME GENERATOR CIRCUIT BREAKER	PE-V0-417-510-E009	Primary	Within 2 week of award of contract.	Within 1 week of comments#
7	FIELD QUALITY PLAN FOR GENERATOR CIRCUIT BREAKER	PE-V0-417-510-E010	Primary	Within 2 week of award of contract.	Within 1 week of comments#
8	TYPE TEST CERTIFICATES OF GENERATOR CIRCUIT BREAKER	PE-V0-417-510-E011	Primary	Within 2 week of award of contract.	Within 1 week of comments#
9	O/M MANUALS FOR GENERATOR CIRCUIT BREAKER	PE-V0-417-510-E012	Secondary	Within 2 week of award of contract.	Within 1 week of comments#
10	EQUIPMENT LIST OF GENERATOR CIRCUIT BREAKER	PE-V0-417-510-E110	Primary	Within 2 week of award of contract.	Within 1 week of comments#
11	LIST OF MANDATORY SPARES	PE-V0-417-510-E112	Primary	Within 2 week of award of contract.	Within 1 week of comments#
12	MANUFACTURING QUALITY PLAN FOR GENERATOR CIRCUIT BREAKER	PE-V0-417-510-E901	Primary	Within 2 week of award of contract.	Within 1 week of comments#

Note:

1. The above list of drawings and documents is indicative.
2. Document schedule shall be as per NIT.
3. After receiving LOI, the vendor shall submit drawings/documents in requisite number of copies as per NIT.



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DATA SHEET –A

<u>SL.NO.</u>	<u>PARAMETER</u>	<u>UNIT</u>	<u>VALUE</u>
1.00	Generator Circuit Breaker details		
1.01	Minimum continuous current rating at 50 °C	A	22244
1.02	Rated voltage	kV	27
1.03	No. of poles	Nos.	3
1.04 (a)	Rated short time withstand current	kA	160
1.04 (b)	Duration	sec	1
1.05 (a)	Rated symmetrical breaking capability (i)System Source fault (ii)Generator Source fault	kA	(i) As per IEC/IEEE 62271-37-013 (ii) As per IEC/IEEE 62271-37-013
1.05 (b)	Rated making current capability (i)System Source fault (ii)Generator Source fault	kApeak	(i) As per IEC/IEEE 62271-37-013 (ii) As per IEC/IEEE 62271-37-013
1.06	One minute power frequency withstand voltage	kV(RMS)	As per IEC/IEEE 62271-37-013
1.07	Impulse withstand voltage	kV(Peak)	As per IEC/IEEE 62271-37-013
1.08	Location of GCB	Indoor / Outdoor	Indoor
1.09	Quantity of GCB	Nos.	5
1.10	Quantity of Earth Switch per GCB	Nos.	2
1.11	Quantity of Series Isolator per GCB	Nos.	1
1.12	Connection for Gas Turbine Starting circuit required	Yes/No	No
1.13	Configuration of Earth Switch, Series Isolator & Short circuiting connection with switch		As per ANNEXURE – I of Section-I
1.14	Interrupting Medium		SF6
1.15	Type of cooling		Natural / Forced Air Cooled
1.16	Type of operating mechanism		Motorized or Hydraulic Spring Charged
1.17	Rated Short Circuit duty Cycle		CO-30MIN –CO
1.18	Continuous current duty Cycle		CO-3 MIN –CO
2.00	<u>Auxiliary supplies</u>		



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2.01	DC	V	220
2.02	AC [Any single phase power for lighting and heating circuits to be derived by vendor from this supply]	Phase, Wire, Hz	415V, 3 phase, 4 wire effectively earthed
3.00	<u>Requirement of potential free Auxiliary Contacts for Purchaser's use:</u> (In addition to those required for own operation and indications)		
3.01	Total number of contacts furnished for GCB		
	a. Normally Open (NO) numbers	Nos.	12 Minimum
	b. Normally Close (NC) numbers	Nos.	12 Minimum
3.02	Total number of contacts for Disconnecting switch		
	c. Normally Open (NO) numbers	Nos.	6 Minimum
	d. Normally Close (NC) numbers	Nos.	6 Minimum
3.03	Total number of contacts for Earth switch		
	e. Normally Open (NO) numbers	Nos.	6 Minimum
	f. Normally Close (NC) numbers	Nos.	6 Minimum
4.00	Trip Coils		
4.01	No. of Trip Coils provided	Nos.	2
4.02	Voltage rating of Trip coil	V	220V DC
4.03	Minimum operating voltage of trip coil	% rated voltage	IEC/IEEE 62271-37-013
5.00	Wiring (copper wiring)		
5.01	Internal Wiring	Sq.mm.	1.5 sq.mm.
5.02	Motor Circuit	Sq.mm.	2.5 sq.mm. or higher as per requirement of motor ratings
5.03	CT & VT circuit	Sq.mm.	2.5 sq.mm.
6.00	Voltage Transformer	Yes/No	Yes, 2 (one on Generator side & one on GT side) Along with voltmeter located in GCB control panel
7.00	Current Transformer	Yes/No	No
8.00	<u>Type Tests</u>		
8.01	Validity period of type test reports		Not Applicable
8.02	Type tests to be conducted for this contract,	Yes/ No	No, Type test report as per IEEE C37.013 or IEC/ IEEE



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DATA SHEET –B

TECHNICAL PARTICULARS

[TO BE SUBMITTED ALOGWITH TECHNICAL OFFER]

SL.NO.		UNIT	SPECIFIED	OFFERED
	GENERATOR CIRCUIT BREAKER			
1.01	a. Manufacturer			
	b. Country of Manufacture			
	c. Type Designation			
1.02	Applicable Standard		IEC/ IEEE 62271-37-013	
1.03	Rated voltage	kV		
1.04	Rated frequency	Hz	50	
1.05	Rated continuous current at ambient temperature of: 40°C 50°C	A		
1.06	Interrupting medium		SF6	
1.07.01	Rated short time withstand current	kA		
1.07.02	Duration	sec		
1.08	Breaking capability			
i)	System source fault			
	a) Rated symmetrical breaking current	kA rms		
	b) Rated asymmetrical breaking current	kA rms		
	c) DC component			
	d) Rated making current	kApeak		
	e) Suitability of GCB checked		Yes/ No	
ii)	Generator source fault			
	a) Rated symmetrical breaking current	kA rms		
	b) Rated asymmetrical breaking current	kA rms		
	c) DC component			
	d) Rated making current	kApeak		
	e) Suitability of GCB checked		Yes/ No	
1.09	Rated short circuit duty cycle		CO -30 – CO	
1.10	Rated impulse withstand voltage	kVpeak		
1.11	Rated Power frequency `dry test` withstand voltage: Earth: Across the pole:	kVrms kVrms		



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1.12	Type of cooling		Natural/ Forced	
1.13	Maximum allowable temperature of main contacts	Deg. C	105/90	
1.14	Degree of protection of breaker enclosure		Air leakage < 2%	
1.15	Whether canopy is required, if GCB is installed outdoor			
1.16	Motor driven pumps in hydraulic mechanism			
1.16 a)	Voltage rating	V		
1.16 b)	Power rating	kW		
1.16 c)	No. of motor driven pump	Nos.		
1.17	Fans in forced cooling system			
1.17 a)	Voltage rating	V		
1.17 b)	Power rating	kW		
1.17 c)	No. of fan motor	Nos.		
1.18	Does GCB has provision of lockout features for open and close conditions of GCB?		Yes/ No	
1.19	Stored energy of GCB is suitable for how many CO operations?			
1.20	Maximum current under natural cooled conditions which can be carried by GCB at 50°C	A		
1.21	Nominal Ratings of the basic model quoted:			
a	Normal current :	A		
b	Normal voltage :	kV		
c	System source Fault current :	kA		
d	Generator source Fault current :	kA		
e	Making current :	kApeak		
f	Dielectric withstand voltage :	kVrms,		
g	Dielectric withstand voltage :	kVpeak		
1.22	Circuit breaker closing time	msec		
1.23	Circuit breaker break time	msec		
1.24	Whether specified safety interlocks and locking features provided as per the specification?		Yes/ No	
1.25	Type of operating mechanism provided			
1.26	Whether three poles of the circuit breaker are gang operated?		Yes/ No	
1.27	Whether circuit breaker has anti pumping feature?		Yes/ No	
1.28	Whether circuit breaker has trip free		Yes/ No	



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	mechanism?			
1.29	Whether lockout feature provided for the circuit breaker?			
1.30	Whether separate SF6 gas monitors provided for each of the three phases of the circuit breaker?		Yes/ No	
1.31	No. of SF6 gas monitors provided for each GCB			
1.32	Trip Coil			
1.32 a	No. of coils provided	No		
1.32 b	Voltage rating	V		
1.32 c	Minimum operating voltage	V		
1.33	Emergency current rating during loss of coolant at 50°C ambient (if applicable)	A		
1.34	Time available at rated current before load reduction	min		
1.35	Rate at which load current should be reduced	A/sec		
1.36	Reduced continuous operating current	A		
1.37	Rated short circuit duty cycle			
1.38	Rated permissible tripping time	msec		
1.39	Maximum permissible temperature rise of main contacts and conducting joints for continuous rating over the ambient air temperature of 50 deg C:			
a	Copper:	Deg C		
b	Silver:	Deg C		
c	Silver alloy:	Deg C		
1.40	Minimum creepage distance	mm		
1.41	Clearance in air of live parts - phase to earth	mm		
1.42	a) Control circuit suitable for aux. supply voltage of	V		
	b) Mechanism motor suitable for aux. supply voltage of	V		
1.43	Value of capacitor included in GCB on generator transformer side	nF/phase		
1.44	Value of capacitor included in GCB on generator side	nF/phase		
1.45	a) DOP of GCB local control panel			
	b) Is DOP type test certificate for GCB LCP enclosed?		Yes/ No	



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1.46	Whether cable glands and lugs are included as per the specification?		Yes/ No	
1.47	Whether all interconnecting cables between various equipment of GCB and associated devices in bidder's scope are included?		Yes/ No	
1.48	Whether sufficient quantity and types of spares are included for start up & commissioning of specified no. of GCBs?		Yes/ No	
1.49	No. of series isolators provided per GCB on Gen. trfr. side:	No.		
1.50	No. of earth-switches provided per GCB on:			
a	Gen. trfr. side:	No.		
b	Generator side:	No.		
1.51	Catalogues attached for GCB:		Yes/ No	
a	for series isolator:		Yes/ No	
b	for earth-switch:		Yes/ No	
c				
1.52	Earth switch			
a	Manufacturer			
b	Country of manufacture			
c	Type designation			
d	Reference Standard			
e	Rated service voltage	kV		
f	Rated frequency	Hz		
g	Rated normal current at 50 deg C	A		
h	Rated short time withstand current	kArms		
i	Rated peak withstand current	kApeak		
j	Rated power frequency withstand voltage	kV		
k	Rated impulse withstand voltage	kV		
l	No. of poles per switch	No.		
m	No. of control mechanism per switch	No.		



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n	Ambient air temp. limits	Deg C		
o	Control circuit suitable for aux. supply voltage of?	V		
p	Mechanism motor suitable for aux. supply voltage of?	V		
1.53	Series isolator			
a	Manufacturer			
b	Country of manufacture			
c	Type designation			
d	Reference Standard			
e	Rated service voltage	kV		
f	Rated frequency	Hz		
g	Rated normal current at 50 deg C	A		
h	Is series isolator fully compatible with GCB in respect of normal current ratings at various ambient temperatures?		Yes/ No	
i	Rated short time withstand current	kArms		
j	Rated peak withstand current	kApeak		
k	Rated power frequency withstand voltage	kV		
l	Rated impulse withstand voltage	kV		
m	No. of poles per switch	No.		
n	No. of control mechanism per switch	No.		
o	Ambient air temp. limits	Deg C		
p	Control circuit suitable for aux. supply voltage of?	V		
q	Mechanism motor suitable for aux. supply voltage of?	V		
1.54	a) Whether all type tests have been conducted on GCB		Yes/ No	



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	b) Have all the type tests been carried out at independent test laboratories?		Yes/ No	
	c) Summary of Type test reports for GCB enclosed as Annex. No.			
1.55	Summary of Type test reports for GCB enclosed as Annex. No.			
1.56	Whether the offer includes performance of all site tests as per specification?		Yes/ No	
1.57	a) Whether all type tests have been conducted on series isolator as per IEC 62271-102?		Yes/ No	
	b) Summary of Type test reports for series isolator enclosed as Annex. No.		Yes/ No	
1.58	a) Whether all type tests have been conducted on earth-switch as per IEC 62271-102?		Yes/ No	
	b) Summary of Type test reports for earth-switch enclosed as Annex. No.		Yes/ No	
1.59	<u>Requirement of potential free Auxiliary Contacts for Purchaser's use:</u> (In addition to those required for own operation and indications)			
1.59.01	Total number of contacts furnished for GCB			
	a. Normally Open (NO) numbers	Nos.		
	b. Normally Close (NC) numbers	Nos.		
1.59.02	Total number of contacts furnished for Disconnecting switch			
	a. Normally Open (NO) numbers	Nos.		
	b. Normally Close (NC) numbers	Nos.		
1.59.03	Total number of contacts furnished for Earth switch			
	a. Normally Open (NO) numbers	Nos.		
	b. Normally Close (NC) numbers	Nos.		
1.60	Trip Coils			
1.60.01	No. of Trip Coils provided	Nos.		
1.60.02	Voltage rating of Trip coil	V		
1.60.03	Minimum operating voltage of trip coil	% rated voltage		
1.61	Wiring (copper wiring)			
1.61.01	Internal Wiring	Sq.mm.		

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1.61.02	Motor Circuit	Sq.mm.		
1.61.03	CT & VT circuit	Sq.mm.		
1.62	Voltage Transformer		Yes/ No	
1.63	Current Transformer		Yes/ No	
1.664	SF6 Gas leakage Detector	Nos.		

VT location	VT No.	Ratio	Burden	Accuracy Class	Connection Type	Primary protection/ Secondary protection

[illegible]



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DATA SHEET –C

TECHNICAL PARTICULARS

[TO BE SUBMITTED AFTER AWARD OF CONTRACT]

SL.NO.		UNIT	SPECIFIED	OFFERED
	GENERATOR CIRCUIT BREAKER			
1.01	a. Manufacturer			
	b. Country of Manufacture			
	c. Type Designation			
1.02	Applicable Standard		IEC/ IEEE 62271-37-013	
1.03	Rated voltage	kV		
1.04	Rated frequency	Hz	50	
1.05	Rated continuous current at ambient temperature of: 40°C 50°C	A		
1.06	Interrupting medium		SF6	
1.07.01	Rated short time withstand current	kA		
1.07.02	Duration	sec		
1.08	Breaking capability			
i)	System source fault			
	a) Rated symmetrical breaking current	kA rms		
	b) Rated asymmetrical breaking current	kA rms		
	c) DC component			
	d) Rated making current	kApeak		
	e) Suitability of GCB checked		Yes/ No	
ii)	Generator source fault			
	a) Rated symmetrical breaking current	kA rms		
	b) Rated asymmetrical breaking current	kA rms		
	c) DC component			
	d) Rated making current	kApeak		
	e) Suitability of GCB checked		Yes/ No	
1.09	Rated short circuit duty cycle		CO -30 – CO	
1.10	Rated impulse withstand voltage	kVpeak		
1.11	Rated Power frequency `dry test` withstand voltage: Earth : Across the pole :	kVrms kVrms		



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1.12	Type of cooling		Natural/ Forced	
1.13	Maximum allowable temperature of main contacts	Deg. C	105/90	
1.14	Degree of protection of breaker enclosure		Air leakage < 2%	
1.15	Whether canopy is required, if GCB is installed outdoor			
1.16	Motor driven pumps in hydraulic mechanism			
1.16 a)	Voltage rating	V		
1.16 b)	Power rating	kW		
1.16 c)	No. of motor driven pump	Nos.		
1.17	Fans in forced cooling system			
1.17 a)	Voltage rating	V		
1.17 b)	Power rating	kW		
1.17 c)	No. of fan motor	Nos.		
1.18	Does GCB has provision of lockout features for open and close conditions of GCB?		Yes/ No	
1.19	Stored energy of GCB is suitable for how many CO operations?			
1.20	Maximum current under natural cooled conditions which can be carried by GCB at 50°C	A		
1.21	Nominal Ratings of the basic model quoted:			
a	Normal current :	A		
b	Normal voltage :	kV		
c	System source Fault current :	kA		
d	Generator source Fault current :	kA		
e	Making current :	kApeak		
f	Dielectric withstand voltage :	kVrms,		
g	Dielectric withstand voltage :	kVpeak		
1.22	Circuit breaker closing time	msec		
1.23	Circuit breaker break time	msec		
1.24	Whether specified safety interlocks and locking features provided as per the specification?		Yes/ No	
1.25	Type of operating mechanism provided			
1.26	Whether three poles of the circuit breaker are gang operated?		Yes/ No	
1.27	Whether circuit breaker has anti pumping feature?		Yes/ No	
1.28	Whether circuit breaker has trip free		Yes/ No	



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	mechanism?			
1.29	Whether separate SF6 gas monitors provided for each of the three phases of the circuit breaker?		Yes/ No	
1.30	No. of SF6 gas monitors provided for each GCB			
1.31	Trip Coil			
1.31 a	No. of coils provided	No		
1.31 b	Voltage rating	V		
1.31 c	Minimum operating voltage	V		
1.32	Emergency current rating during loss of coolant at 50°C ambient (if applicable)	A		
1.33	Time available at rated current before load reduction	min		
1.34	Rate at which load current should be reduced	A/sec		
1.35	Reduced continuous operating current	A		
1.36	Rated permissible tripping time	msec		
1.37	Maximum permissible temperature rise of main contacts and conducting joints for continuous rating over the ambient air temperature of 50 deg C:			
a	Copper:	Deg C		
b	Silver:	Deg C		
c	Silver alloy:	Deg C		
1.38	Minimum creepage distance	mm		
1.39	Clearance in air of live parts - phase to earth	mm		
1.40	a) Control circuit suitable for aux. supply voltage of b) Mechanism motor suitable for aux. supply voltage of	V V		
1.41	Value of capacitor included in GCB on generator transformer side	nF/phase		
1.42	Value of capacitor included in GCB on generator side	nF/phase		
1.43	a) DOP of GCB local control panel b) Is DOP type test certificate for GCB LCP enclosed?		Yes/ No	
1.44	Whether cable glands and lugs are included as per the specification?		Yes/ No	



