



RD:DP:MPX:F-04

Ref: 431800771

BHARAT HEAVY ELECTRICALS LIMITED
CORPORATE RESEARCH & DEVELOPMENT DIVISION
VIKASNAGAR, HYDERABAD - 500 093, INDIA

PHONES:23774494 (EXT:9804)

FAX : 91 40 23770698

ENQUIRY

Date 22-06-2018

Enquiry for **Supply, E&C of 2X500 KVA DG Sets with synchronisation panel and associated accessories**

Enquiry No:431800771

Enquiry Date : 22-06-2018

Due Date: 13-07-2018

Indicative Delivery Date : 31-10-2018

Sl.No	Item Description	Unit	Qty
1	500 KVA DG set along with associated accessories	NO	2
2	Synchronisation panel along with associated accessories	NO	1
3	Erection and Commissioning of 2X500 KVA DG sets along with one Synchronisation panel	LOT	1

Please submit your quotation for the above material in sealed cover superscribed with enquiry no, enquiry date and due date subject to our enclosed terms and conditions. The quotations shall reach us on or before the due date by 12 noon. The tenders can also be dropped in the tender box kept at the security gate,BHEL R&D. In case you are not in position to submit the offer,please send reply suitably specifying the reasons.

Sl.No	Description	Document Ref.
01	Enquiry, PQC, General Terms & Conditions, Commercial Terms & Conditions etc.	Volume - 1
02	Technical specifications, Scope of Supply etc.	Volume - 2

Nishanth Polumahanthi
Sr Engineer
nishanth@bhel.in

	ENQUIRY & QUALIFYING CRITERIA	Volume - 1 Enquiry No 431800771
Supply, E&C of 2X500 KVA DG Sets with synchronisation panel and associated accessories		

1	Tendor inviting officer / Authority, Designation and Address	Additional General Manager(MM) BHEL R & D, Vikas Nagar (Near Balanagar), Hyderabad -500093
2	Item Description - Qty	1) 500 KVA DG set along with associated accessories - 2 NO 2) Synchronisation panel along with associated accessories - 1 NO 3) Erection and Commissioning of 2X500 KVA DG sets along with one Synchronisation panel - 1 LOT
3	Enquiry Reference no.	431800771
4	Indicative Delivery Date	31-10-2018
5	Due date, Time and place for submission of tender	13-07-2018 upto 12 noon. Sealed Quotations shall be addressed to Additional General Manager(MM), BHEL R & D Division, Vikas Nagar (Near Balanagar), Hyderabad AP,India Pin - 500 093 Quotations can also be deposited in the Tender box located at Security Gate of BHEL R & D BHEL shall not be responsible for any postal/courier delay.
6	Place, Date and time of Tech.Bid opening	Tender Opening Cell (Sangam) BHEL R & D Office. 13-07-2018, 2 PM
7	Mode of Submission of Tender	Please submit your offer in one common sealed cover containing two parts in separate sealed covers as detailed below. 1) First Cover shall contain: - Signed General Terms & Conditions (GTC) - Filled and Signed Commercial Terms & Conditions (CTC) - Filled and Signed Vendor Specifications against BHEL Specifications (Item wise) - Signed commercial bid - Copy of Price-bid with price(s) cells blank (un-priced price bid) as per annexure 2) Second cover shall contain Price Bid Containing Price quotes, applicable taxes, installation and/or commissioning charges shall be spelt out clearly taking into account total charges rather than quoting vaguely such as charges per man-day or charges per engineer per day etc as per annexure. If the price bid was found later to be different from the unpriced pricebid format in any way, the offer will be rejected summarily. The rates shall be quoted both in figures and in words. The offers can also be submitted through e-mail and have to be sent in PDF format (files with PDF extension only). Files having extensions other than PDF like RAR, EXE, JPEG etc. and with external links will not be considered. They have to be sent to e-mail id: 'rnd-eoffers@bhel.in' only. Copies should not be marked to anyone. If the offers are marked to anyone other than to eoffers, their offer will not be considered. The e-mail offers should have two attachments. 1) One attachment shall contain - Signed General Terms & Conditions (GTC) - Filled and Signed Commercial Terms & Conditions (CTC) - Filled and Signed Vendor Specifications against BHEL Specifications (Item wise) - Signed commercial bid - Copy of Price-bid with price(s) cells blank (un-priced price bid), as per annexure 2) Second attachment shall contain Price Bid Containing Price quotes, applicable taxes, installation and/or commissioning charges shall be spelt out clearly taking into account total charges rather than quoting vaguely such as charges per man-day or charges per engineer per day etc as per annexure. The subject of the e-mail should contain Enquiry No, Enquiry Date and Due date.

	PRE QUALIFYING CRITERIA(PQC)	Volume - 1 Enquiry No 431800771
Supply, E&C of 2X500 KVA DG Sets with synchronisation panel and associated accessories		

SL.No.	Clause	BHEL REQUIREMENT	SUPPLIERS ACCEPTANCE / REMARKS
1	Previous experience	The Vendor should have supplied minimum 2 no's of 500 KVA or higher to at least two different customers in the last 5 years and they shall be running successfully for at least one year	
2	Support documents	Vendor shall submit the reference of the supply along with performance certificate issued by at least two customers.	
3			
4			
	Relaxation of Norms for Startups	The condition of Prior Turnover and prior experience is relaxed for all startups whether Micro & Small Enterprises(MSEs) or otherwise subject to meeting of quality and technical specifications in accordance with the relevant provision of GFR,2005 and other DOE-PPD notifications for relaxation norms for startups issued from time to time.	

Signature of the bidder with Seal & Date

	GENERAL TERMS & CONDITIONS (GTC)	Volume - 1 Enquiry No 431800771
Supply, E&C of 2X500 KVA DG Sets with synchronisation panel and associated accessories		

SL.No.	Clause	BHEL REQUIREMENT
1	Preferences to MSEs	Preferences as mentioned in Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 shall be given to Micro and Small enterprises. Main points which are mentioned in the above Policy are as follows: 1) In tender, participating Micro and Small Enterprises quoting price within price band of L1+15 percent shall also be allowed to supply a portion of requirement by bringing down their price to L1 price in a situation where L1 price is from someone other than a Micro and Small Enterprise and such Micro and Small Enterprise shall be allowed to supply at least 20 percent of total tendered value provided that the tendered quantity is divisible into two or more orders and adequate for the purpose; all qualifying bidders have agreed for acceptance of part-order quantity and participating MSE matches the L1 rate. 2) In case that two or more MSEs are within the L1 +15% band, all such MSEs will be offered the opportunity to match the L1 rate and 20% of the order will be shared equally by them. 3) Where the MSE is SC/ST owned, they shall be exclusively awarded a share of 4% of the above 20% in addition to equally sharing the balance 16% with other non-SC/ST MSEs . 4) In case of more than one SC/ST MSE matching the L1 price, they shall equally share 4% of the order , and additionally share the balance 16% with other non-SC/ST MSE bidders. 5) Up to 4% of the tendered quantity shall be procured from MSE's owned by SC/ST's at L1 price. Failure to participate by any MSE owned by SC/ST's this quantity shall be procured from other MSEs. 6) Above preferences are for procurement of only goods produced and services rendered by MSEs and not for any trading activities by them. An MSE Unit will not get any purchase preference over another MSE Unit. 7) MSE bidders must submit registration certificates from bodies specified by the Ministry of MSME. 8) SC/ST owned enterprises (i.e. SC/ST proprietorship, or holding minimum 51% shares in case of Partnership/Private Limited Companies) shall additionally submit relevant SC/ST certificates issued by any of the following: District/Additional District Magistrate /Collector/Deputy Commissioner/ Additional Deputy Commissioner/Deputy Collector/1st Class Stipendiary Magistrate/Sub-divisional Magistrate / Taluka Magistrate / Executive Magistrate/ Extra Assistant Commissioner Chief Presidency magistrate /Additional Chief Presidency magistrate /Presidency magistrate Revenue Officer not below the rank of Tehsildar Sub-divisional Officer of the area where the individual and/or his family normally resides a. The registration shall be valid as on date of placement of order. A self- attested photocopy of the relevant certificate shall be submitted as a support document. b. The registration must be for the items/category of items /services relevant to the tendered items/category of items/services All these benefits are subject to production of all statutory documents as per General Terms & Conditions (GTC) of enquiry along with Udyog Aadhaar Number
2	General	a. All offers must include name of the contact person, phone no/mobile no, Fax no, email-id. Unsigned offers are liable for rejection. b. We, BHEL R&D, is registered with Department of Scientific and Industrial Research (DSIR) for the purpose of availing Customs Duty exemption in terms of Government Notification no.24/2007-Customs dated 01-Mar-2007 & Central Excise Duty Exemption in terms of Government Notification No. 16/2007-Central Excise dated 01-Mar-2007 as amended from time to time. Hence suppliers are requested to submit their bids clearly stating applicable taxes/duties. All foreign quotes will be evaluated with custom duty @ 5.15% for cost comparison. c. Taxes & Duties quoted will be taken for evaluation of landed cost & order placement and no change will be entertained later except in the case of changes made by the government. However please note that we are availing cenvat credit for service tax and hence service tax will be excluded in calculation of landed cost to BHEL. In case any Taxes/ Duties exempted, a self declaration for the same may be attached to the offer. Changes in taxes and duties because of the changes in turn over etc will be to supplier's account. d. Where ever vendor registration form and EFT details have been submitted earlier, the same need not be submitted again unless there is a change. e. BHEL R&D do not issue 'C' form . f. L1 status shall be decided on Cost to BHEL Basis.
3	Late Tenders	Tenders received after due date/time(12:00hrs) will not be considered
4	Discrepancy in words and figures	(a) If, in the price structure quoted for the required goods/ Services/ works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly. (b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