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1.45	Whether all interconnecting cables between various equipment of GCB and associated devices in bidder's scope are included?		Yes/ No	
1.46	Whether sufficient quantity and types of spares are included for start up & commissioning of specified no. of GCBs?		Yes/ No	
1.47	No. of series isolators provided per GCB on Gen. trfr. side:	No.		
1.48	No. of earth-switches provided per GCB on:			
a	Gen. trfr. side:	No.		
b	Generator side:	No.		
1.49	Catalogues attached for GCB:		Yes/ No	
a	for series isolator:		Yes/ No	
b	for earth-switch:		Yes/ No	
c				
1.50	Earth switch			
a	Manufacturer			
b	Country of manufacture			
c	Type designation			
d	Reference Standard			
e	Rated service voltage	kV		
f	Rated frequency	Hz		
g	Rated normal current at 50 deg C	A		
h	Rated short time withstand current	kArms		
i	Rated peak withstand current	kApeak		
j	Rated power frequency withstand voltage	kV		
k	Rated impulse withstand voltage	kV		
l	No. of poles per switch	No.		
m	No. of control mechanism per switch	No.		
n	Ambient air temp. limits	Deg C		



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o	Control circuit suitable for aux. supply voltage of?	V		
p	Mechanism motor suitable for aux. supply voltage of?	V		
1.51	Series isolator			
a	Manufacturer			
b	Country of manufacture			
c	Type designation			
d	Reference Standard			
e	Rated service voltage	kV		
f	Rated frequency	Hz		
g	Rated normal current at 50 deg C	A		
h	Is series isolator fully compatible with GCB in respect of normal current ratings at various ambient temperatures?		Yes/ No	
i	Rated short time withstand current	kArms		
j	Rated peak withstand current	kApeak		
k	Rated power frequency withstand voltage	kV		
l	Rated impulse withstand voltage	kV		
m	No. of poles per switch	No.		
n	No. of control mechanism per switch	No.		
o	Ambient air temp. limits	Deg C		
p	Control circuit suitable for aux. supply voltage of?	V		
q	Mechanism motor suitable for aux. supply voltage of?	V		
1.52	a) Whether all type tests have been conducted on GCB		Yes/ No	
	b) Have all the type tests been carried out at independent test laboratories?		Yes/ No	



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	c) Summary of Type test reports for GCB enclosed as Annex. No.			
1.53	Whether the offer includes performance of all site tests as per specification?		Yes/ No	
1.54	a) Whether all type tests have been conducted on series isolator as per IEC 62271-102?		Yes/ No	
	b) Summary of Type test reports for series isolator enclosed as Annex. No.		Yes/ No	
1.55	a) Whether all type tests have been conducted on earth-switch as per IEC 62271-102?		Yes/ No	
	b) Summary of Type test reports for earth-switch enclosed as Annex. No.		Yes/ No	
1.56	<u>Requirement of potential free Auxiliary Contacts for Purchaser's use:</u> (In addition to those required for own operation and indications)			
1.56.01	Total number of contacts furnished for GCB			
	c. Normally Open (NO) numbers	Nos.		
	d. Normally Close (NC) numbers	Nos.		
1.56.02	Total number of contacts furnished for Disconnecting switch			
	c. Normally Open (NO) numbers	Nos.		
	d. Normally Close (NC) numbers	Nos.		
1.56.03	Total number of contacts furnished for Earth switch			
	c. Normally Open (NO) numbers	Nos.		
	d. Normally Close (NC) numbers	Nos.		
1.57	Wiring (copper wiring)			
1.57.01	Internal Wiring	Sq.mm.		
1.57.02	Motor Circuit	Sq.mm.		
1.57.03	CT & VT circuit	Sq.mm.		
1.58	Voltage Transformer		Yes/ No	
1.59	Current Transformer		Yes/ No	
1.60	SF6 Gas leakage Detector	Nos.		

VT location	VT No.	Ratio	Burden	Accuracy Class	Connection Type	Primary protection/
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						Secondary protection

[illegible]

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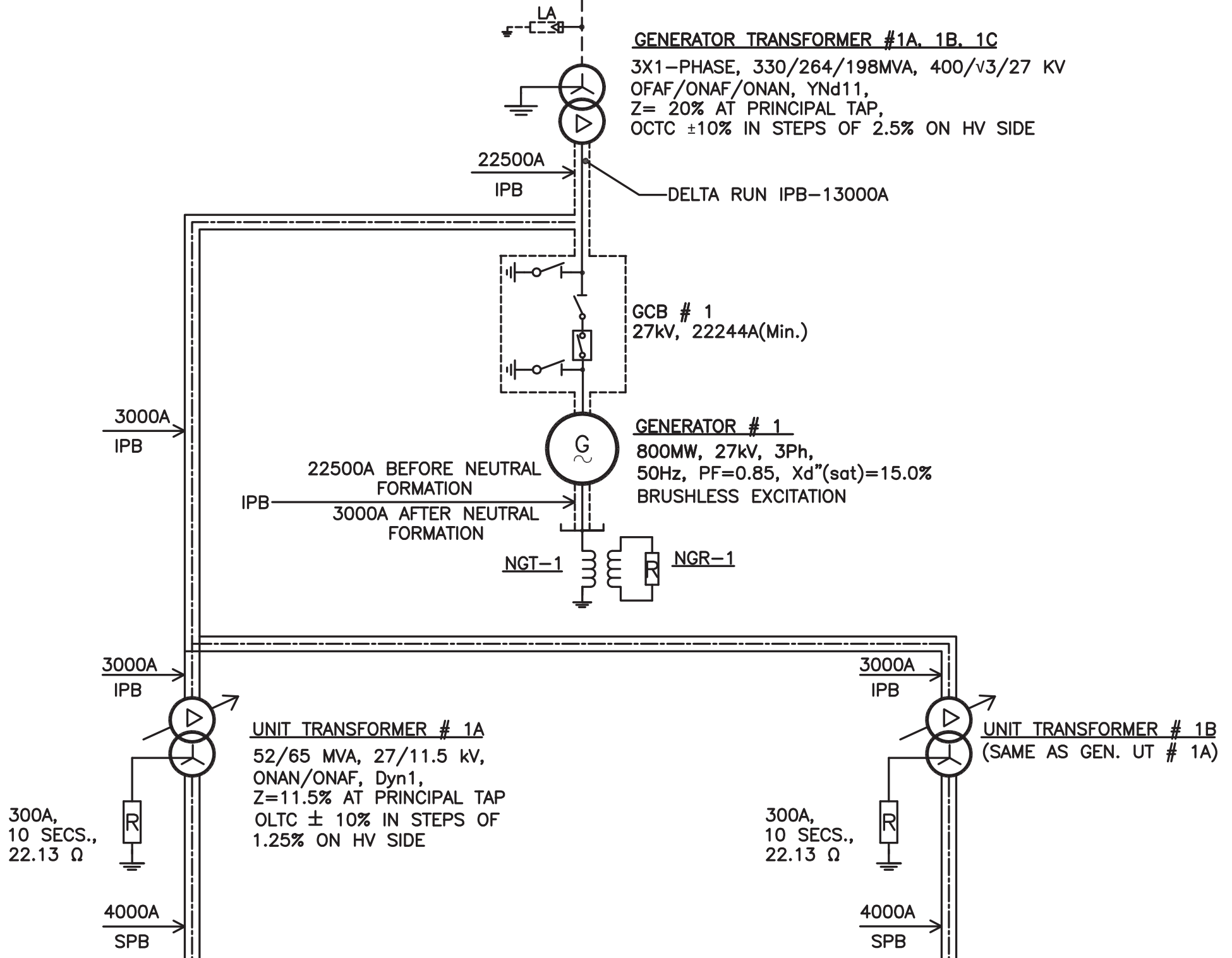
MANDATORY SPARES LIST (ANNEXURE-V)

SL. NO.	ITEM DESCRIPTION	UNIT	QTY.	REMARKS
5.0	ITEM CODE - 510-11000-B, MANDATORY SPARES			
1.1	Support insulator of each type	% of Total Qty	4	
1.1.1	Support insulator of (Arching Chamber to ground)	PC	2	Qty. mentioned are minimum requirement, however bidder to provide actual qty. as per 1.1 above. If bidder has different/extra components for 1.1 above, then same is to be quoted.
1.1.2	Support insulator of(Arching Chamber to disconnecter)	PC	2	
1.1.3	Support insulator of (Arching Chamber to ground)	PC	2	
1.2	Circuit Breaker closing coil	NOS.	4	
1.3	Circuit Breaker Trip coil	NOS.	6	
1.4	Breaker fixed Contact (Main & arching)	SETS	2	
1.4.1	Tulip Contact -Main Contact	PC	4	Qty. mentioned are minimum requirement, however bidder to provide actual qty. as per 1.4 above. If bidder has different/extra components
1.4.2	Arching Ring -Main Contact	PC	4	
1.4.3	Heater Split Ring -Main Contact	PC	4	
1.4.4	Contact Pin -Arching Contact	PC	2	
1.5	Breaker moving Contact (Main & arcing)	SETS	2	
1.5.1	Contact Ring-Operating Housing -Main Contact	PC	2	Qty. mentioned are minimum requirement, however bidder to provide actual qty. as per 1.5 above. If bidder has different/extra components for 1.5 above, then same is to be quoted.
1.5.2	Contact Ring-Connection Housing -Main Contact	PC	2	
1.5.3	Contact Finger CPL. -Main Contact	PC	240	
1.5.4	Centring Device -Main Contact	PC	6	
1.5.5	Contact Finger -Arching Contact	PC	792	
1.6	SF6 Bottle	NOS.	6	
1.7	Gas filling unit (for SF6 breaker)	NOS.	2	
1.8	VTs OF Different Rating (1 PHASE UNIT)			
1.8.1	VT-1- ON Generator Side	PC	4	
1.8.2	VT-1- ON Transformer Side	PC	2	
1.9	Disconnecting Switch, earth Switch complete with Operating mechanism (1 phase unit)	NOS.	2	
1.9.1	Disconnecting Switch complete	PC	2	Quantity mentioned are minimum requirement, however bidder to provide actual quantity as per 1.9 above. If bidder has different/extra components for 1.9 above, then same is to be quoted.
1.9.2	Disconnecting Switch Operating mechanism(1 phase unit)	PC	2	
1.9.3	Earth Switch complete	PC	2	
1.9.4	Earth Switch Operating mechanism (1 phase unit)	PC	2	
1.10	Surge capacitor (1 phase unit)	NOS.	2	
1.10.1	Surge capacitor (Generator Side)	NOS.	2	
1.10.2	Surge capacitor (Transformer Side)	NOS.	2	
1.11	Circuit Breaker complete Operating mechanism	SETS	2	

1.12	Isolating Switch, Selector Switch, breaker Control Switch, position indicators, Contactor/Relays, PB, Timer etc.	% of Total Qty	4	
1.12.1	Isolating Switch - SF6 - Density Relay	PC	2	Quantity mentioned are minimum requirement, however bidder to provide actual quantity as per 1.12 above. If bidder has different/extra components for 1.12 above, then same is to be quoted.
1.12.2	Selector Switch,	PC	2	
1.12.3	Breaker Control Switch	PC	2	
1.12.4	Position Indicators	PC	2	
1.12.5	Contactor	PC	2	
1.12.6	Relay - Trip Circuit-Control-Relay	PC	2	
1.12.7	Relay - Time Relay	PC	2	
1.12.8	Relay - Auxiliary Relay for Multiple Function	PC	2	
1.12.9	Relay - Auxiliary Relay for Multiple Function	PC	2	
1.12.10	Relay - Auxiliary Relay for Multiple Function	PC	2	
1.12.11	Push Button -MIMIC Diagram	PC	2	
1.12.12	Timer - Relay for Fan Change Over	PC	2	
1.13	Power and Control fuses / Circuit Breakers of diff Ratings	% of Total Qty	4	
1.13.1	Power And Control Fuses : Motor Protection Switch for Earth Switch & Disconnecter Switch	PC 1	2	Quantity mentioned are minimum requirement, however bidder to provide actual quantity as per 1.13 above. If bidder has different/extra components for 1.13 above, then same is to be quoted.
1.13.2	Power And Control Fuses : Motor Protection Switch Ventillation Control- B	PC 1	2	
1.13.3	Circuit Breakers- Ventillation Control	PC	2	
1.13.4	Circuit Breaker -DC Voltage Fault	PC	2	
1.13.5	Circuit Breaker - Main AC Supply	PC	2	
1.13.6	Circuit Breaker - Main DC Supply-2	PC	2	
1.13.7	Circuit Breaker - Main DC Supply-1	PC	2	
1.14	Indicating lamp	% of Total Qty	4	
1.14.1	Indicating lamp -Red	PC	8	Qty. mentioned are minimum requirement, however bidder to provide actual qty. as per 1.14 above. If bidder has different/extra components for 1.14 above, then same is to be
1.14.2	Indicating lamp- Green	PC	8	
1.14.3	Indicating lamp - Pressure Cap Red	PC	8	
1.14.4	Indicating lamp-- Pressure Cap Green	PC	8	
1.14.5	Indicating lamp-- Pressure Cap Yellow	PC	8	
1.15	Auxiliary Switch assembly	SETS	2	

NOTES: -1. WHEREEVER SET IS INDICATED ABOVE, IT MEANS THE TOTAL PARTS/ACCESSORIES REQUIRED TO REPLACE THE PARTICULAR ITEM FOR A GIVEN EQUIPMENT.

ANNEXURE VI





**TECHNICAL SPECIFICATION FOR
GENERATOR CIRCUIT BREAKER**

5 X 800 MW YADADRI TPS

SPECIFICATION NO. PE-TS-410-510-E001

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ANNEXURE-VII

**TECHNICAL SPECIFICATION
FOR
GENERATOR CIRCUIT BREAKER**

- 1.00.00 **SCOPE OF WORK** : For scope of supply refer "BOQ cum price schedule of Generator Circuit Breaker" and Annexure-V for "Mandatory spares" list.
- 1.01.00 **Scope of supply**
- Type and rating of the equipment listed below are detailed in the attached annexure ~~and associated single line diagram~~. The equipment shall be offered in strict compliance with the same.
- 1.01.01 Generator Circuit Breaker Assembly : Five (5) set
- 1.01.02 Following Auxiliary equipment shall be supplied
- a. Ten (10) sets of SF6 gas leakage detectors
- b. Five (5) set of Circuit Breaker operation analyzer.
- 1.01.03 Five set of special tools and tackles.
- 1.01.04 Mandatory spare parts.
- 1.01.05 All relevant drawings, data and instruction manuals.
- 2.00.00 **GENERAL REQUIREMENTS**
- 2.01.00 **Codes and Standards**
- 2.01.01 Generator Circuit Breaker shall be designed manufactured and routine tested in accordance with IEC/IEEE 62271-37-013, type tested as per IEEE C37.013-1997 or IEC/IEEE 62271-37-013 & all other equipment and materials shall be designed, manufactured and tested in accordance with the latest applicable Indian Standards (IS) and IEC except where modified and/or supplemented by this specification.
- 2.01.02 Equipment and material conforming to any other standards, which ensure equal or better quality, may be accepted. In such case, copies of the English version of the standard adopted shall be submitted along with the bid.
- 2.01.03 The electrical installation shall meet the requirements of Indian Electricity Rules as amended upto date and relevant IS Code of Practice. In addition, other rules and regulations applicable to the work shall be followed.
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3.00.00 DESIGN CRITERIA

- 3.01.00 The Generator Circuit Breaker assembly shall be designed, manufactured, and routine tested in accordance with IEC/IEEE 62271-37-013 and its latest interpretations and amendment and type tested as per IEEE C37.013-1997 or IEC/IEEE 62271-37-013.
- 3.02.00 The Generator Circuit Breaker shall be installed in between the Generator and Generator Transformer and shall be connected to both the equipment with isolated phase bus duct.
- 3.03.00 The generator circuit-breaker shall be capable of continuous operation under the following condition :
- Voltage variation : $\pm 10\%$
 - Frequency variation : $+3\%$ to -5%
 - Combined voltage and : 10%
(frequency variation absolute sum)
- 3.04.00 Generator Circuit Breaker shall be suitable for synchronizing duty. Main functions of the Generator Circuit Breaker system shall be the following :
- Start up of the turbo-generator auxiliaries via its unit transformer with the Generator circuit breaker is open
 - Carry the full load current of the generator continuously
 - Paralleling of the generator with external network
 - Disconnection of the generator from the system under various loading conditions ranging from no load to full load
 - Make and break generator-source feed short-circuit currents
 - Make and break system-source feed short-circuit currents
- 3.05.00 The Generator Circuit Breaker shall be located indoor ~~or outdoor~~ as indicated in the annexure, hot, humid and tropical atmosphere.
- 3.06.00 For continuous operation at specified ratings, temperature rise of the various Circuit Breaker components such as insulating materials, main contacts, conducting joints and parts subject to contact by operating personnel shall be limited to the permissible values stipulated in the relevant standards and/or this specification.
- 3.07.00 Circuit Breaker shall be either naturally cooled or forced cooled as defined in the annexure. For forced cooled Generator Circuit Breaker, emergency current rating during loss of cooling shall be established according to the IEEE Standard and incorporated in the design.
- 3.08.00 The Circuit Breaker and components thereof shall be capable of withstanding the mechanical forces and thermal stresses of the short circuit current listed in the annexure without any damage or deterioration of material.
- 3.09.00 Each pole of the Circuit Breaker, series disconnectors, earth switch and additional components, if any specified in Annexure-B, shall be mounted in single phase non-magnetic aluminum alloy enclosures. The three single phase enclosures along with
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- the Control box housing the operating mechanism, supervisory and control equipment shall be factory assembled on a common frame.
- 3.10.00 The enclosure shall be able to carry the induced reverse current flowing through the isolated phase bus duct. All enclosure connection to isolated phase bus duct shall be welded or via a bellow to provides a physically and electrically continuous ducting connection to the generator and the transformer.
- 3.11.00 The distance among the centre line of the phase enclosures shall be such that it matches with the bus duct spacing.
- 3.12.00 The Circuit Breaker movement during short circuit shall be restricted so as to limit the stresses on Circuit Breaker support insulators within their capabilities.
- 4.00.00 SPECIFIC REQUIREMENTS**
- 4.01.00 Type and Duty**
- 4.01.01 The Generator Circuit Breaker shall consist of three nos. single-pole interrupter housed in sulphur hexaflouride (SF6) breaking chambers.
- 4.01.02 The duty of the Circuit Breaker shall involve satisfactory interruption of short circuit currents as listed in the annexure.
- 4.01.03 The breaker shall be suitable for operation under out of phase condition arising out of faulty synchronization.
- 4.01.04 Breakers with multi-break interruptions shall be so designed that the voltage developed across a pole is uniformly distributed over the power breaks.
- 4.02.00 Constructional Feature**
- 4.02.01 Each Generator circuit-breaker shall comprise of three (3) identical poles complete with auxiliary components housed in single phase enclosures, all fully assembled on a common frame with mechanical gang operated mechanism.
- 4.02.02 All poles of the circuit breaker shall be maintained at the same SF6 density by a suitable balancing connection via the refilling pipe. The SF6 gas density shall be monitored and regulated by temperature compensated gas density monitoring devices, which shall be mounted at a convenient and easily approachable location. The device shall signal loss of SF6 gas in several steps for refilling, alarm and blocking annunciation. The system shall also be provided with a Gas density meter.
- 4.02.03 The Circuit Breaker shall have proper sealing so that leakage of gas outside is not more than 1% per annum under all conditions of operation.
- The operating rod connecting the operating mechanism to the arc chamber (SF6 media) shall have adequate seals. All gasketed surfaces shall be smooth, straight and reinforced, if necessary, to minimize distortion and make a tight seal
- 4.02.04 SF6 breakers shall be furnished with first charge of SF6 gas, plus 15% additional quantities of SF6 gas required for complete lot.