		(c). If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject of (a) and (b) above. (d) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date upto which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored.
5	Two Part bid clarifications	In the case of Two-part bid, the vendor should furnish technical and commercial clarifications, if any, within stipulated time mentioned, failing which, it will be construed that the vendor is not interested in the tender and BHEL shall not consider the offer for further evaluation.
6	Price Impacts	In the event of any bidder, after finalizing the technical specifications and scope of supply, opting to revise their original bid, they have to submit the Price-Impact only. The Original price bid along with Price-Impact bid shall be opened during price bid opening. Unsolicited price impacts will not be considered.
7	Price bid evaluation	All offers in price bid opening or reverse auction shall be evaluated in Indian currency based on unit price, packing & forwarding, taxes/duties, freight charges if any, exchange rate. Loading due to non-acceptance of our standard commercial terms will be evaluated as per the LOADING FACTORS form as enclosed along with the enquiry. The exchange rate declared by State Bank of India under TT Selling rate on the technical bid open date shall be adopted for evaluating foreign currency bids.
8	Packing	The supplier shall be responsible for the goods being properly and adequately packed so as to prevent any loss, damage or deterioration during transit.
9	Withdrawal	In case the supplier withdraws their offer before placement of order, BHEL reserves the right not to send next enquiry(ies). In case the supplier withdraws the quotation after its acceptance by BHEL or fails to supply the goods as per the terms and conditions of contract, or at any time repudiated the contract wholly or in part, BHEL shall be at liberty to cancel the Purchase Order and to recover from the supplier the extra cost and other loss, incidentals due to the breach of contract on the part of the supplier through risk purchase.
10	Risk Purchase	In case of default/late delivery, BHEL reserves the right to make alternate arrangement for procurement at suppliers risk and cost.
11	Banned List	The offers of the bidders who are in the banned list and 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 website www.bhel.com . Guidelines for suspension of business dealings with suppliers/contractors are available on www.bhel.com under supplier registration page
12	Over All L1	Order will be placed on overall L1 basis. Vendors should quote for all items, otherwise the offer will be rejected.
13	Additional Information	Suppliers are requested to visit our web site regularly for any updates and additional information, "All corrigenda, addenda, amendments, time extensions clarifications, etc. to the tender will be hosted on BHEL website only". The corrigendum will not be published in news paper.
14	Destination	Indian Vendors: Destination shall be Stores, BHEL R&D, Vikasnagar, Hyderabad-500093. Foreign Vendors: 1) BHEL R.O.D Office, Mumbai, India for sea consignments and 2) BHEL R&D, Hyderabad, India for air consignments.
15	Arbitration	Subject to the jurisdiction of Hyderabad/Secunderabad, Andhra Pradesh, India in respect of any suit or other legal proceedings relating this contract.
16	Foreign Vendors	BHEL will deal directly with foreign vendors, where ever required, for procurement of goods. However, if the foreign principal desires to avail of services of an Indian agent, then foreign principal should ensure compliance to regulatory guidelines which require mandatory submission of agency agreement (as per *). * The Agency Agreement shall specify 1) Agency commission, 2) Responsibilities of the agent, 3) Territory, 4) Agreement Period
17	Destination	Indian Vendors: Destination shall be ASSCP, BHEL, Gurgaon (Near New Delhi), Haryana - 122001. Foreign Vendors: BHEL R.O.D Office, New Delhi, India.
18	Fraud Prevention Policy	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.
19	Signing & Stamping	Documents of BHEL's all Terms and conditions submitted with the offer shall be signed and stamped in each page of authorized representative of the bidder

Documents submitted with the offer shall be signed and stamped in each page of authorized representative of the bidder

Read and agreed for all the above general terms and conditions

Signature of the bidder with Seal & Date

	COMMERCIAL TERMS & CONDITIONS (CTC)	Volume - 1 Enquiry No 431800771
Supply, E&C of 2X500 KVA DG Sets with synchronisation panel and associated accessories		

SL.No.	Clause	BHEL REQUIREMENT	SUPPLIERS ACCEPTANCE / REMARKS
1	Late Delivery Penalty Clause	Failure to supply the goods and/or Failure to carryout the services within the stipulated delivery date will attract a penalty of 0.5% per week or part thereof for the value of the undelivered portion of the purchase order subject to a maximum of 10% of the total order value. The Penalty amount determined based on the delay in supply/services along with applicable GST thereon shall be recovered. In case of non acceptance to this LD Clause, 10% of basic material cost will be loaded on the quoted prices while cost comparison.(Please refer the enclosed 'Loading Factors' sheet).	
2	Payment terms for Indian Offers	Vendor to indicate appropriate applicable HSN code for Goods as well as SAC for services based on Inter/Intra state.In case the bidder has opted for composite GST scheme,the same may be stated explicitly in both and techno-Commercial & Price bids. BHEL will pay only basic price to the vendor and release the GST payment only when the proof of remittance is given.	
3	Reverse Auction	BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on www.bhel.com) instead of opening the sealed envelope 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 envelope sealed price bid already submitted to BHEL along with the offer. The envelope sealed 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 & envelope sealed 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 envelope sealed 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).	
4	Two part	Please submit your offer in one common sealed cover containing two parts in separate sealed covers as detailed below. 1) First Cover shall contain: a. Signed General Terms & Conditions (GTC) b. Filled and Signed Commercial Terms & Conditions (CTC) c. Filled and Signed Vendor Specifications against BHEL Specifications (Item wise) d. Signed commercial bid e. Copy of Price-bid with price(s) cells blank (un-priced price bid)as per annexure 2) Second cover shall contain Price Bid Containing Price quotes, applicable taxes, installation and/or commissioning charges shall be spelt out clearly taking into account total charges rather than quoting vaguely such as charges per man-day or charges per engineer per day etc as per annexure. If the price bid was found later to be different from the unpriced pricebid format in any way, the offer will be rejected summarily. The rates shall be quoted both in figures and in words. The offers can also be submitted through e-mail and have to be sent in PDF format (files with PDF extension only). Files having extensions other than PDF like RAR, EXE,JPEG etc. and with external links will not be considered. They have to be sent to e-mail id: 'rnd-coffers@bhel.in' only. Copies should not be marked to anyone. If the offers are marked to anyone other than to eoffers, their offer will not be considered. The e-mail offers should have two attachments. 1) One attachment shall contain a. Signed General Terms & Conditions (GTC) b. Filled and Signed Commercial Terms & Conditions (CTC) c. Filled and Signed Vendor Specifications against BHEL Specifications (Item wise) d. Signed commercial bid e. Copy of Price-bid with price(s) cells blank (un-priced price bid), as per annexure 2) Second attachment shall contain Price Bid Containing Price quotes, applicable taxes, installation and/or commissioning charges shall be spelt out clearly taking into account total charges rather than quoting vaguely such as charges per man-day or charges per engineer per day etc as per annexure. The subject of the e-mail should contain Enquiry No, Enquiry Date and Due date.	