DEVELOPMENT CONSULTANTS

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- 4.02.05 The SF6 gas shall be supplied in properly treated steel cylinder of adequate strength. Chemical analysis of gas supplied shall be furnished for Owner/Purchaser's reference.
- 4.02.06 The Circuit Breaker units shall be complete with associated valves, piping, gauges, seals, lubricants and other accessories/materials to ensure their proper assembly and functioning.
- 4.02.07 Suitable provisions shall be made for connection with Isolated Phase Bus-ducts (IPB) through flexible connection.
- 4.03.00 **Power Contacts**
- 4.03.01 The Circuit Breaker shall have two separate power contact systems, one for carrying the normal load current and one for arc interruption.
- 4.03.02 The main contacts shall have adequate area and contact pressure for carrying rated continuous and short time current without excessive heating liable to cause pitting and welding.
- 4.03.03 The contacts shall be easily replaceable and shall have minimum movable parts and adjustments.
- 4.04.00 **Auxiliary Contacts**
- 4.04.01 Each breaker shall be provided with minimum 12(Twelve) normally open and 12(Twelve) normally closed electrically separate spare auxiliary contacts, in addition to those required for its own operation and indication.
- 4.04.02 The auxiliary contacts shall be convertible type so that normally open contacts can be converted into normally close contact and vice versa at site.
- 4.04.03 The auxiliary contacts shall be rated 10A at 240 V A.C. and 2A at 220 V D.C.
- 4.05.00 **Interlock**
- 4.05.01 All electrical and mechanical interlocks, which are necessary for safe and satisfactory operation of the Circuit Breaker, shall be furnished.
- 4.05.02 Breaker operation shall be locked in case of low SF6 gas density and/or low control fluid pressure at preset values. Alarms shall be provided for low gas density and low control fluid pressure at values higher than lockout density of SF6 gas and/or fluid pressure.
- 4.05.03 Gas density monitoring contacts, pressure switch contacts, etc. shall be suitable for direct use as permissive in closing, tripping, annunciation and control circuits.
- DC supplies for all auxiliary circuits shall be monitored and provision shall be made for remote annunciations.
- 4.06.00 **Operating Mechanism**
- 4.06.01 Circuit Breaker operating mechanism shall be Spring / hydraulically controlled spring energy storage type. Anti-pumping and trip free features complete with 2x100% shunt trip coils shall be provided. The mechanism of the breaker shall be
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- such that the position of the breaker is maintained even after leakage of operating media and/or gas.
- 4.06.02 All three breaker poles shall close simultaneously. Pole discrepancy feature shall be provided to trip the breaker out if all the poles do not close simultaneously within the stipulated time.
- 4.06.03 The mechanism shall be designed for electrical control from remote as well as local position. In addition local manual trip button shall be provided.
- 4.06.04 Operation counters and mechanical ON-OFF indicator shall be provided for the breaker.
- 4.06.05 The close and trip circuits shall be designed to permit use of momentary contact switches and push buttons.
- 4.06.06 Circuit Breaker shall be provided with two (2) independent tripping circuits, and trip coils. The trip coils shall be suitable for trip circuit supervision during both open and close positions of the breaker. Interlock shall be provided with OCTC tap changing operation to prevent the operation of circuit breaker.
- 4.06.07 **Hydraulic Operated mechanism**
- Hydraulically operated mechanism shall comprise of operating unit with power cylinder, control valves, high and low pressure reservoir, motor etc. one number hand pump set shall also be provided for emergency operation of the Circuit Breaker.
- The mechanism shall be capable of operating the Circuit Breaker and performing the duty cycle specified under all conditions with the pressure of hydraulic operated fluid in the operating mechanism at the lowest permissible pressure before make up. The opening time at the lowest pressure for a particular operation shall not exceed the guaranteed operating time within any value of trip coil supply voltage as specified.
- The mechanism shall be suitable for at least two close open operations after failure of AC supply to the motor starting at pressure equal to the lowest pressure of auto recluse duty.
- The oil pressure switch controlling the pump and pressure in the high pressure reservoir shall have adequate number of spare contacts to be used for continuous monitoring of low pressure, high pressure etc. Trip lockout shall be provided to prevent operations of the Circuit Breaker below the minimum specified hydraulic pressure. Alarm contacts for loss of Nitrogen shall be provided.
- All hydraulic joints shall have no oil leakage under the site conditions and joints shall be tested at factory against oil leakage at a minimum of 1.5 times maximum working pressure.
- 4.06.08 **Spring operated mechanism**
- Spring operated mechanism shall be complete with motor, opening spring and closing spring with limit switch for automatic charging and other necessary
-

accessories to make the mechanism a complete operating unit shall also be provided.

As long as power is available to the motor, a continuous sequence of the closing and opening operations shall be possible. The motor shall have adequate thermal rating for this duty.

After failure of power supply to the motor one close open operation shall be possible with the energy contained in the operating mechanism.

Breaker operation shall be independent of the motor which shall be used solely for compressing the closing spring. Facility for manual charging of the closing spring shall also be provided. The motor rating shall be such that it requires not more than 30 seconds for full charging of the closing spring.

Closing action of circuit breaker shall compress the opening spring ready for tripping.

When closing springs are discharged after closing a breaker, closing springs shall be automatically charged for the next operation and an indication of this shall be provided in the local and remote control cabinet.

Provisions shall be made to prevent a closing operation of the breaker when the spring is in the partial charged condition. Mechanical interlocks shall be provided in the operating mechanism to prevent discharging of closing springs when the breaker is already in the closed position.

The spring operating mechanism shall have adequate energy stored in the operating spring to close and latch the circuit breaker against the rated making current and also to provide the required energy for the tripping mechanism in case the tripping energy is derived from the operating mechanism.

4.07.00 Control Cubicle

4.07.01 A common control cubicle shall be furnished to house electrical, controls, monitoring devices. The Control cubicle shall be mounted on the C.B system supporting frame work.

4.07.02 The cubicle shall be wired up to suitable terminal block for cable connection..

4.07.03 The cubicle shall have front access door with lock and removable gland plate at the bottom for cable entry.

4.07.04 An active Mimic with the actual position indications and the integrated local controls of the Circuit Breaker, disconnect switches and earth switches shall be provided at the front.

4.07.05 LOCAL/REMOTE selector switches for Circuit Breaker, disconnect switches and earthing switches, Operation counters and local alarms for faults/ troubles shall be provided in the Control Cubicle.

4.07.06 Potential free contacts shall be provided in the cubicle for the following remote annunciations and indications as a minimum.

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ALARMS

- a. SF6 density low (for refilling)
- b. SF6 density very low (alarm)
- c. SF6 density very low (blocking)
- d. Circuit Breaker Trip circuit unhealthy
- e. Pole discrepancy
- f. Loss of control voltage
- g. Operating system failure

INDICATIONS

- a. Breaker positions
- b. Disconnect switch positions
- c. Earth switch positions
- d. Local/ Remote selector switch positions
- e. Voltmeter for indicating voltage at both side of GCB

4.07.07 Thermostat controlled space heater, internal illumination lamp and 3 pin 5A socket with individual ON-OFF switches shall be provided in the cubicle.

4.08.00 **Disconnecting switch, ~~starting switch~~ and earthing switch**

4.08.01 The off load disconnecting switch shall be installed at generator transformer side of the circuit breaker. It shall be air insulated, telescopic type, with sliding tubular contacts and hinged point on the line side.

~~4.08.02 Starting switch, if provided, shall be installed in the Generator side. The switch shall be blade type with the fixed contact at the current path. The hinged point shall be connected with external cable from Gas turbine generator static starter.(applicable for gas turbine generator set)~~

4.08.03 Earthing switches shall be installed one on the generator side terminal of the circuit breaker and the other on the generator transformer side after the terminals of the disconnecting switch.

Earth switches shall be blade type with the fixed contact at the current path and with hinged point connected to earth.

4.08.04 Operating mechanism of the above switches shall be motorized. Electrical motors shall be suitable for 3 phase, 50Hz, 415 V + 10% A.C.

A manual (mechanical) operating mechanism shall also be provided for maintenance and emergency purpose. Interlock shall be provided to prevent motor operation when the switch is being manually operated.

4.08.05 Electrical and mechanical interlocks shall be provided to avoid wrong operation on the disconnecting switches, earthing switches and Circuit Breaker.

4.08.06 The visual check of the position of the above switches shall be possible from outside the phase enclosure by means of inspection windows.

4.08.07 Each switch shall be provided with minimum 6 N.O. + 6 N.C spare auxiliary contacts.

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4.09.00 Short circuit devices

- 4.09.01 The Circuit Breaker system shall be equipped with short circuit link (for relay testing).
- 4.09.02 The short circuit link shall be installed between the Circuit Breaker and the disconnecting switch in order to actuate the 3 phase unearthed short circuit on the generator terminals by closing the Circuit Breaker.
- 4.09.03 The short circuit link shall be manually mounted by removing the specific doors on the Circuit Breaker system phase enclosures.

4.10.00 Instrument Transformers

- 4.10.01 ~~The current transformers shall be cast resin, ring type, mounted within the Circuit Breaker phase enclosures and suitable for operation at an ambient temperature equal to rated bus-bar temperature.~~
- 4.10.02 ~~The C.T.s shall have polarity markings indelibly marked on them. C.T. secondary leads will be brought out to separate terminal block mounted on the Control cubicle.~~
- 4.10.03 The voltage transformer shall be three single phase cast-resin type, suitable for nominal operation connected from line to ground, and for 1.73 times rated line to ground voltage under sustained emergency condition.
- 4.10.04 The high voltage winding of the voltage transformer shall be protected by current limiting fuse mounted on top of the primary bushing.
- 4.10.05 The secondary leads from the voltage transformer shall be extended to a fuse / Miniature circuit breaker (MCB) and then to separate terminal block mounted on the Control cubicle. Facility for making the star points shall be kept at the Control cubicle.

4.11.00 Surge Protection devices

- 4.11.01 ~~Lightning arrester shall be station class, hermetically sealed type, fitted on the transformer side and shall be specifically suitable for generator protection.~~
- ~~The characteristic of the lightning arrester shall be carefully chosen to provide a low protective ratio for generator BIL.~~
- 4.11.02 ~~A discharge counter shall be provided for each lightning arrester. The discharge counter register shall be provided in readily visible position.~~
- 4.11.03 The surge capacitor shall be non-inflammable and non-toxic type, single pole, fitted on both side of the breaker system.

4.12.00 Wiring

- 4.12.01 Wiring shall be complete in all respects to ensure proper functioning of the control, protection, and monitoring and interlocking schemes.
- 4.12.02 DC circuit for trip coil 1 & 2 shall be wired separately so as to connect with duplicate DC supply.
-

-
- 4.12.03 Wiring shall be done with flexible 1100V grade, PVC insulated, switchboard wires with 2.5 mm² stranded copper conductor. Wiring between individual poles and control cubicle shall be routed through G.I. / PVC rigid conduits.
- 4.12.04 Each wire shall identified at both ends with permanent markers bearing wire numbers as per Contractor's wiring diagram.
- 4.12.05 Wire termination shall be done with crimping type connectors with insulating sleeves. Wires shall not be spliced between terminals.
- 4.12.06 All spare contacts of relays, push buttons, auxiliary switches etc. shall be wired upto terminal blocks in the control cubicle.
- 4.13.00 **Terminal blocks**
- 4.13.01 Terminal blocks shall be 1100V grade, enclosed clamp type with engraved numbers suitable for termination of at least two numbers of 2.5 mm² stranded copper conductor.
- 4.13.02 Not more than two wires shall be connected to any terminal. Spare terminals equal in number to 20% active terminals shall be furnished.
- 4.13.03 Terminal blocks shall be located to allow easy access. Wiring shall be so arranged that individual wires of an external cable can be connected to consecutive terminals.
- 4.14.00 **Sulphur Hexafluoride (SF₆) Gas**
- 4.14.01 The SF₆ gas shall be new and comply with relevant IEC/IS and shall be suitable in all respects for use in the Circuit Breakers under the various operating conditions.
- 4.14.02 SF₆ gas shall be tested for quality, dew point, air, hydrolysable fluorides and water content as per IEC quoted above and test certificates shall be furnished covering all tests for each lot of SF₆ gas.
- 4.14.03 The use, handling & storage of SF₆ gas shall comply with requirements of relevant IEC/IS. The high-pressure cylinders in which SF₆ gas is shipped and stored at site shall comply with requirements of the following standards and regulations : IS-4379, IS-7311
- The cylinders shall also meet Indian Boiler Regulations.
- 4.15.00 **Auxiliary Equipment**
- 4.15.01 The sensing probe of SF₆ gas leaked detector shall be able to reach all the points on the breaker where leakage is to be sensed. The accuracy of the equipment shall be at least 10 ppm. It shall be free from induced voltage effect.
- 4.15.02 An Operational Analyzer shall be supplied to record contact travel, speed and for making measurement of operating timings, synchronization of contacts in one pole or all poles.
-

4.16.00 Name Plate

- 4.16.01 Each Circuit Breaker and its operating devices and accessories shall be provided with name plate clearly marked the particulars in accordance with IEEE Std. C37.013 -1997
- 4.16.02 Instruction and Warning signs shall be provided in accordance with IEEE Std. C37.013 -1997
- 4.16.03 The name plate shall be provided in visible portion of normal service and installation.

5.00.00 TESTS**5.01.00 Routine Test**

During manufacture and on completion, Generator Circuit Breaker shall be subjected to the routine tests (Production tests) as laid down in IEEE Standard C37.013-1997. The disconnecting switches, earthing switches, surge arrester and surge capacitors shall be subjected to routine tests as laid down in relevant IS/IEC standard.

5.02.00 Type Tests

~~The Generator Circuit Breaker shall be type tested (design tests) as per IEEE Standard C37.013-1997. Further associated components such as disconnecting switches, earthing switches, surge arrester and surge capacitors shall be type tested as per relevant IS/ IEC standards..~~

6.00.00 SPECIAL TOOLS & TACKLES

- 6.01.00 A set of special tools & tackle which are necessary or convenient for erection, commissioning, maintenance and overhauling of the equipment shall be supplied.
- 6.02.00 The tools shall be shipped in separate containers, clearly marked with the name of the equipment for which they are intended.

7.00.00 SPARES

- 7.01.00 The Bidder shall quote and supply **mandatory spare parts** as per the list. ~~The final quantity shall be decided during placement of order.~~ **Mandatory spare list (Annexure-V)**
- 7.02.00 Each list shall be complete with specification, make, identification number, unit rate, quantity etc.

8.00.00 DRAWINGS, DATA & MANUALS

- 8.01.00 Drawings, Data and Manuals shall be submitted with the bid and in quantities and procedures as specified in General Conditions on Contract and/or elsewhere in this specification for approval and subsequent distribution after the issue of Letter of Intent.
-

8.02.00	Documents to be submitted after award of LOI. (In addition to required ANNEXURE IV)
8.02.01	Typical general arrangement drawings of the equipment.
8.02.02	Proposal Technical Particulars, leaflets on equipment and special tools explaining construction features, principle of operation, special features etc.
8.02.03	Type test certificate of the offered model of the Circuit Breaker for the specified type tests.
8.03.00	To be submitted for Owner/Purchaser's Approval and Distribution All relevant drawings, data and calculations pertaining to the equipment like GTP, GA drawing, foundation plan, control & schematic drawings, sizing calculations as per IEEE, QAP, etc. shall be submitted by the Bidder for approval of Owner/Owner's consultant. Calculations for GCB sizing to be submitted shall include – Symmetrical and asymmetrical short circuit current calculation for three phase fault at generator terminals, according to IEEE Std. C37.013, on the basis of the generator and system data provided Out of phase current calculation for 90° out of phase condition, according to IEEE Std. C37.013, on the basis of the generator and system data provided
8.04.00	All drawings shall be prepared by using AutoCAD and documents shall be generated using Electronic version. The paper copy of the drawings & document shall be submitted for approval & reference. All final drawings and documents shall be submitted in CD in AutoCAD 2000 and PDF format as applicable for Owner/Purchaser's future reference. No. of prints shall be as per NIT



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1.00.00 SCOPE

1.01.00 The scope includes:

1.01.01 Design, engineering, manufacturing, assembly, testing, inspection, packing & delivery of:

- Generator circuit breaker
- Start-up and commissioning spares.
- Mandatory spares, as specified.
- Recommended spares for three (3) years of plant Operation & Maintenance.
- Special tools and tackles.
- Cable glands, cable lugs and foundation bolts.

1.01.02 Supervision of erection, testing & commissioning.

1.01.03 Training of engineers.

1.02.00 Terminal points:

- Bus bar of GCB.
- Enclosure of GCB.
- Cable glands and lugs in Local Control Panel.
- Earthing terminals of GCB Local Control Panel.

2.00.00 CODES AND STANDARDS.

S.NO.	STANDARD NUMBER	STANDARD TITLE
1	IEC/IEEE 62271-37-013	High-voltage switchgear and control gear – Part 37-013: Alternating-current generator circuit-breakers
2	IEEE Std. C37.013-1997 (R2008)	IEEE Standard for AC High-Voltage Generator Circuit Breakers Rated on a Symmetrical Current Basis
3	IEEE Std. C37.013a-2007	IEEE Standard for AC High Voltage Generator Circuit Breakers Rated on a Symmetrical Current Basis Amendment 1: Supplement for Use with Generators Rated 10–100 MVA
4	IEC 62271-102	High-voltage switchgear and control gear - Part 102: Alternating current disconnectors and earthing switches



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3.00.00 GENERATOR CIRCUIT BREAKER

3.01.00 The design and testing of the generator circuit breaker shall be in line with IEC/ IEEE 62271-37-013.

3.02.00 The breaker shall have continuous and short time current ratings as those indicated in the datasheet-A of section-I, Volume-II.