5	Weight and Packing Dimensions.	The Supplier shall indicate the shipping weight (Kgs) and dimensions(L x W x H in cms) clearly along with offer.	
6	Validity of Offer	90 days from date of techno-commercial bid opening.	
7	Price basis	The prices shall be firm for entire period of contract. The suppliers shall indicate packing and forwarding charges,if any, separately. All foreign suppliers shall quote the lowest prices on a) 'FOB-Nearest International Gateway Airport for Air consignments. BHEL shall organize shipment through our authorized freight forwarder from gateway Airport. An amount of 2% on basic value towards freight and 1% on basic value towards insurance will be added for cost comparison. b)CFR-Mumbai/Nhava sheva seaport for sea consignments. An amount of Insurance @1% (Supplier's seaport to BHEL R&D Stores, Hyderabad)+ local transport charges (Mumbai/Nhavasheva Seaport to BHEL R&D Stores, Hyderabad) based on weight/dimensions furnished by the supplier in the tender shall be added for landed cost evaluation. All Indian suppliers shall quote the lowest prices on 'free delivery at BHEL R&D Stores or F.O.R destination' basis only.	
8	PBG	PBG of 10% of total order value is to be submitted by the successful vendor and shall be kept valid upto guarantee period with additional claim period of 2 months there after.The offers of the suppliers not accepting to this clause will be rejected.	
9	Freight & Insurance	Insurance will be arranged by BHEL in case of FOB basis supplies. In such cases ,an amount of 3% towards freight and insurance will be added for cost comparison.	
10	Agency Agreement	Guidelines regarding dealing with Indian agents of foreign suppliers 1. BHEL shall deal directly with foreign vendors, wherever required, for procurement of goods. However, if the foreign principal desires to avail of services of an Indian agent, then the foreign principal should ensure compliance to regulatory guidelines which require mandatory submission of agency agreement. 2. 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. 3. The agency agreement should specify the precise relationship between the foreign OEM and services to be rendered by Indian agent / associate, whether general in nature or in relation to the particular contract, must clearly be stated by the foreign supplier / Indian Agent. Any payment, which the Indian agent / associate receives in India or abroad from the OEM, whether as commission or as a general retainer fee shall be brought out in record in the agreement and be made explicit in order to ensure compliance to the laws of the country. 4. Any agency commission to be paid by BHEL to the Indian agent shall be Indian currency. 5. When ever Indian agents are representing on behalf of their principals, the relevant authorization letter and agreement copy to be enclosed along with technical bid to consider the offer.	
11	Delivery Period	<u>FOR INDIAN SUPPLIES :</u> Suppliers are requested to quote within the delivery date mentioned in the enquiry. They shall also mention one of the following delivery periods compulsorily. 1) Delivery Period from date of Purchase order ===== 2) Delivery Period from receipt of material / input data / drawings etc. from BHEL===== (if applicable) 3) Delivery Period from receipt of approval of design documents / drawings etc. by BHEL===== (if applicable) However BHEL shall inform the vendor about rejection of the offer before price bid opening in case of not meeting the delivery requirements of BHEL. <u>FOR FOREIGN SUPPLIES :</u> Suppliers are requested to quote within the delivery date mentioned in the enquiry. They shall also mention one of the following delivery periods compulsorily. 1. Delivery Period from date of Purchase order :===== 2. Delivery Period from receipt of input data / drawings etc. from BHEL===== (if applicable) 3. Delivery Period from receipt of approval of design documents / drawings etc. by BHEL===== (if applicable) 4. Delivery Period from date of LC Opening ===== (if applicable)	