3.03.00 The Generator Circuit Breaker (GCB) shall be of the metal enclosed type suitable for direct connection to phase isolated generator bus duct in a manner designed to preserve the phase isolated principle. Each phase of the circuit breaker shall be enclosed in a non-magnetic (Aluminium alloy) enclosure. The degree of protection of the enclosure shall be such that the air leakage rate shall not exceed 5% of the total enclosure volume per hour. The enclosure shall be minimum flux type so as to prevent heating of nearby metallic structures.

3.04.00 Support insulators shall be interchangeable and of high creepage distance, high mechanical and dielectric strength as required by the circuit breaker. Insulators shall be so mounted as to provide easy access for cleaning and removal.

3.05.00 The interrupters of the circuit breaker shall be SF6 type. The rated short circuit duty cycle shall be CO - 30 minutes – CO and continuous current duty cycle shall be CO - 3 minutes – CO.

3.06.00 Operating Mechanism

3.06.01 GCB, isolator and earthing switch shall have separate operating mechanism. The operating mechanism for isolator and earth switch shall be motor operated.

Hand operation of the operating mechanism shall also be possible for GCB, isolator and earthing switch. Interlock shall be provided to prevent motor operation when the switch is being manually operated.

3.06.02 The circuit breaker shall be operated with a hydraulic/spring charged operating mechanism. All the three poles of the circuit breaker shall be gang operated. The circuit breaker shall have antipumping feature.

3.06.03 Hydraulic Operating Mechanism:

Each three-phase circuit breaker shall have a hydraulic system complete with all associated pipework etc. The total stored energy in the operating system offered shall be sufficient for 2 CO operations

Protection shall be provided to take care of possible failure of the hydraulic system that drives the breaker. Upon failure of the hydraulic system in the open position, the breaker shall remain locked in open position and shall not tend to close. Similarly, upon failure of the hydraulic system in the closed position, the breaker shall remain locked in closed position.

3.06.04 Spring Operating Mechanism:

Spring charged mechanism shall be complete with all its accessories. The total stored energy in the operating system offered shall be sufficient for O-C-O operations.



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Provisions shall be made to prevent a closing operation of the breaker when the spring is in the partial charged condition. Mechanical interlocks shall be provided in the operating mechanism to prevent discharging of closing springs when the breaker is already in the closed position.

- 3.07.00 The visual check of the position of the Breaker, Disconnecting switch, starting switch & earthing switch shall be possible from outside the phase enclosure by means of inspection windows.
- 3.08.00 Each circuit breaker shall be provided with a shunt opening release. Such release shall have duplicate actuating coils. These coils shall be capable of opening the circuit breaker at any load or short circuit.
Rated auxiliary voltage and the minimum operating voltage of the trip coils shall be as per the values specified in the datasheet-A of section-I, Volume-II. GCB shall have closing coil and tripping coil supervision relays & both the trip coils shall be monitored.
- 3.09.00 SF6 gas monitor(s) shall be provided for each circuit breaker by bidder as per bidder's standard and proven practice, ensuring utmost reliability of the equipment and failsafe monitoring of SF6 gas, covering all phases and associated pipework. Bidder in the bid shall declare the number of SF6 gas monitor(s) included.
Interlock shall be provided to prevent breaker from opening when the SF6 gas density falls to a level, which is inadequate to complete a successful opening operation of the breaker at its rated capacity.
Bidder to provide SF6 gas leakage detector, if specified in Data Sheet-A of section-I, volume-II.
- 3.10.00 Following interlocks and locking facilities shall be provided:
- a) It shall be possible to key-lock the series isolator in 'open' position blocking both electrical and hand closing of the isolator.
 - b) Key interlock shall be provided to prevent unauthorized operation of GCB.
 - c) Interlock shall also be provided between GCB and isolator.
 - d) Interlock shall also be provided between earth-switch and isolator.
 - e) Mechanical Interlock shall also be provided in addition to electrical interlock for circuit breaker, isolators and earth switches.
- 3.11.00 **Disconnecting switch, starting switch and Earthing switch**
- 3.11.01 The arrangement shall include disconnecting switch, starting switch & earthing switch as per the Attachment-I of Section-I, Volume-II.
- 3.11.02 The hinged point of Starting switch shall be connected with external cable from Gas turbine generator static starter. (Applicable for gas turbine generator set)
- 3.11.03 The design and testing of disconnecting switch, starting switch & earthing switch shall be in line with IEC 62271-102.



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- 3.12.00 Bidder to provide CTs and VTs, if specified in Data Sheet-A of section-I, volume-II.
- 3.13.00 **Local Control Panel (LCP)**
- 3.13.01 Each three-phase circuit breaker shall have a local control panel, for control of the auxiliaries. It shall have all the necessary indication for gas (SF₆) pressure/ density, temperature etc. as per the standard practice of the manufacturer.
- 3.13.02 Mimic diagram shall be provided on local control panel (LCP). LCP shall contain stay put type local/remote selector switch, spring return to neutral control switch/ Push Button for GCB, isolator & earth switch, electrically operated semaphore/ LED indicators for indicating status of GCB, isolator and earth switch.
- 3.13.04 Two nos. incoming DC supply feeders will be made available by purchaser for GCB. Necessary arrangement shall be provided in GCB LCP for receiving these two feeders. Independent MCBs and voltage supervision relays shall be provided in GCB LCP for each DC supply. Auto contactor controlled 220V DC changeover scheme shall be provided.
- 3.13.05
- a) It shall be possible to know abnormal or fault or lockout conditions from GCB local control panel. Visual annunciation shall be provided for this purpose alongwith 'lamp reset' and 'lamp test' push buttons on GCB LCP.
 - b) Separate sets of contacts for annunciation of various abnormal conditions of GCB in Central control room (CCR) shall be provided.
 - c) Two sets of contacts of GCB lockout conditions (when GCB is 'closed') shall be provided for interlocking in generator protection scheme. This is in addition to the requirements of GCB abnormal condition contacts given in b) above.
 - d) Potential-free contacts shall be provided on GCB LCP for indication in CCR for following conditions:
 - i) GCB selected for remote control
 - ii) GCB ready for 'close'
 - iii) DC failure at GCB
 - e) Bidder to provide potential free auxiliary contacts for purchaser's use, in addition to requirement in d) above, as indicated in Data sheet-A of section-I, Volume-II. These contacts shall be wired to the terminal blocks of LCP for external use.
 - f) Operation counter for GCB shall be provided in Local Control Panel.
- 3.13.06 Gland plate of local control panel shall be of adequate size for terminating external cables using glands (Glands and lugs in bidder's scope). No. of external cables, glands and lugs shall be finalized after the award of LOI and there shall not be any price implication on this account.
- 3.13.07 Spare terminals shall be provided in local control panel. Number of spare terminals shall not be less than 10%.
- 3.14.00 All interconnecting cables between various equipment in the scope of the bidder shall be included by bidder in their scope.



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3.15.00 Foundation bolts shall be supplied along with GCB.

3.16.00 Bidder must also establish that the model quoted is suitable for asymmetrical and symmetrical short circuit current contribution from generator side and system side to a 3-phase fault. Bidder to refer Attachment-II of section-I, Volume-II to compute generator side and system side fault current and establish GCB suitability as per IEC/ IEEE 62271-37-013. Bidder must take a negative tolerance on generator reactances and an over- voltage factor of 1.05 for calculating the fault currents.

Bidder must also include the computations/ verification checks for the above in the bid. In the absence of this, the bid will be treated as incomplete and liable to be rejected.

4.00.00 COLOUR OF PAINT

The colour of paint shall be intimated to the vendor after the award of LOI and there shall be no commercial implication on this account.

5.00.00 TESTS

5.01.00 ROUTINE TESTS

The equipment shall be completely assembled, wired, adjusted and routine tested at manufacturer's works. Series isolator and earth switch shall be tested as per IEC 62271-102.

5.02.00 TYPE TESTS

All equipment offered should be of type-tested design. Offered model of GCB should have been type tested as per latest version of standard IEC/ IEEE 62271-37-013. Series isolator and earth switch should have been type tested as per IEC 62271-102.

5.03.00 SITE TESTS

Each generator circuit breaker shall be subjected to the following tests after it is totally assembled at site in its final location.

- i/ Leakage tests alongwith generator busduct
- ii/ Gauge tests
- iii/ Stored energy system tests
- iv/ Electrical resistance of current path tests
- v/ Clearance and mechanical adjustment check tests
- vi/ Timing tests
- vii/ Low frequency withstand voltage tests

5.04.00 WITNESSING OF TESTS

All tests shall be performed in presence of purchaser's representatives. The vendor shall give at least 45 days advance notice for routine tests and type tests.



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6.00.00 QUALITY PLAN

- a. The manufacturer shall furnish a detailed Quality Plan for approval covering testing on all major components like, enclosures, castings, forgings, insulators, springs, contacts, nozzles, cylinders (SF6), manometers, pressure switches, density meters, valves, pipes and fittings, pumps, coils (for tripping and closing), heaters, relays, filters, base frame, support structures, SF6 gas, terminals, etc. The tests shall include all applicable tests like, material, chemical and other tests as per relevant material and international standard. The critical casting and forgings and weld joints shall also be subject to UT/RT and dye penetration examination to ensure freedom from defects. All pressurized vessels/enclosures shall be pressure and leak tested at 1.5 times the design pressure or twice the operating pressure.
- b. The assembled generator circuit breaker shall be tested in accordance with IEC/ IEEE 62271-37-013. The manufacturer shall furnish a detailed test procedure for routine and type test for BHEL/ultimate customer review and approval.
- c. Routine tests on isolator and earth-switch shall be conducted as per IEC 62271-102.

7.00.00 SPARES

- 7.01.00 Bidder to furnish list of start-up and commissioning spares which may be required during the start-up and commissioning of the equipment.
- 7.02.00 Mandatory spares shall be quoted (if applicable) as per BOQ-cum-price schedule as part of NIT.
- 7.03.00 The bidder shall furnish a list of "Recommended spares for 3 years of normal operation of the plant".
- 7.04.00 Various schedules of spares to be submitted alongwith the bid shall indicate description of spare parts alongwith type designation, quantity, unit price, total price etc.

8.00.00 SPECIAL TOOLS & TACKLES

- 8.01.00 Bidder shall offer one set of unused special tools and tackles which are required for erection, assembly, adjustment, maintenance and dismantling of GCB.
- 8.02.00 These tools and tackles shall be separately packed and sent to site prior to erection of GCB.
- 8.03.00 List of special tools and tackles, alongwith quantity shall be furnished as a part of offer.

9.00.00 SUPERVISION OF ERECTION, TESTING AND COMMISSIONING

Bidder shall quote for "Supervision of Erection, Testing and Commissioning" of each GCB. Required instruments for site testing of GCB shall be arranged by the vendor, in case the same are not available at site. These instruments shall be brought by the vendor and shall be taken back after completion of commissioning.



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10.00.00 TRAINING OF ENGINEERS

Bidder shall provide training for a maximum of six (6) engineers from BHEL/ultimate customer at works, training centre etc. if mentioned in BOQ cum price schedule as part of NIT. The training shall also include application, layout, design, construction, operating principle, operating mechanism, local control panel, operation, maintenance, site inspection, erection, site testing, spares etc. of GCB.

10.01.00 The language of instructions shall be English. All training material to be supplied to engineers shall be in English.

10.02.00 The training programme shall be finalised after the award of LOI.

11.00.00 O & M MANUAL

11.01.00 The vendor shall submit after the award of LOI, draft "O & M Manual" for approval. Final "O & M Manual" shall be properly bound.

11.02.00 The O & M Manual shall contain:

11.02.01 Complete set of approved drawings together with performance/ rating curves of the equipment and test certificate wherever applicable.

11.02.02 Storage and handling instructions.

11.02.03 Step by step procedure for erection, testing & commissioning of equipment.

11.02.04 The operating and maintenance instructions of the equipment shall be in sufficient details to enable the owner to maintain, dismantle, reassemble and adjust all parts of the equipment. They shall give a step-by-step procedure for all operations likely to be carried out during the life of the plant/ equipment.

11.02.05 Spare part catalogue for all the equipment.

11.02.06 A separate section of the manual shall be for each size/ type of equipment and shall contain a detailed description of construction and operation, together with all relevant pamphlets, drawings and list of parts with procedure for ordering spares. Maintenance instructions shall include charts showing lubrication, checking, testing and replacement procedures to be carried out daily, weekly, monthly and at longer intervals to ensure trouble free operation. Where applicable, fault location charts shall be included to facilitate finding the cause of mal-operation or break down. A collection of manufacturer's standard leaflets will not be accepted as a compliance of this clause. The manual shall be specifically compiled for the concerned project.

12.00.00 PACKING

12.01.00 Proper seaworthy packing of international standard shall be provided.

5 X 800 MW YADADRI TPS								
BOQ-CUM-PRICE SCHEDULE OF GENERATOR CIRCUIT BREAKER								
SL. NO.	ITEM CODE	MAIN ITEM DESCRIPTION	UNIT	STAGE I QTY.	STAGE II QTY.	UNIT PRICE	TOTAL PRICE	REMARKS
1	510-11003-A	GENERATOR CIRCUIT BREAKER INCLUDING ALL ASSOCIATED SERIES ISOLATOR, EARTH SWITCHES, SHORT CIRCUITING CONNECTION LINK, SURGE CAPACITORS, TWO SETS OF PT AND CONTROL PANEL ALONG WITH ITEMS AT S.NO. 1(a) & 1(b)	SET	2	3			PRICE FOR ITEMS 1.0(a) & 1.0(b) ARE TO BE INCLUDE IN GCB (SNO.1.0). HOWEVER, BIDDER TO INDICATE UNIT PRICES OF THESE TWO ITEMS FOR REFERENCE.
1.0(a)		SF6 GAS LEAKAGE DETECTORS	SET	4	6			
1.0(b)		CIRCUIT BREAKER OPERATION ANALYZER	SET	2	3			
1.0(c)		"SPARE POLE" ASSEMBLY COMPLETELY IDENTICAL TO MAIN POLE ASSEMBLY ALONG WITH ENCLOSURE SUITABLE FOR COMPLETE REPLACEMENT OF ANY OF THE MAIN POLES	NOS.	1	1			
2	510-11007-A	START-UP AND COMMISSIONING SPARES	LOT	2	3			BIDDER TO FURNISH THE LIST
3	510-11008-A	SUPERVISION OF ERECTION, TESTING AND COMMISSIONING						
3.0(a)		CHARGES PER VISIT	VISIT	2	3			REFER NOTE-1 & 2
3.0(b)		MANDAYS CHARGES	DAYS	8	12			REFER NOTE-1 & 2
4	510-11011-A	SPECIAL TOOLS AND TACKLES	LOT	2	3			BIDDER TO FURNISH THE LIST
5	510-11000-B	MANDATORY SPARES	LOT	1				REFER ANNEXURE-1 FOR DETAILED LIST
6	510-11012-A	TRAINING OF ENGINEERS 6 ENGINEERS	SET	1				FOR OPERATION, TROUBLESHOOT & MAINTENANCE
6.0(a)		BASIC COST (IRRESPECTIVE OF NO. OF ENGINEERS)	SET	1				
6.0(b)		ADDITIONAL VARIABLE COST PER ENGINEER PER DAY	NOS.	6				

NOTES: -

- FOR EACH GCB 1(ONE) VISIT AND 4(FOUR) MANDAYS TO BE CONSIDERED. THE PRICES SHALL BE INCLUSIVE OF CHARGES OF AIRFARE, BOARDING/LODGING, VISA, MEDICAL, INSURANCE ETC.
- AMOUNT PAYABLE PER VISIT = 1 VISIT CHARGES AS PER SL. NO. 3.0(a) ABOVE (+) MANDAYS CHARGES AS PER SL. NO. 3.0(b) ABOVE (x) NO. OF DAYS AT SITE(TO BE CERTIFIED BY BHEL SITE)
- WHEREEVER SET IS INDICATED ABOVE, IT MEANS THE TOTAL PARTS/ACCESSORIES REQUIRED TO REPLACE THE PARTICULAR ITEM FOR A GIVEN EQUIPMENT.

GST related Corrigendum to GCC Rev 06

Clause Ref:	Existing Clause as:	Replaced/ New Clause as:
Clause No.4 of GCTC (General commercial terms and conditions)	TAXES AND DUTIES 4.1 EXCISE DUTY 4.1.1 Seller/ Contractor is required to ensure that excise duty including cess, if any, is quoted as per the existing tariff on the date of the offer and all benefits as per existing rules have been considered. 4.1.2 Excise duty actually incurred by Seller/ Contractor on self-manufactured items alone shall be reimbursed against documentary evidence. Excise duty paid by Purchaser on inputs, bought out items, raw materials and components consigned directly to site from sources other than Seller/ Contractor's factory/ works shall be included by the bidder in the quoted basic price. 4.1.3 If excise duty is paid under protest or dispute, it shall not be reimbursed till the dispute is settled. If the Seller/ Contractor claims/ obtains any refund of the excise duty paid, the same shall be refunded to the Purchaser immediately 4.1.4 Invoice cum Excise duty gate pass (Excise Invoice) should contain the name of the ultimate consignee as per Order/ Contract/ Special Conditions of Contract. 4.1.5 If required by Purchaser, the Seller / Contractor will provide a certificate stating that CENVAT benefit has been availed of on the inputs and the same has been passed on to the Purchaser. 4.1.6 Excise duty shall be paid at actuals against documentary evidence but restricted to the amount and percentage indicated in the Order/ Contract. 4.2 SALES TAX / VALUE ADDED TAX (VAT) 4.2.1 Central Sales Tax / Value Added Tax shall be reimbursed only if the same is paid by the Seller / Contractor to the respective Govt. authorities on direct sales by the Seller/ Contractor to the Purchaser, meeting all statutory requirements and availing all exemptions/ concessions under the respective Central Sales Tax / Value Added Tax Acts. The offer should clearly indicate CST/ VAT percentage and the total	TAXES AND DUTIES 4.1 CGST/SGST/UTGST/IGST 4.1.1 Seller/ Contractor is required to ensure that CGST/SGST/UTGST/IGST (whichever is applicable) is quoted as per the existing tariff on the date of the offer and all benefits as per existing laws have been considered. 4.1.2 It is the responsibility of the seller/contractor to issue the Tax Invoice strictly as per the format prescribed under the relevant applicable GST law (CGST Act/SGST Act/UTGST Act/IGST Act). Vendor to indicate the proper GSTN Registration/ HSN code in their tax invoice. 4.1.3 The purchaser is registered in the State of Uttar Pradesh vide following GST registration number: 09AAACB4146P22C 4.1.4 Seller/contractor is required to mention the above registration number in their tax invoice unless stated otherwise in NIT/SCC. 4.1.5 CGST/SGST/UTGST/IGST shall be paid at actuals against Tax Invoice but restricted to the amount and percentage in the order/contract

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	amount along with concessional form(s), if any. 4.2.2 Purchaser is registered in NOIDA, U.P. vide following Registration Numbers: Central Sales Tax Registration No. : ND – 5341151 w.e.f. 01-07-2006 UP Trade Tax Registration No. : ND – 0345307 w.e.f. 01-07-2006 UP TIN No. : 09765702874 4.2.3 Central Sales Tax/ Value Added Tax shall be reimbursed, as per tariff applicable, but restricted to the percentage and amount shown in the Order/ Contract. If it is shown as included in the quoted price/ not applicable, it will not be reimbursed by the Purchaser. 4.2.4 Purchaser proposes to make sale-in-transit under section 6 (2) (b) of Central Sales Tax Act where goods movement is inter-state. Form-C shall be issued and exchanged against Form-E1/E2 based on quarterly transactions. Seller/Contractor is required to submit his request in the format enclosed at Annexure-VI within 30 days from end of the Quarter, giving State-wise invoice details. 4.2.5 VAT invoices, in format prescribed by the respective State Sales Tax Act, have to be submitted in the name of Nodal Agency specified in Special Conditions of Contract. 4.3 SERVICE TAX 4.3.1 Service Tax paid by the Service Provider /contractor to the Government authorities directly shall only be reimbursed at actuals against documentary evidence, but restricted to the rate and amount mentioned in the order/contract. The offer should clearly indicate the percentage and the total amount of service tax. 4.3.2 Service provider/Contractor to ensure their registration for “Intended Service” to be provided, before claiming Service tax under the “intended category”. Decision of BHEL shall be final w.r.t. the “Intended category” in which the service will be falling. 4.3.3 If required by the Purchaser, the Service Provider/Contractor will provide a certificate stating that “CENVAT Benefit has been availed of on the input and the	4.2 OTHER TAXES & LEVIES 4.2.1 All taxes/duties/Cess other than CGST/SGST/UTGST/IGST shall be deemed to be included in the Ex-Works prices unless specified otherwise by the bidder in the price bid. No variation in other taxes and duties shall be payable by Purchaser. 4.3 CUSTOMS DUTY
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	same has been passed on to the purchaser” or “CENVAT Benefit has not been availed of on the inputs”. 4.4 OTHER TAXES & LEVIES All taxes and duties other than Excise Duty, Sales Tax/ VAT, Service Tax shall be deemed to be included in the Ex-Works prices unless specified otherwise by the bidder in the price bid. No variation in other taxes and duties shall be payable by Purchaser. However, statutory variation in Octroi will be payable extra against documentary evidence. 4.5 CUSTOMS DUTY 4.5.1 Customs Duty element for imported items as per Special Conditions of Contract shall be included in the Ex-Works prices. No variation in customs duty and exchange rate for imported items shall be payable by Purchaser. 4.5.2 Seller/ Contractor shall arrange for his own import license, if required, since Purchaser will not provide any import license. Therefore, Seller/ Contractor alone shall be responsible for any delay in getting import license or non-availability of the same or completion of other related formalities. Purchaser shall not be responsible for any financial liability, whatsoever, on this account. 4.5.3 Essentiality Certificate or Project Authority Certificate (PAC) as per Import Policy, if required to avail concessional customs duty, shall be clearly specified in the offer. Import content (CIF value in rupees) with list of items, quantity, foreign currency, country of origin etc., shall be submitted by the bidder as part of Price bid. 4.6 DIRECT TAX 4.6.1 Purchaser shall not be liable towards income tax of whatever nature including variations thereof, arising out of this Order/ Contract, as well as tax liability of the Seller/ Contractor and his personnel.	4.3.1 Customs Duty/IGST/Goods and Services compensation cess under Goods and Services Tax (Compensation to States) Act, 2017 element for imported items as per Special Conditions of Contract shall be included in the Ex-Works prices. 4.3.2 Seller/ Contractor shall arrange for his own import license, if required, since Purchaser will not provide any import license. Therefore, Seller/ Contractor alone shall be responsible for any delay in getting import license or non-availability of the same or completion of other related formalities. Purchaser shall not be responsible for any financial liability, whatsoever, on this account. 4.3.3 Essentiality Certificate or Project Authority Certificate (PAC) as per Import Policy, if required to avail concessional customs duty, shall be clearly specified in the offer. Import content (CIF value in rupees) with list of items, quantity, foreign currency, Country of origin etc., shall be submitted by the bidder as part of Price bid. 4.4 DIRECT TAXES 4.4.1 Purchaser shall not be liable towards income tax of whatever nature including variations thereof, arising out of this Order/ Contract, as well as tax liability of the Seller/ Contractor and his personnel. 4.4.2 Deductions of Tax at source at the prevailing rates shall be effected by the Purchaser before release of payment, as a statutory obligation, if applicable. TDS certificate will be issued by the Purchaser as per statutory provisions
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	4.6.2 Deductions of Tax at source at the prevailing rates shall be effected by the Purchaser before release of payment, as a statutory obligation, if applicable. TDS certificate will be issued by the Purchaser as per statutory provisions.	
	5.0 STATUTORY VARIATION 5.1 If the rates for taxes and duties in respect of the quoted materials and/ or services assumed by the Seller/ Contractor are less than the tariff prevailing at the time of tendering, Seller/ Contractor will be responsible for such under quotations. However, if the rates assumed are higher than the correct rates prevailing at the time of tendering, the difference will be to the credit of the Purchaser. 5.2 Statutory Variations in Excise Duty, Service Tax and Central Sales Tax/ Value Added Tax only on self-manufactured items/ services rendered by vendor himself on the rates prevailing at the time of delivery/ completion in comparison to the date of offer, will be to the account of the Purchaser. No other variations such as on customs duty, exchange rate, minimum wages, prices of controlled commodities, any other input etc. shall be payable by the Purchaser. 5.3 Notwithstanding the above, where the actual completion of the supply occurs beyond the period stipulated in the Order/ Contract or any extension thereof, variations referred to above, will be limited to the rates prevailing on the dates of such agreed completion periods only. For variations after the agreed completion periods, the Seller/ Contractor alone shall bear the impact for the upward revisions and for downward revisions; purchaser shall be given the benefit of reduction in taxes/ duties. This will be without prejudice to the levy of penalty for delay in delivery/ completion schedule. 5.4 Any new tax structure (like Goods & Services Tax) as and when implemented by the Government shall become applicable in addition to or in lieu of existing tax structure.	5.0 STATUTORY VARIATION 5.1 Statutory variation for CGST/SGST/UGST/IGST is available provided the actual completion of supply does not occur beyond the period stipulated in the order/contract or any extension (without levy of penalty). 5.2 For variation after the agreed completion periods, the seller/contractor alone shall bear the impact for the upwards revisions and adjust the price in their basic price in such a manner that total price with tax matches with the ex-works with taxes of Purchase Order/Contract. For downward revisions, purchaser shall be given the benefit of reduction in CGST/SGST/UGST/IGST. This will be without prejudice to the levy of penalty for delay in delivery/completion schedule. 5.4 No other variations such as on Custom Duty, exchange rate, minimum wages, prices of controlled commodities, any other input etc. shall be payable by the purchaser.

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Clause 8	8.0 TRANSPORTATION & FREIGHT CHARGES 8.1 All dispatches shall be through road carriers approved by Purchaser/ Bank, on freight pre-paid basis. 8.2 Road permit/ entry permit, if required as per law of the State, shall be arranged by Purchaser. 8.3 Freight charges (including Service Tax) shall be payable after delivery of the goods at the project site, on receipt of MRC or receipted LR on pro-rata basis.	8.0 TRANSPORTATION & FREIGHT CHARGES 8.1 All dispatches shall be through road carriers approved by Purchaser/ Bank, on freight pre-paid basis. 8.2 Road Permit/E-way bill, if required, will be arranged by Supplier.
	9.0 TERMS OF PAYMENT 9.1 SUPPLY PACKAGES 9.1.1 Ninety percent (90%) of basic price of materials supplied, as per PO, along with 100% taxes and duties (as applicable), shall be paid against receipt of material at site on pro-rata basis. 9.1.2 Ten percent (10%) of basic price of materials supplied will be released on pro-rata basis after receipt of Material Receipt Certificate (MRC) from project site engineer of Owner/ Purchaser, on submission of all final documents for the packages as detailed below, duly certified by Engg. Deptt. of purchaser, and submission of Form E1/ E2 against Form-C, if applicable. List of packages with required final documents is as per Annexure-X. 9.2 SUPPLY PACKAGES WITH PERFORMANCE GUARANTEE / DEMONSTRATION TEST AT SITE IN VENDOR'S SCOPE 9.2.1 Eighty Five percent (85%) of basic price of materials supplied, as per PO / approved billing schedule, along with 100% taxes and duties (as applicable), shall be paid against receipt of material at site on pro-rata basis. 9.2.2 Ten percent (10%) of basic price of materials supplied will be released on pro-rata basis after receipt of Material Receipt Certificate (MRC) from project site engineer of Owner/ Purchaser and submission of Form E1/ E2 against Form-C, if applicable. 9.2.3 Five percent (5%) of the total basic price of materials and PG/ Demonstration test charges shall be released after submission of all final documents as per Technical	9.0 TERMS OF PAYMENT 9.1 SUPPLY PACKAGES Payment of basic price of materials supplied alongwith freight and taxes and duties (as applicable), shall be paid against receipt of material at site on pro-rata basis. 10% of basic price of materials supplied will be retained as security deposit which will be released on pro – rata basis after receipt of Material Receipt Certificate (MRC) from project site engineer of owner/purchaser on submission of all the final documents for the packages as detailed below, duly certified by engineering department of purchaser. List of packages with required final documents is as per Annexure-X. 9.2 Supply packages with performance guarantee/demonstration test at site in vendor's scope Payment of basic price of materials supplied, as per PO/ as per approved billing schedule, along with freight and taxes and duties (as applicable), shall be paid against receipt of material at site on pro-rate basis. 15% of basic price of materials supplied will be retained as security deposit which will be released on pro – rata basis as details below: a) 10% will be released after receipt of Material Receipt Certificate (MRC) from project site engineer of owner/purchaser.

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Specifications and successful completion of the Performance Guarantee (PG)/ Demonstration Test at site. Note: If the Performance Guarantee/ Demonstration Test is not conducted up to 24 months from supply completion for reasons not attributable to the vendor, then last 5% payment will be released against Bank Guarantee of an equivalent amount, valid for 12 months. This bank guarantee will be in addition to Contract Performance Bank Guarantee for 10% of the contract value (excluding taxes, duties and freight). 9.3 SUPPLY PAYMENT FOR TURNKEY PACKAGES (E&C IN VENDOR'S SCOPE) 9.3.1 Eighty Five percent (85%) of basic price of materials supplied, as per approved billing schedule, along with 100% taxes and duties (as applicable), shall be paid against receipt of material at site on pro-rata basis. OR i) Five percent (5%) lump sum payment of total basic price (excluding taxes, duties & freight) against approval of design documents and quality plan as certified by Engineering. Design documents and quality plan shall be as defined in the Technical Specifications. ii) Eighty percent (80%) of basic price of materials supplied, as per approved billing schedule, along with 100% taxes and duties (as applicable), shall be paid against receipt of material at site on pro-rata basis. 9.3.2 Five percent (5%) of basic price of materials supplied along with freight, if applicable, will be released on pro-rata basis after submission of Material Receipt Certificate (MRC) from project site engineer of Owner/ Purchaser and submission of Form E1/ E2 against Form-C, if applicable. Collection of Material Receipt Certificate from Site/ Owner and its submission for claiming the payment shall be the responsibility of the Seller/ Contractor. 9.3.3 Ten percent (10%) of the total basic price shall be released after i) submission of all final documents as per Technical Specifications and ii) successful completion of	b) 5% will be released after submission of final documents as per technical specification and successful completion of the performance guarantee (PG)/ Demonstration test at site. Note: If the Performance Guarantee/ Demonstration Test is not conducted up to 24 months from supply completion for reasons not attributable to the vendor, then 5% security deposit will be released against Bank Guarantee of an equivalent amount, valid for 12 months. This bank guarantee will be in addition to Contract Performance Bank Guarantee for 10% of the contract value (excluding taxes, duties and freight). 9.3 SUPPLY PAYMENT FOR TURNKEY PACKAGES (E&C IN VENDOR'S SCOPE) 9.3.1 Payment of basic price of materials supplied, as per approved billing schedule, along with freight, taxes and duties (as applicable), shall be paid against receipt of material at site on pro-rata basis. 15% of basic price of materials supplied will be retained as security deposit which will be released on pro – rata basis as details below: a) 5% will be released on pro-rata basis after submission of Material Receipt Certificate (MRC) from project site engineer of owner/purchaser. Collection of Material Receipt Certificate from site/owner and its submission for claiming the payment shall be the responsibility of the Seller/Contractor. b) 10% will be released after i) submission of all final documents as per Technical Specifications and ii) successful completion of Performance Guarantee (PG)/ Demonstration Test and handing over of the system/ package, if applicable, as per Order/ Contract
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	Performance Guarantee (PG)/ Demonstration Test and handing over of the system/ package, if applicable, as per Order/ Contract. 9.4 ERECTION & COMMISSIONING PAYMENT FOR TURNKEY PACKAGES 9.4.1 Eighty percent (80%) payment on pro-rata basis for the work completed, as per approved billing schedule, shall be released by Site authorities/ Region on submission of protocols, duly signed by BHEL Site/ Owner. 9.4.2 Ten percent (10%) of the total value shall be released by Site authorities/ Region on successful commissioning of the complete system/ package. 9.4.3 Ten percent (10%) of the total value shall be released by Site authorities/ Region on successful completion of PG/ Demonstration test(s) and handing over system/ package to the Owner, as applicable. 9.5 PG TEST, INSTALLATION CHECK, SUPERVISION OF ERECTION / COMMISSIONING CHARGES 100% payment shall be released after successful completion of the activity, on Site certification. 9.6 Vendors shall submit documents for payment directly to BHEL. Payment will be released within 60 days after receipt of complete documents as per order/ contract (45 days for vendors qualified and registered as Micro or Small as per MSMED Act). To be eligible for payment as Micro and Small category, vendors shall submit annual certification for validation from designated authority under MSMED Act or Chartered Accountant within first quarter of every financial year. . <u>Note:</u> 1) For indigenous suppliers, if the documents are routed through Bank, then all bank charges will be to vendor's account. 2) Foreign bidders can opt for payment (less agency commission, if applicable) through irrevocable and unconfirmed letter of credit. In that case for	9.4 ERECTION & COMMISSIONING PAYMENT FOR TURNKEY PACKAGES 9.4.1 Eighty percent (80%) payment on pro-rata basis for the work completed, as per approved billing schedule, shall be released by Site authorities/ Region on submission of protocols, duly signed by BHEL Site/ Owner. 9.4.2 Ten percent (10%) of the total value shall be released by Site authorities/ Region on successful commissioning of the complete system/ package. 9.4.3 Ten percent (10%) of the total value shall be released by Site authorities/ Region on successful completion of PG/ Demonstration test(s) and handing over system/ package to the Owner, as applicable. 9.5 PG TEST, INSTALLATION CHECK, SUPERVISION OF ERECTION / COMMISSIONING CHARGES 100% payment shall be released after successful completion of the activity, on Site certification. 9.6 Vendors shall submit documents for payment directly to BHEL. Payment will be released within 60 days after receipt of complete documents as per order/ contract (45 days for vendors qualified and registered as Micro or Small as per MSMED Act). <u>Note:</u> 1) Vendors are required to issue Tax Invoice inclusive of PVC value (if applicable) wherever indices are available. 2) For indigenous suppliers, if the documents are routed through Bank,
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	evaluation purpose, prices of foreign bidders will be loaded on account of payment through LC, equal to loading specified against 'Payment through Bank' in Annexure-VIII. No loading will be done if foreign vendors agree for 90 days usance LC or submit the documents on collection basis for payment within 90 days of submission of complete documents. 3) LC opening/ negotiation/ confirmation charges will be to vendor's account. 4) Form C/ E1/E2 are not applicable for foreign bidders. 5) In extreme case of vendors not agreeing to link 10% payment with submission of Form E1/ E2 against Form-C as above, their prices will be loaded as per Annexure-VIII. 6) Any negative PVC, if not adjusted in earlier payments, will be adjusted at the time of MRC payment. 7) Payment terms for mandatory spares shall be as per clause 9.1.	then all bank charges will be to vendor's account. 3) Foreign bidders can opt for payment (less agency commission, if applicable) through irrevocable and unconfirmed letter of credit. In that case for evaluation purpose, prices of foreign bidders will be loaded on account of payment through LC, equal to loading specified against 'Payment through Bank' in Annexure-VIII. No loading will be done if foreign vendors agree for 90 days usance LC or submit the documents on collection basis for payment within 90 days of submission of complete documents. 4) LC opening/ negotiation/ confirmation charges will be to vendor's account. 5) Payment terms for mandatory spares shall be as per clause 9.1. 9.7 The applicable TDS under CGST/SGST/UGST/IGST/ Goods and Services (Compensation to States) Act will be deducted from the payments. 9.8 Other clauses 1. Vendor/Supplier will intimate & upload the Tax invoice along with LR/RR(as applicable) on web portal & intimate BHEL immediately on removal of goods from vendor/supplier works. In case of Services, Vendor is required to upload the Tax invoice on Web Portal immediately after raising the invoice. BHEL will issue the delivery order/instruction to dispatch the material to the customer as indicated in SCC. 2. All payments against Tax Invoice to vendors/contractors shall be released only after:
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		a) Vendor/contractor declaring such invoice in GSTR-1 within the prescribed timeline as per the relevant Act. b) The tax component charged by the vendor in the invoice should be matched with the details uploaded by vendor in GSTR-1. c) Confirmation of payment of GST thereon by vendor on GSTN portal 3. In case, any GST credit is delayed/denied to BHEL due to non/delayed receipt of goods and/or tax invoice or expiry to timeline prescribed in the relevant Act for availing such ITC, or any other reasons not attributable to BHEL, tax amount shall be recoverable from the vendor/contractor along with interest levied/leviable on BHEL. 4. Wherein GST liability arises on BHEL under reverse charge, any interest levied/leviable due to any reasons not attributable to BHEL shall be recovered from the vendor/contractor.
Clause 9	9.7 DOCUMENTS TO BE SUBMITTED BY VENDOR 9.7.1 For Recognition of Dispatch Copy of the following documents by e-mail/ fax immediately on despatch: a. Invoice b. LR along with Delivery Order c. Packing List d. Insurance Intimation e. Dispatch Clearance 9.7.2 For Claiming Payments (under clause 9.1.1, 9.2.1, 9.3.1): a. Invoice – original+1 copy b. Receipted LR (signed & stamped)/ confirmation from site regarding receipt of packages/ Boxes original/ copy	9.7 All same a. to be replaced with “GST compliant invoice” in 9.7.1, 9.7.2, 9.7.3 Modification in the clause Duty drawback documents “As per applicable law” (original+1 copy.)

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	c. Delivery order- 2 copies d. Packing List - clearly showing number of packages, gross weight and net weight. - original+1 copy e. MDCC from BHEL/ Customer – as per SCC – 2 copies f. Guarantee Certificate – Original + 1 copy g. Insurance Intimation - 2 copies CQIR / Inspection Reports – Original+1 copy i. PVC Calculation and copy of all applicable indices, if PVC applicable. – 2 copies j. Duty drawback documents (original excise invoice, original disclaimer certificate, original certificate from excise authority for payment of excise duty), if applicable. – original + 1copy 9.7.3 For Claiming Freight Payment a. Invoice – Original + 1 copy b. Receipted LR (signed & stamped)/ confirmation from site regarding receipt of packages/ Boxes original/ copy c. Transporter’s document indicating the freight amount. Original money receipt to be submitted if required as per SCC. 9.7.4 For Claiming MRC Payment a. Invoice – Original + 1 copy b. Copy of MRC 9.7.5 For Claiming Payment for Services involving Service Tax a. Invoice as per rule 4A of Service Tax Act – Original + 1 copy b. Copy of Service Tax registration certificate c. Copy of challan for Service Tax payment	
Clause 3.0 Instruction to bidders	Total erection & commissioning charges including service tax should be minimum 20% (or as specified in NIT) of the total quoted package price (excluding mandatory spares but including all taxes and freight), failing which the break-up of prices shall be adjusted accordingly for ordering.	Total erection & commissioning charges including applicable tax but excluding freight along with GST should be minimum 20% (or as specified in NIT) of the total quoted package price (excluding mandatory spares but including all taxes and freight), failing which the break-up of prices shall be adjusted accordingly for ordering.

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Clause 16.0 Instruction to bidder	For deviations w.r.t. Payment terms, Liquidated damages, Firm prices and submission of E1/ E2 forms before claiming 10% payment, if a bidder chooses not to give any cost of withdrawal of deviation loading as per Annexure-VIII will apply.	For deviations w.r.t. Payment terms, Liquidated damages, Firm prices before claiming 10% payment, if a bidder chooses not to give any cost of withdrawal of deviation loading as per Annexure-VIII will apply.
Clause 16.0 of GCTC	Purchaser reserves the right to recover from the Seller/ Contractor, as agreed liquidated damages and not by way of penalty, a sum equivalent to half (½) percent of the total contract price per week or part thereof, subject to a maximum of ten (10) percent of the total contract price excluding elements of taxes, duties and freight, if the Seller/ Contractor fails to deliver any part of the ordered stores within the period stipulated in the Order/ Contract. For Turnkey packages (Supply and E&C in vendor's scope), Liquidated Damages shall be levied on the total contract value of both Supply and E&C orders (excluding taxes, duties and freight) if E&C completion of the package is delayed beyond the contractual completion date or extension thereof. Liquidated Damages will not be withheld from supply payment. LR/ GR/ RR date for indigenous supplies and AWB/ BL date for FOB contracts shall be treated as the date of dispatch for levying LD as per Clause 16. However, for indigenous supply if receipted LR date is beyond three months from the date of LR, such excess period shall also be considered for LD purpose. 2. In case of any amendment/ revision, LD shall be linked to the amended/ revised contract value and delivery date(s)	Purchaser reserves the right to recover from the Seller/ Contractor, as agreed liquidated damages and not by way of penalty, a sum equivalent to half (½) percent plus applicable GST of the total contract price per week or part thereof, subject to a maximum of ten (10) percent of the total contract price excluding elements of taxes, duties and freight, if the Seller/ Contractor fails to deliver any part of the ordered stores within the period stipulated in the Order/ Contract. For Turnkey packages (Supply and E&C in vendor's scope), Liquidated Damages shall be levied on the total contract value of both Supply and E&C orders (excluding taxes, duties and freight) if E&C completion of the package is delayed beyond the contractual completion date or extension thereof. Liquidated Damages will not be withheld from supply payment. LR/ GR/ RR/ eway bill date for indigenous supplies and AWB/ BL date for C&F contracts shall be treated as the date of dispatch for levying LD as per Clause 16. However, for indigenous supply if receipted LR/eway bill date is beyond three months from the date of LR/e-way bill, such excess period shall also be considered for LD purpose. 2. In case of any amendment/ revision, LD shall be linked to the amended/ revised contract value and delivery date(s)

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Deviation sheet- Cost of Withdrawal	Point no-9 For deviations w.r.t. Payment terms, Liquidated damages, Firm prices and submission of E1/ E2 forms before claiming 10% payment, if a bidder chooses not to give any cost of withdrawal of deviation loading as per Annexure-VIII of GCC, Rev-06 will apply. For any other deviation mentioned in un-priced copy of this format submitted with Part-I bid but not mentioned in priced copy of this format submitted with Priced bid, the cost of withdrawal of deviation shall be taken as NIL.	For deviations w.r.t. Payment terms, Liquidated damages, Firm prices before claiming 10% payment, if a bidder chooses not to give any cost of withdrawal of deviation loading as per Annexure-VIII of GCC, Rev-06 will apply. For any other deviation mentioned in un-priced copy of this format submitted with Part-I bid but not mentioned in priced copy of this format submitted with Priced bid, the cost of withdrawal of deviation shall be taken as NIL.
Annexure-VI		Deleted
Annexure-VIII		Following changes in annexure-8, (remaining portion of annex-8 is same): C) LIQUIDATED DAMAGES If maximum limit asked for is 10% or 5% of Undelivered Portion – 10% value of the total quoted price including GST & freight. If maximum limit asked is less than 10 % of contract value loading shall be to the extent to which not agreed by bidder (at offered value) . E) DEVIATION TO SUBMISSION OF FORM E1/ E2 BEFORE CLAIMING 10% PAYMENT 10% of Ex-Works supply value.
New clauses:		
a) In case of discrepancy in CGST/SGST/UTGST/IGST rate corresponding to HSN ;code and quotes rates, the evaluation shall be done on quoted price and correct CGST/SGST/UTGST/IGST rate shall be considered for ordering (limited to quoted FOR Site Price) b) The bidder should have been registered with the appropriate authority under relevant GST laws. c) The bidder to specify in their offer (part 1 bid) the category of registration under GST i.e. registered dealer and composite dealer d) No CGST/SGST/UTGST/IGST will be reimbursed to composite dealer. In the event of any GST quoted by composite dealer, the same shall be considered for evaluation purpose. However, the ordering will be done without considering the tax. e) In the event of any change in the status of vendor from composite to regular dealer after the submission of the bid but before the supply, no reimbursement of CGST/SGST/UTGST/IGST will be made. However, the vendor has to raise the invoice strictly, as per the law, by adjusting their ex-works price.		

	PRE-QUALIFICATION REQUIREMENTS FOR GENERATOR CIRCUIT BREAKER	PE-PQ-999-510-E001
		REVISION NO. 04 DATE 25/05/2018
		SHEET NO. 1 OF 1

ITEMS : Generator circuit breaker complete with isolator, earth switches, surge capacitor, manual shorting connection

RATING : Continuous current rating: 6000 Amps and above, Short circuit current rating: 63kA and above, Rated voltage: Suitable for generator voltage of 10.5kV and above.

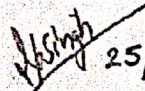
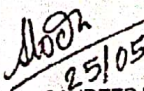
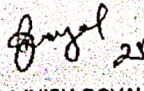
SCOPE: Supply : YES; Erection & Commissioning : NO; Supervision of Erection & Commissioning : YES;

1	Availability of complete type test report as per relevant IEEE/IEC standard conducted at independent laboratory or witnessed by third party.
2	Vendor should be designer and manufacturer of generator circuit breaker.
3	In-house capability to carry out all routine & acceptance test as per relevant IEEE/IEC standard.
4	Option -1 : Performance certificates for min. 2 years of trouble free operation at minimum 2 different installations/sites for above rating of GCB. Performance certificate should be from end user only. OR Option-2 : Repeat orders received from two different purchasers/end users for above rating of GCB during last 5 years from the date of application for registration or date of techno-commercial bid opening (as applicable) provided the gap between the awards of purchase orders is minimum 2 years. OR Option-3 : 1 no. performance certificate (as per Option-1) and 1 no. repeat order (as per Option-2). OR Option-4 : Successful execution of a major order from BHEL-PEM for above rating of GCB.
5	Minimum two (2) nos. purchase orders for supply of Generator Circuit Breaker of above rating shall be submitted which should not be more than five (5) years old from the date of application for registration or date of techno-commercial bid opening (as applicable) for establishing continuity in business.

Notes (General points):

1. Consideration of offer shall be subject to customer's approval of bidders, if applicable.
2. Bidder to submit all supporting documents in English. If documents submitted by bidder are in language other than English, a self-attested English translated document should also be submitted.
3. Any other project specific requirement shall be as per Annexure-I and bidder shall submit relevant supporting documents. Bidder to meet criteria as stated above and as per Annexure- I.
4. Notwithstanding anything stated above, BHEL reserves the right to assess the capabilities and capacity of the bidder to perform the contract, should the circumstances warrant such assessment in the overall interest of BHEL.

After satisfactory fulfillment of all the above criteria/ requirement, offer shall be considered for further evaluation as per NIT and all the other terms of the tender.

PREPARED BY  25/05/18 NAME: AMITPAL SINGH DESIGNATION: MANAGER	REVIEWED BY  25/05/18 NAME: SANDEEP LODH DESIGNATION: DGM	APPROVED BY  25/5/18 NAME: RAJNISH GOYAL DESIGNATION: AGM & DH
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BHEL PEM-ELECTRICAL
PRE-QUALIFYING REQUIREMENTS FOR GENERATOR CIRCUIT BREAKER

ANNEXURE - I

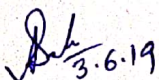
PROJECT SPECIFIC CRITERIA AGAINST ENQUIRY

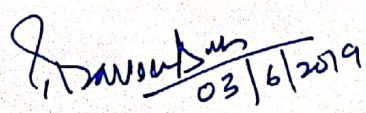
PROJECT: 5X800MW YADADRI TPS

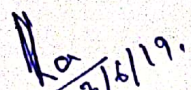
The Bidder should have designed, manufactured, tested, supplied, erected & commissioned /supervised erection and commissioning of at least two numbers of generator circuit breakers (sulphur hexafluoride) of ratings not below that offered for this project, which are in successful operation for at least two (2) years as on 17-10-2017. The ratings will constitute of:

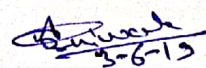
- Rated voltage and current rating.
- Rated short circuit current carrying capability for one (1) second.
- Rated short circuit peak making and latching current carrying capability.
- Rated symmetrical RMS short circuit current interrupting capability.

The type (sulphur hexafluoride) and rating of breaker offered should also have been successfully type tested as on 17-10-2017.


3.6.19
AYAN SAHA
(MGR.- ELECTRICAL)


03/6/2019
PRAVEEN DUTTA
(SR. DGM-Electrical)


3/6/19.
DEBASISA RATH
(AGM-Electrical)


3-6-19
ABHINAV BANSHIWALA
(DY. MGR- Electrical)

General Points of PQR

1. Offers of the JV companies/ Joint Bidders/ bidders having collaboration/ licensing agreement/ MOU/ Indian subsidiaries shall be evaluated as follows:
 - a. If bidder happens to be an Indian subsidiaries of foreign OEM, then the credentials of the foreign OEM can also be considered for meeting PQR.
 - b. If bidder happens to be the Joint Venture Company, then the credentials of any of JV partners can be also considered for meeting PQR.
 - c. If bidder happens to bid jointly with their partner, then credentials of both the partners will be considered for meeting PQR as per distribution of the work. In all such cases, lead bidder as specified in bid documents shall be responsible for overall execution of the contract and all guarantee/ warranty.
 - d. If bidder happens to be the having valid collaboration agreement/ MOU/ licensing agreement with some other company, then the credentials of collaborator/ MOU partner/ licensing company can also be considered for meeting PQR.

Note: If bidder(s) qualifies on the basis of credentials of his principal/ JV partner/ Collaborator/ joint bidder etc., then the principal/ JV partner/ Collaborator/ MOU partner/ joint bidder shall be responsible for overall design vetting and warranty/ guarantee of the package. The scope matrix clearly defining their respective roles including design vetting, manufacturing of critical component, E&C etc. etc. and warranty/ guarantee shall be submitted along with the offer.

2. Bidder to note that the arrangement of bidding (joint bid partners/ collaborator/ MOU partner/ licensing company etc.) once offered to BHEL as a part of bidding documents cannot be changed till the execution of the project.
3. Consideration of offer shall be subject to customer's approval of bidders, if applicable.
4. Bidder to submit all supporting documents in English. If documents submitted by bidder are in language other than English, a self-attested English translated document should also be submitted.
5. Any other project specific requirement shall be as per Annexure-I and bidder shall submit relevant supporting documents.
6. Notwithstanding anything stated above, BHEL reserves the right to assess the capabilities and capacity of the bidder/collaborators to perform the contract, should the circumstances warrant such assessment in the overall interest of BHEL.
7. After satisfactory fulfillment of all the above criteria/ requirement, offer shall be considered for further evaluation as per NIT and all the other terms of the tender.

INTEGRITY PACT**Between**

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi - 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for

_____. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1- Commitments of the Principal

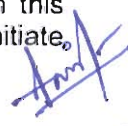
1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions:


(AMIT MEENA)
DI MGR/PG-II

Section 2 - Commitments of the Bidder(s)/ Contractor(s)

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
- 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and will await their decision in the matter.

Section 3 - Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 4 - Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to

demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee, whichever is higher.

Section 5 - Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 - Equal treatment of all Bidders/ Contractors / Sub-contractors

- 6.1 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors. In case of sub-contracting, the Principal contractor shall be responsible for the adoption of IP by his sub-contractors and shall continue to remain responsible for any default by his sub-contractors:
- 6.2 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 - Criminal Charges against violating Bidders/ Contractors /Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 - Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- 8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality in line with Non- disclosure agreement.
- 8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

- 8.5 The role of IEMs is advisory, would not be legally binding and it is restricted to resolving issues raised by an intending bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.
- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process, the matter should be examined by the full panel of IEMs jointly as far as possible, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.
- 8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to CMD, BHEL, at the earliest. They may also send their report directly to the CVO and the Commission, in case of suspicion of serious irregularities requiring legal/ administrative action. IEMs will tender their advice on the complaints within 10 days as far as possible.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.
- 8.9 IEM should examine the process integrity, they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the organization should be looked into by the CVO of the concerned organisation.
- 8.10 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code/ Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.11 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.
- 8.12 The word 'Monitor' would include both singular and plural.

Section 9 - Pact Duration

- 9.1 This Pact shall be operative from the date IP is signed by both the parties till the final completion of contract for successful bidder and for all other bidders 6 months after the contract has been awarded. Issues like warranty / guarantee etc. should be outside the purview of IEMs.
- 9.2 If any claim is made/ lodged during currency of IP, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 - Other Provisions

- 10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.

- 10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- 10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.
- 10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.5 Only those bidders / contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

For & On behalf of the Principal

For & On behalf of the Bidder/
Contractor

(Office Seal)

(Office Seal)


(AMIT MEENA)
DYINGE/PS-2

Place Noida
Date _____

Witness: _____
(Name & Address) _____

Witness: _____
(Name & Address) _____

Clause on IP in the tender**“Integrity Pact (IP)”**

- (a) IP is a tool to ensure that activities and transactions between the Company and its Bidders/ Contractors are handled in a fair, transparent and corruption free manner. Following Independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

SI	IEM	Address	Phone & Email
1.	Shri D.R.S Chaudhary, IAS (Retd.)	E-1/164, Arera Colony Bhopal 462016 (M.P.)	dilip.chaudhary@icloud.com
2.	Mrs. Pravin Tripathi, IA & AS (Retd.)	D-243, Anupam Gardens, Lane IB, Neb Sarai, Sainik Farms, New Delhi – 110 068	pravin.tripathi@gmail.com

- (b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/ three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.
- (c) Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through email only.

Note:

No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are provided below:

Details of contact person(s):

(1)
 Name: _____
 Deptt: _____
 Address: _____
 Phone: (Landline/ Mobile) _____
 Email: _____
 Fax: _____

(2)
 Name: _____
 Deptt: _____
 Address: _____
 Phone: (Landline/ Mobile) _____
 Email: _____
 Fax: _____

ANNEXURE-II: DEVIATION SHEET (COST OF WITHDRAWAL)



PROJECT:-

PACKAGE:-

TENDER ENQUIRY REFERENCE:-

NAME OF VENDOR:-

SL NO	VOULME/ SECTION	PAGE NO.	CLAUSE NO.	TECHNICAL SPECIFICATION/ TENDER DOCUMENT	COMPLETE DESCRIPTION OF DEVIATION	COST OF WITHDRAWAL OF DEVIATION	REFERENCE OF PRICE SCHEDULE ON WHICH COST OF WITHDRAWAL OF DEVIATION IS APPLICABLE	NATURE OF COST OF WITHDRAWAL OF DEVIATION (POSITIVE/ NEGATIVE)	REASON FOR QUOTING DEVIATION
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TECHNICAL DEVIATIONS

COMMERCIAL DEVIATIONS

PARTICULARS OF BIDDERS/ AUTHORISED REPRESENTATIVE

NAME	DESIGNATIONS	SIGN & DATE

NOTES:

- For self manufactured items of bidder, cost of withdrawal of deviation will be applicable on the basic price (i.e. excluding taxes, duties & freight) only.
- For directly dispatchable items, cost of withdrawal of deviation will be applicable on the basic price including taxes, duties & freight.
- All the bidders have to list out all their Technical & Commercial Deviations (if any) in detail in the above format.
- Any deviation not mentioned above and shown separately or found hidden in offer, will not be taken cognizance of.
- Bidder shall submit duly filled unpriced copy of above format indicating "quoted" in "cost of withdrawal of deviation" column of the schedule above along with their Techno-commercial offer, wherever applicable.
- Bidder shall furnish price copy of above format along with price bid.
- The final decision of acceptance/ rejection of the deviations quoted by the bidder shall be at discretion of the Purchaser.
- Bidders to note that any deviation (technical/commercial) not listed in above and asked after Part-I opening shall not be considered.
- For deviations w.r.t. Payment terms, Liquidated damages, Firm prices ~~and submission of E1/ E2 forms~~ before claiming 10% payment, if a bidder chooses not to give any cost of withdrawal of deviation loading as per Annexure-VIII of GCC, Rev-06 will apply. For any other deviation mentioned in un-priced copy of this format submitted with Part-I bid but not mentioned in priced copy of this format submitted with Priced bid, the cost of withdrawal of deviation shall be taken as NIL.
- Any deviation mentioned in priced copy of this format, but not mentioned in the un-priced copy, shall not be accepted.
- All techno-commercial terms and conditions of NIT shall be deemed to have been accepted by the bidder, other than those listed in unpriced copy of this format.
- Cost of withdrawal is to be given separately for each deviation. In no event bidder should club cost of withdrawal of more than one deviation else cost of withdrawal of such deviations which have been clubbed together shall be considered as NIL.
- In case nature of cost of withdrawal (positive/negative) is not specified it shall be assumed as positive.
- In case of discrepancy in the nature of impact (positive/ negative), positive will be considered for evaluation and negative for ordering.

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
Power Project Engg. Institute, Plot No. 25, Sector 16 - A,
HRDI & ESI Complex, NOIDA 201 301 (UP)



SPECIAL CONDITIONS OF CONTRACT (REV 01)

FOR 5 X 800 MW TSGENCO YADADRI TPS [Job No. 417]

These Conditions shall be read in conjunction with General Condition of Contract (GCC) enclosed along with the tender enquiry. In case of any conflict or inconsistency, the requirement of SCC shall prevail over the GCC.

1.0	Project Name	5 X 800 MW TSGENCO YADADRI TPS
2.0	Ultimate Customer	TELANGANA STATE POWER GENERATION CORPORATION LIMITED [TSGENCO]
3.0	Location of Plant	Location: At Virlapalem Village, Damaracherla Mandal, Nalgonda District, Telangana State, India. Site is located 7 Kms from NH5. Access by: Nearest Railway Station: 6.5 Km from Damaracherla. Nearest Airport: Vijayawada airport (130 Km) Nearest sea port: Vishakhapatnam Sea Port. Access by road: 30KM from Miryalaguda Latitude: 16° 42'20.40 N. Longitude: 79° 34'41.56 E Elevation above MSL: 85m
4.0	Delivery Address (Ship to)	Later
5.0	Consignee Address (Bill To) 	BHEL, POWER SECTOR - PROJECT ENGINEERING MANAGEMENT, POWER PROJECT ENGINEERING INSTITUTE, PLOT NO.25, SECTOR-16A, NOIDA-201301 (U.P.)

Handwritten signature and date
24/09/17

Bharat Heavy Electricals Limited
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POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
Power Project Engg. Institute, Plot No. 25, Sector 16 - A,
HRDI & ESI Complex, NOIDA 201 301 (UP)



	Notes 	Consignee address (Bill To) in Invoice & LR should be strictly as per Sl. No. 05. Place of supply along with name of state to be clearly indicated by vendor in invoice. Delivery address (Ship To) in Invoice and LR should be as per Sl. No. 04. Invoice should clearly specify "Billing from" and "Shipping from" addresses. Vendor to note that to effect "Sale in Transit", BHEL shall issue "Delivery Order" to the Transporter for transferring the ownership from BHEL to customer (TSGENCO). It is Vendor's responsibility to ensure availability of trucks well in advance for dispatch of material to meet contractual delivery requirement. Delivery Order shall be carried by transporter along with other dispatch documents.
6.0	Buyer and Paying Authority	Packages for which PO is placed by BHEL-PSSR & LOA is issued by BHEL-PEM - Buyer and Paying Authority shall be <u>BHEL-PSSR</u> .
7.0	Mode of Dispatch	By Road / Rail / Sea on Door Delivery and Freight Pre-Paid Basis.
8.0	Road Permit Required 	To be arranged by Supplier, if required
9.0	Transit Insurance	In BHEL Scope. Vendor shall inform the following details of dispatches to the Underwriter (refer details below) under intimation to BHEL-PEM and BHEL Site office: (1) Policy No. (2) Consignee Name. (3) Consignment Details (items with their weights and value (in INR)). (4) Project Name and P.O. No. (5) LR No. and date, Despatch origin and destination details, Inv. No.
	Policy No.	Later

Handwritten signature and date
24/09/17

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
Power Project Engg. Institute, Plot No. 25, Sector 16 - A,
HRDI & ESI Complex, NOIDA 201 301 (UP)



	Name of the Insurance Company details	Later
10.0	BHEL-PEM GST No. 	BHEL PEM: 09AAACB4146P2ZC
11.0	Customer GST & PAN No 	TSGENCO provisional GST no.- 36AAFCT0257Q3ZT PAN No. - AAFCT0257Q
12.0	Unloading at site	- By BHEL site office for Supply packages. (The Vendor shall furnish LR wise Gross Wt. of the consignment for the purpose of handling the consignment by BHEL site contractor). - By Vendor for Turnkey i.e. Supply and Erection & Commissioning Packages.
	Storage at site	- By BHEL site for Supply packages. - By Vendor for Turnkey i.e. Supply and Erection & Commissioning Packages.
	Movement of Material within Site	- By BHEL site for Supply packages. - By Vendor for Turnkey i.e. Supply and Erection & Commissioning Packages.
13.0	Provision of facilities at Site (Applicable for Turnkey Packages)	Construction Power: Construction Power shall be provided free of cost at one point. Construction Water: Construction water shall be provided free of cost at one point.

Handwritten signature
24/09/17

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
Power Project Engg. Institute, Plot No. 25, Sector 16 - A,
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14.0	Inspection Agency (Domestic supplies)	Vendor shall give inspection call in line with approved QAP / Customer Hold Points to Regional BHEL-CQS center / Third Party Inspection Agency (TPIA) (as informed by PEM) on "BHEL CQS Website"; with a copy of inspection call to BHEL-PEM for arranging Customer/Third Party participation (wherever applicable), with an advance notice of 15 days for participation in inspection/ Joint inspection on the proposed date. The MDCC shall be issued by customer based on the BHEL-CQS/TPIA report OR Joint inspection report of BHEL CQS/TPIA & Customer (wherever applicable).
	Inspection Agency (Imported supplies)	In case of Imported Supplies advance notice of 30 days for participation in inspection (if applicable, in line with approved QAP / Customer Hold Points) to be given. The Test Certificates & Inspection reports duly accepted by the Foreign Vendor Inspection agency in line with approved QAP/Customer Hold Points shall be submitted to BHEL-PEM, NOIDA. The above Inspection reports & Test certificates shall be reviewed by PEM-Engineering in line with the Technical Specifications & Approved Data sheets and then sent to customer for their clearance. The customer dispatch clearance (MDCC) will be given to the Foreign Vendor or their representative in India through BHEL-PEM after acceptance/clearance of above test certificates by Customer.

[Handwritten signature]
27/09/17

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
Power Project Engg. Institute, Plot No. 25, Sector 16 - A,
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15.0	Dispatch Documents required (to be furnished by Vendor for payment)	For Dispatch Payment For materials originating from Indian Territory (a). One (1) original and Six (6) copies of the clean rail/lorry receipt. For payment Receipted LR (signed & stamped)/ confirmation from site regarding receipt of packages/ Boxes original / copy. (b). One (1) original and Six (6) copies of signed Invoices (Paying Authority along with TIN No. should be mentioned, for VAT cases Annexure-I to be followed). (c). One (1) original and Seven (7) copies of Challan and Packing List (clearly showing number of packages, gross weight and net weight). (d). Six (6) copies of inspection certificate, if any issued by the customer. (e). Eight (8) copies of Customer/BHEL MDCC. (f). Six (6) copies of Approved Test Certificates if any. (g). Delivery order- Two (2) copies. (h). Guarantee Certificate – One (1) Original + One (1) copy. (i). Insurance Intimation - Two (2) copies. (j). CQIR / Inspection Reports – One (1) Original + One (1) copy. (k). PVC Calculation and copy of all applicable indices, if PVC applicable. – Two (2) copies.
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Handwritten signature and date
27/09/17

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
Power Project Engg. Institute, Plot No. 25, Sector 16 - A,
HRDI & ESI Complex, NOIDA 201 301 (UP)



		For materials originating from non-Indian Territory (a). Three (3) original and Seven (7) copies of clean bill of lading or One (1) clean original Airway Bill & Four (4) copies, in case of air freight. (b). One (1) original and Six (6) copies of signed Invoices (Paying Authority along with TIN No. should be Mentioned). (c). One (1) original and Seven (7) copies of Packing List (clearly showing number of packages, gross weight and net weight). (d). Six (6) copies of certificate of country of origin. (e). Eight (8) copies of Customer/BHEL MDCC. (f). Six (6) copies of inspection certificate, if any, issued by the customer/his authorised representative. (g). Six (6) copies of certificate from the vendor to the effect that drawings and catalogues for customs clearance purpose have been kept with the packages for shipment. (h). Six (6) copies of certificate from the vendor to the effect that the contents in each case are not less than that entered in the invoices and guaranteed as new and as per the relevant technical specifications. (i) Shipping Specification – One (1) copy. (j). Quality Certificate – One (1) copy. (k). Approved Test Certificates if any. - Six (6) copies. (l). Guarantee Certificate – One (1) Original + One (1) copy. (m). Inspection Reports – One (1) Original + One (1) copy. (n). PVC Calculation and copy of all applicable indices, if PVC applicable. – Two (2) copies.
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Handwritten signature and date:
24/09/17

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
POWER SECTOR, PROJECT ENGINEERING MANAGEMENT
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		For Claiming Dispatch payments (for materials originating from Indian territory), Freight, MRC & Services Payments - refer GCC.
16.0	Material Receipt Certificate (MRC)	For Packages wherever E&C is in the scope of Vendor, The vendor shall arrange Material Receipt Certificate from the project site, duly signed by Customer and BHEL-Site after receipt & physical verification of the material at site. For Supply Packages, Material Receipt Certificate shall be arranged by BHEL-PEM. Vendor to provide copy of receipted LR's to enable BHEL-PEM to obtain MRC from site.
17.0	Taxes & Duties (For Domestic Bidder) 	All bidders/vendors to note that this project is a Non-Mega power Project. However, Essentiality certificate shall be issued by TSGENCO (customer) for availing concessional custom duty under Project Import Regulations. Essentiality certificate shall be issued by TSGENCO through BHEL for the items to be imported by the vendor for specified items, limited to CIF content mentioned in the offer/order, for availing concessional custom duty. The bidder has to indicate in their offer, the import contents (if any) i.e. list of items along with qty., currency of import, country of import & CIF value. Availability of CIF for packages, if any, shall be intimated in NIT. Bidders has to note that in order to derive the total Landed Cost to BHEL, Evaluation shall be done excluding GST quoted by bidders. However, same shall be re-confirmed during techno-commercial evaluation of bids.

[Signature]
27/09/17

Bharat Heavy Electricals Limited
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18.0	Taxes & Duties  (For Order Directly to Foreign Bidders)	In case of Order on foreign Vendor, the dispatches shall be on C&F basis and the Taxes Duties in the country of dispatch (origin) shall be borne by Foreign Bidder & to be accounted in the prices quoted to BHEL/PEM/NOIDA. Evaluation shall be done as per provisions of GCC.
19.0	Packing, Identification & marking	- The supplier shall include and provide for securely protecting and packing the materials so as to avoid loss or damage during handling & transport by air, sea, rail and road. - All packing shall allow for easy removal and checking at site. Special precaution shall be taken to prevent rusting of steel and iron parts during transit by sea. Gas seals or other materials shall be adopted by the Contractor for protection against moisture during transit. - The number of each package in a shipment shall be shown in fraction, numerator showing number of the package and the denominator showing total number of packages in a lot / consignment. The packages number shall be generally prepared in the sequence in which they will be required for erection. - Each package delivered under the Contract shall be marked by and at the expense of the supplier and such marking must be distinct and in English language (all previous irrelevant markings being carefully obliterated). Such marking shall show the description and quantity of contents, the name and address of

M. Singh
24/09/17

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consignee, the gross weight and net weight of the package, the name of the Contractor with a distinctive number of mark sufficient for purposes of identification. All markings shall be carried out with such materials as to ensure quickness of drying, fastness and indelibility. Each equipment or parts of equipment shall, when shipped or railed or otherwise dispatched be tagged with reference to the assembly drawings and corresponding part numbers. Each bale or package shall contain a packing note quoting specifically the name of the Contractor, the number and date of contract and the name of the office placing the contract, nomenclature of the stores and include a schedule of parts for each complete equipment giving the part numbers with reference to the assembly drawing and the quantity of each part, drawings nos. and tag numbers.

- Rotor bearings should not be used as a support while packing.
- Besides wherever necessary, packing shall bear a special marking "TOP", "BOTTOM", "DO NOT TURN OVER", "KEEP DRY", "HANDLE WITH CARE" etc.
- All packing cases, containers (excluding marine container), packing and other similar materials shall be new.
- Notwithstanding anything stated in this clause, the Contractor shall be entirely responsible for loss, damage or depreciation or deterioration to the materials & supplies due to faulty and/or insecure packing.
- One copy of respective standard manufacturer's erection instruction/operation instruction manual shall be kept in each package/container for immediate reference.
- Each and every package box shall be marked with the following, as a minimum:

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		(i). Name and address of Consignee : (ii). Project reference : (iii). Contract No.: (iv). Packing No.: (1/10, 2/10, 3/10 when there are 10 packages For one consignment) (v). Net Weight/Gross Weight : (vi). Port of Loading : (vii). Destination Port : (viii). Packing Mark : [symbols indicating "TOP" and other special markings as per (ix). Type of Equipment : "E" (for Equipment supply) "T" (for Tools & Tackles) "S" (for Mandatory Spares) Two copies of packing list should be kept in case/package No. 1 of each consignment of the goods and four copies in each case (three inside the box and one copy in a special packet at the outer side of the Box).
20.0	Commissioning spares	The commissioning spares shall be properly packed separately in separate box and each spare shall be properly tagged giving details (to match the description given in the packing slip) to facilitate their proper identification. Three copies of packing list is to be kept inside the box and one copy in a special packet at the outer side of the Box.


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21.0	Mandatory Spares	The Mandatory spares shall be properly packed separately in separate box indicating Mandatory Spares in bold letters and each spare shall be properly tagged giving details i.e. item number of the equipment in line with the Ultimate Customer Contract & Number per item (to match the description given in the packing slip) to facilitate their proper identification by ultimate customer M/s TSGENCO. Three copies of packing list along with Manufacturing drawing no. Reference, Catalogue reference etc. is to be kept inside the box and one copy in a special packet at the outer side of the Box.		
22.0	Submission of Final Drawing / Documents along with O&M Manual, Type Test Certificates (if any)	As per GCC/ Technical specification/ Kickoff meeting.		

	Prepared By	Checked By	Reviewed By	Approved By
Name:	NAINA SINGH	ANIL KUMAR PAL	ASIF IQBAL QURAISHI	PERMINDER SINGH
Designation:	MANAGER	SR. MANAGER	DGM	AGM / DH
Signature:				
Date:	27/09/17	27/9/17	27/09/17	05/10/17

BANK GUARANTEE FOR PERFORMANCE SECURITY

Bank Guarantee No:

Date:

To

NAME

& ADDRESSES OF THE BENEFICIARY

Dear Sirs,

In consideration of the Bharat Heavy Electricals Limited ¹ (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at _____ through its Unit at.....(name of the Unit) having awarded to (Name of the Vendor / Contractor / Supplier) having its registered office at _____ ² hereinafter referred to as the 'Contractor/Supplier', which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns), a contract Ref No.....dated³ valued at Rs.....⁴ (Rupees -----)/FC.....(in words.....) for⁵ (hereinafter called the 'Contract') and the Contractor having agreed to provide a Contract Performance Guarantee, equivalent to% (.... Percent) of the said value of the Contract to the Employer for the faithful performance of the Contract,

we,, (hereinafter referred to as the Bank), having registered/Head office at and inter alia a branch at being the Guarantor under this Guarantee, hereby, irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer a maximum amount Rs ----- (Rupees -----) without any demur, immediately on a demand from the Employer, .

Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Contractor/ Supplier in any suit or proceeding pending before any Court or Tribunal relating thereto our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment thereunder and the contractors/supplier shall have no claim against us for making such payment.

We thebank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and that it shall continue to be enforceable till all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

We BANK further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Contractor/Supplier from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Contractor/Supplier and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor/Supplier or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Contractor/Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee that the Employer may have in relation to the Contractor's liabilities.

This Guarantee shall remain in force upto and including.....⁶ and shall be extended from time to time for such period as may be desired by Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Contractor/Supplier but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

Unless a demand or claim under this guarantee is made on us in writing on or before the⁷we shall be discharged from all liabilities under this guarantee thereafter.

We, BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Bank under this Guarantee shall not exceed.....⁸
- b) This Guarantee shall be valid up to⁹
- c) Unless the Bank is served a written claim or demand on or before¹⁰ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, _____ Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Dated.....

Place of Issue.....

¹ NAME AND ADDRESS OF EMPLOYER I.e Bharat Heavy Electricals Limited

² NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER.

³ DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE

⁴ PROJECT/SUPPLY DETAILS

⁵ BG AMOUNT IN FIGURES AND WORDS

⁶ VALIDITY DATE

⁷ DATE OF EXPIRY OF CLAIM PERIOD

⁸ BG AMOUNT IN FIGURES AND WORDS.

⁹ VALIDITY DATE

¹⁰ DATE OF EXPIRY OF CLAIM PERIOD

Note:

1. Units are advised that expiry of claim period may be kept 2/3 months after validity date.
2. In Case of Bank Guarantees submitted by Foreign Vendors-
 - a. **From Nationalized/Public Sector / Private Sector/ Foreign Banks (BG issued by Branches in India)** can be accepted subject to the condition that the Bank Guarantee should be enforceable in the town/city or at nearest branch where the Unit is located i.e. Demand can be presented at the Branch located in the town/city or at nearest branch where the Unit is located.
 - b. **From Foreign Banks (wherein Foreign Vendors intend to provide BG from local branch of the Vendor country's Bank)**
 - b.1 In such cases, in the Tender Enquiry/ Contract itself, it may be clearly specified that Bank Guarantee issued by **any of the Consortium Banks only** will be accepted by BHEL. As such, Foreign Vendor needs to make necessary arrangements for issuance of Counter- Guarantee by Foreign Bank in favour of the Indian Bank (BHEL's Consortium Bank). It is advisable that all charges for issuance of Bank Guarantee/ counter- Guarantee should be borne by the Foreign Vendor. The tender stipulation should clearly specify these requirements.
 - b.2 **In case, Foreign Vendors intend to provide BG from Overseas Branch of our Consortium Bank** (e.g. if a BG is to be issued by SBI Frankfurt), the same is acceptable. However, the procedure at **sl.no. b.1** will required to be followed.
 - b.3 The BG issued may preferably be subject to Uniform Rules for Demand Guarantees (URDG) 758 (as amended from time to time). In case, of Foreign Vendors, the BG Format provided to them should clearly specify the same.
 - b.4 The BG should clearly specify that the demand or other document can be presented in electronic form.

ANNEXURE-A							
5 X 800 MW YADADRI TPS							
LIST OF CIF CONTENTS FOR GENERATOR CIRCUIT BREAKER (GCB)							
Country of Import :							
Sl. No.	Description of items to be imported.	Unit of Measurement	Qty.	Currency of Import	Unit rate in foreign currency	Total CIF Contents (Foreign Currency)	Total CIF Contents (INR)
GRAND TOTAL (IN FIGURES)							
GRAND TOTAL (IN WORDS)							

**Corporate Materials Management
BHEL New Delhi**

AA:MM:Agency
Dt. 06.08.2010

Guidelines regarding dealings with Indian Agents of Foreign Suppliers

1. BHEL shall deal directly with the foreign original equipment manufacturers (OEM)/ Foreign Principal, for all its purchases which are imported.
2. Wherever the foreign OEM/ principal desires to avail the services of an Indian Agent, the dealings with Indian Agents are to be regulated. The guidelines of BHEL in this regard have been drafted as per CVC circular no. 007/VGL/033 dated 04.12.2007.

Definition of Indian Agent

3. An Indian Agent of foreign principal is an individual, a partnership, an association of persons, a private or public Company, that carries out specific obligation(s) towards processing of BHEL tender or finalization or execution of BHEL's contract on behalf of the foreign supplier.

Recommendations

4. All NITs shall have the following terms regarding Indian agents of foreign principals:
 - i. BHEL shall deal directly with foreign vendors, wherever required, for procurement of goods. However, if the foreign principal desires to avail of the services of an Indian agent, then the foreign principal should ensure compliance to regulatory guidelines - which require mandatory submission of an Agency Agreement.
 - ii. It shall be incumbent on the Indian agent and the foreign principal to adhere to the relevant guidelines of Government of India, issued from time to time.
 - iii. The Agency Agreement should specify the precise relationship between the foreign OEM / foreign principal and their Indian agent and their mutual interest in the business. All services to be rendered by agent/ associate, whether of general nature or in relation to the particular contract, must be clearly stated by the foreign supplier/ Indian agent. Any payment, which the agent or associate receives in India or abroad from the OEM, whether as commission or as a general retainer fee should be brought on record in the Agreement and be made explicit in order to ensure compliance to laws of the country.
 - iv. Any agency commission to be paid by BHEL to the Indian agent shall be in Indian currency only.
 - v. Tax deduction at source is applicable to the agency commission paid to the Indian agent as per the prevailing rules.
 - vi. In the absence of any agency agreement, BHEL shall not deal with any Indian agent (authorized representatives / associate / consultant, or by whatever name called) and shall deal directly with the foreign principal only for all correspondence and business purposes.
 - vii. The "Guidelines for Indian Agents of Foreign Suppliers" enclosed at annexure -'A' shall apply in all such cases.

- viii. The supply and execution of the Purchase Order (including indigenous supplies/ service) shall be in the scope of the OEM/ foreign principal. The OEM/ foreign principal should submit their offer inclusive of all indigenous supplies/ services and evaluation will be based on 'total cost to BHEL'. In case OEM/ foreign principal recommends placement of order(s) towards indigenous portion of supplies/ services on Indian supplier(s)/ agent on their behalf, the credentials/ capacity/ capability of the Indian supplier(s)/ agent to make the supplies/ services shall be checked by BHEL as per the extant guidelines of Supplier Evaluation, Approval & Review Procedure (SEARP), before opening of price bids. In this regard, details may be checked as per Annexure-B (copy enclosed). It will be the responsibility of the OEM/ foreign principal to get acquainted with the evaluation requirements of Indian supplier/ agent as per SEARP available on www.bhel.com.

The responsibility for successful execution of the contract (including indigenous supplies/ services) lies with the OEM/ foreign principal. All bank guarantees to this effect shall be in the scope of the OEM/ foreign principal.

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Guidelines for Indian Agents of Foreign Suppliers

- 1.0 There shall be compulsory registration of agents for all Global (Open) Tender and Limited Tender. An agent who is not registered with BHEL shall apply for registration in the registration form in line with SEARP.
- 1.1 Registered agents will file an authenticated Photostat copy duly attested by a Notary Public/Original certificate of the Principal confirming the agency agreement and giving the status being enjoyed by the agent and the commission/ remuneration/ salary/ retainership being paid by the principal to the agent before the placement of order by BHEL.
- 1.2 Wherever the Indian representatives have communicated on behalf of their principals and the foreign parties have stated that they are not paying any commission to the Indian agents, and the Indian representative is working on the basis of salary or as retainer, a written declaration to this effect should be submitted by the party (i.e. Principal) before finalizing the order.
- 2.0 **Disclosure of particulars of agents/ representatives in India, if any.**
- 2.1 Tenderers of Foreign nationality shall furnish the following details in their offers:
 - 2.1.1 The Bidder(s)/ Contractor(s) of foreign origin shall disclose the name and address of the agents/ representatives in India if any and the extent of authorization and authority given to commit the Principals. In case the agent/ representative be a foreign Company, it shall be confirmed whether it is existing Company and details of the same shall be furnished.
 - 2.1.2 The amount of commission/ remuneration included in the quoted price(s) for such agents/ representatives in India.
 - 2.1.3 Confirmation of the Tenderer that the commission/ remuneration, if any, payable to his agents/ representatives in India, may be paid by BHEL in Indian Rupees only.
- 2.2 Tenderers of Indian Nationality shall furnish the following details in their offers:
 - 2.2.1 The Bidder(s)/ Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any, indicating their nationality as well as their status, i.e. whether manufacturer or agents of manufacturer holding the Letter of Authority of the Principal specifically authorizing the agent to make an offer in India in response to tender either directly or through the agents/ representatives.
 - 2.2.2 The amount of commission/ remuneration included in the price (s) quoted by the Tenderer for himself.
 - 2.2.3 Confirmation of the foreign principals of the Tenderer that the commission/ remuneration, if any, reserved for the Tenderer in the quoted price(s), may be paid by BHEL in India in equivalent Indian Rupees on satisfactory completion of the Project or supplies of Stores and Spares in case of operation items.
- 2.3 In either case, in the event of contract materializing, the terms of payment will provide for payment of the commission/ remuneration, if any payable to the agents/ representatives in India in Indian Rupees on expiry of 90 days after the discharge of the obligations under the contract.
- 2.4 Failure to furnish correct and detailed information as called for in paragraph 2.0 above will render the concerned tender liable to rejection or in the event of a contract materializing, the same liable to termination by BHEL. Besides this there would be a penalty of banning business dealings with BHEL or damage or payment of a named sum.

Annexure-B

This format is applicable only to Indian Suppliers/ Agents supplying indigenous portion of Foreign Purchases.

* In all other cases, extant guidelines of SEARP, 2010 are to be followed.

SEARP (SRF) Clause No	Detail
	Name & address of the firm
1.0	Products/ Systems / Services being considered for
2.0	General Information
2.2	Name of Chief Executive
2.3	Details of authorized signatory
3.0	Ownership Information
3.1	Type of firm
3.2	Nature of Business • <i>Attach authorization letter and agency agreement from Principal (from whom capital equipment is procured)</i> • <i>Attach copy of declaration from Foreign Principal for total guarantee/ warranty of indigenous supplies</i>
3.3	Year of establishment
3.4	Year of commencement of business
4.0	Registration particulars
4.1	Permanent Account No.
4.2 / 4.3	Sales Tax / TIN no
4.6	Service tax no. (in case of E&C)
5.0	Organisational strength
6.0	Other particulars
6.1	If the company is already registered with other units
6.2	Directors/ Partners, if related to any BHEL Employee
6.9	If any Ex BHEL Personnel employed by the Company
6.12	Details of pending legal issues with BHEL
6.13	Bank Account information
9.0	Financial information
9.6	Sales/ Turnover details of last 3 years (or from the date of incorporation whichever is less)

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BHEL FRAUD PREVENTION POLICY

1.0 Introduction

BHEL, a public sector enterprise, is an integrated power plant equipment manufacturer and one of largest engineering and manufacturing company in India engaged in design, engineering, manufacturing, construction, testing, commissioning and servicing of a wide range of products and services for core sectors of the economy viz. Power, Transmission, Industry, Transportation, Renewable energy, Oil & Gas and Defense.

All organizations are subject to risks of fraud. Frauds negatively impact the reputation and brand value of organization. Vigilant handling of fraud cases within organisation sends clear signals to the public, stakeholders and regulators about the management attitude towards fraud risks and organisation's fraud risk tolerance.

All levels of management, staff, internal and external auditors have responsibility for dealing with fraud risk.

Section 143(3) (i) of the Company Act, 2013 requires auditors to report about the adequacy of internal Financial controls in the Company and the operating effectiveness of such controls. Further, as per General Direction issued by C&AG vide circular No. 294/CA-II/Cord/A/cs instructions/30-2008 dated 22.04.2010, auditors are required to comment on Risk of Frauds in their reports.

BHEL has already put in place various policies, systems and procedures to guide employees for undertaking various transactions within and outside organisation to conduct the same in a transparent & uniform manner e.g. Purchase Policy, Works Policy along with Delegation of Powers (DOP), HR Policy, Conduct, Discipline and Appeal Rules for employees, Standing Orders etc. Keeping in view the BHEL approach in following Corporate Governance principles proactively, it is appropriate that a Fraud Prevention Policy is formulated and implemented

2.0 Policy Objectives

2.1 Objective of the Policy is to provide a system for detection, prevention and reporting of a fraud detected or suspected; and handling of such matters pertaining to fraud.

2.2 The Policy is expected to ensure and provide for the following:

2.2.1 To ensure that management is aware of its responsibilities for detection and prevention of fraud and for establishing procedures for preventing fraud and/or detecting fraud when it occurs.

BHEL FRAUD PREVENTION POLICY

2.2.2 To provide a clear guidance to employees and others dealing with BHEL forbidding them from involvement in any fraudulent activity and the action to be taken by them where they suspect any fraudulent activity;

2.2.3 To conduct investigations into fraudulent or suspected fraudulent activities; and

2.2.4 To provide assurance that any and all suspected fraudulent activity/ activities will be fully investigated.

2.2.5 To provide training on fraud prevention and identification.

3.0 Scope of Policy

The policy applies to fraud or suspected fraud in connection with business transactions with BHEL committed by employees, ex-employees working as advisors/ consultants, persons engaged on adhoc / temporary/ contract basis, vendors, suppliers, contractors, customers, lenders, consultants, service providers, any outside agencies or their employees/ representatives, or any other parties.

4.0 What is Fraud?

4.1 Fraud is any intentional act or omission designed to deceive others, resulting in the victim suffering a loss and/or perpetrator achieving a gain.

4.2 As per Section.447(1) of The Companies Act, 2013 Fraud is defined as follows:

- **"fraud"** in relation to affairs of a company or anybody corporate, includes (a) any act, (b) omission, (c) concealment of any fact or (d) abuse of position committed by any person or any other person with the connivance in any manner -
 - with intent to deceive,
 - to gain undue advantage from, or
 - to injure the interests of the company or its shareholders or its creditors or any other person, whether or not there is any wrongful gain or wrongful loss
- **"Wrongful gain"** means the gain by unlawful means of property to which the person gaining is not legally entitled.
- **"Wrongful loss"** means the loss by unlawful means of property to which the person losing is legally entitled.

BHEL FRAUD PREVENTION POLICY

5.0 Actions Constituting Fraud

5.1 While fraudulent or suspected fraudulent activity could have a very wide range of coverage, the following are some of the act(s) which constitute fraud.

5.2 The list given below is only illustrative and not exhaustive:-

5.2.1 Forgery or unauthorised alteration of any document or account belonging to the Company

5.2.2 Forgery or unauthorised alteration of cheque, bank draft, E-banking transaction(s) or any other financial instrument etc.

5.2.3 Misappropriation of funds, securities, supplies or others assets by fraudulent means etc.

5.2.4 Falsification of records, submitting fake claims or claims with altered documents / supporting, removing the documents from the files and / or replacing it by a fraudulent one etc.

5.2.5 Wilful suppression of facts/deception in matters of appointment, placements, submission of reports, tender committee recommendations etc. as a result of which a wrongful gain(s) is/are made to one and wrongful loss(s) to the others.

5.2.6 Utilizing Company funds / assets for personal or other than official purposes.

5.2.7 Verification and authorization / certification of bills for payment (goods / services) without completion of supply / completion of works as per Purchase Order / Work Order.

5.2.8 Destruction, disposition, removal of records or any other assets of the Company with an ulterior motive to manipulate and misrepresent the facts so as to create suspicion/suppression/cheating as a result of which objective assessment/decision would not be arrived at.

5.2.9 Wilful delay in reporting recoveries / adjustments from suppliers / vendors bills.

5.2.10 Allowing / unauthorized use of Company assets by outsiders like vendors / suppliers / sub-contractors.

5.2.11 Any other act that falls under the gamut of fraudulent activity.

BHEL FRAUD PREVENTION POLICY

6.0 Responsibility for Fraud Prevention

6.1 Following personnel's are responsible to ensure that there is no fraudulent act committed by them while performing any business transaction(s) with BHEL:

- Every employee
- Ex-employee working as advisor / consultant
- Person engaged on adhoc/temporary/contract basis
- Vendor / supplier / contractor / bidder / service provider
- Customer / Consultant
- Lender
- Any outside agency / their representative / employee who have a business relationship with BHEL

6.2 As soon as it is learnt that a fraud or suspected fraud has taken or is likely to take place, same should immediately be reported to Nodal officer

7.0 Nodal Officers and their Responsibility

7.1 Nodal Officer

Nodal officers shall be notified by management. All Direct Reporting Officers (DROs) to Unit Head / Construction Managers to be designated as Nodal Officers. List of Nodal Officer(s) would be displayed at BHEL web site / Intranet.

7.2 Fraud Prevention and Detection

All Nodal Officers shall be responsible for implementing the Fraud Prevention Policy of the Company and prevention and detection of fraud as per this Policy. It is the responsibility of all Nodal Officers to ensure that complete mechanism in respect of Fraud Prevention Policy is in place within his administrative / functional area of control.

7.2.1 Fraud Prevention

7.2.1.1 Create an ethical and transparent environment by training and implementing policies, guidelines and procedures.

7.2.1.2 Familiarise each employee with the types of improprieties that might occur in their area.

7.2.1.3 Educate employees regarding the measures to be taken for prevention and detection of fraud.

BHEL FRAUD PREVENTION POLICY

7.2.1.4 Create a culture whereby employees are encouraged to report any fraud or suspected fraud which comes to their knowledge, without any fear of victimization.

7.2.1.5 Promote awareness among the employees of ethical principles subscribed to by the Company through CDA Rules/Standing orders.

7.2.1.6 Maintain record of complaints/cases received and submit annual report to Nodal Officer in Corporate Finance.

7.2.2 Fraud Detection

Ensure that along with preventive controls, Detective mechanism are also in place. Some examples of detective mechanism are segregation of duties, reconciliation, audits, independent reviews, physical inspection, periodic inventory check, surprise checks etc.

8.0 Reporting of Fraud

8.1 All employees of BHEL, representative of vendors, suppliers, contractors, consultants, service providers or any other agencies doing any type of business with BHEL as soon as he / she comes to know of any fraud or suspected fraud or any other fraudulent activity must report such incident. Such reporting shall be made to the designated Nodal Officers.

The reporting of the fraud normally should be in writing. In case the reporter is not willing to furnish a written statement of fraud but is in position to give sequential and specific transaction of fraud / suspected fraud, then the officer receiving the information/Nodal Officer should record such details in writing as narrated by the reporter and also maintain the details about the identity of the official/ employee / other person reporting such incident.

In case the reporter ask for protection, the protection available under Clause 5.0 of Whistle Blower Policy of Company notified vide Corporate HR Circular no. 024/LLX/2014 dated 16.09.2014 shall be extended to the reporter.

8.2 All reports of fraud or suspected fraud shall be handled with utmost speed and shall be coordinated by Nodal Officers

8.3 Officer receiving input about any suspected fraud / Nodal officers shall ensure that all relevant records, documents and other evidence are immediately taken into custody and protected from being tampered with, destroyed or removed by suspected perpetrators of fraud or by any other official under his influence.

BHEL FRAUD PREVENTION POLICY

9.0 Investigating Procedure

9.1 The "Nodal Officer" shall act as co-ordinator and refer the details of the fraud/suspected fraud to Unit head for intimating the same to the concerned Director. The Director after considering report of Nodal Office / Unit head may refer the case to Internal Auditor (IA) or Corporate Vigilance for further investigation.

9.2 This input would be in addition to the intelligence, information and investigation of cases of fraud being investigated by the Vigilance Deptt. on their own as part of their day to day functioning.

9.3 After completion of the investigation, appropriate action which could include administrative action, disciplinary action, civil or criminal action or closure of the matter if it is proved that fraud is not committed etc. depending upon the outcome of the investigation shall be undertaken.

9.4 Vigilance Department or IA shall report to concerned Director the result of the investigation undertaken by them to seek orders for further action.

10.0 Incorporation of Fraud Prevention Policy in Tenders /MOUs etc.

10.1 A clause may be added in all the NITs that

"The Bidder along with its associate/collaborators/sub-contractors/sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice."

10.2 Fraud Prevention policy and List of Nodal Officers shall be hosted on BHEL web site, vendor portals of Units/ Regions intranet.

11.0 Administration and Review of the Policy

The Chairman and Managing Director, BHEL shall be the Appropriate Authority for administration and revision of this Policy.