		5. Delivery Period from date of PO acceptance ===== However BHEL shall inform the vendor about rejection of the offer before price bid opening in case of not meeting the delivery requirements of BHEL. Pl. mention any other issues/constraints like export clearance etc. explicitly, if any =====	
12	Payment Terms	Payment 1) Through L/C: Please note Payment through Letter of Credit (L/C) is for foreign currency payments only. Where the payments are through L/C (L/C opening charges shall be loaded for landed cost evaluation), payment of Supply value shall be 80% on dispatch and 20% on issue of E&C Certificate. Payment of E&C Value shall be made against E&C certificate issued by BHEL. E&C certificate shall be issued on satisfactory completion of erection, commissioning, job proving, performance test, training to operators etc, as envisaged in PO. The L/C shall be opened by BHEL as per following: (i) Within 30 days of receipt of acceptable CEBG, an irrevocable unconfirmed L/C will be opened for 30% of the payment towards supply, due on shipment i.e. 24% of the Supply value of PO (30% of 80%) Not earlier than 60 days before the shipment date, the value of this irrevocable unconfirmed L/C would be enhanced from 24% to 80% of the Supply value of PO The above L/C can be negotiated after the Shipment against submission of B/L or AWB and such other documents as mentioned in the in the PO. The above L/C will be valid for a period extending 21 days beyond the shipment date for negotiation of documents. (ii) 15 days prior to the scheduled & confirmed arrival of the technicians of supplier with their names, an irrevocable unconfirmed L/C will be opened for a value equal to 20% of the Supply value of PO plus 100% of the E&C value of PO. The validity of L/C would be sufficient to cover the period required for the completion of E&C plus 21 days as negotiation period. This L/C can be negotiated after: (a) Completion of E&C of the equipment in BHEL and against E&C certificate issued by BHEL and (b) Submission of Performance Bank Guarantee (PBG) by Supplier in the prescribed Format valid for 30 days beyond the warranty period, from one of the Consortium Banks of BHEL or from a reputed Bank and confirmed by Consortium Bank of BHEL for 10% of total PO Value. The PBG confirmation charges shall be borne by vendor. Under all circumstances, CEBG shall be kept valid till be PBG becomes operational. 2 Direct Payment (foreign and Indian Suppliers): In case of direct payment , 80% payment of Supply value shall be made within 45 days from the date of receipt of material at BHEL. Balance 20% of supply value plus 100% of the E&C portion of PO Value will be paid against E&C certificate issued by BHEL and submission of Performance Bank Guarantee (PBG) valid for 30 days beyond the warranty period by Supplier from any of the Consortium Banks of BHEL for 10% of total PO Value in the prescribed Format. The PBG confirmation charges shall be borne by vendor. 3. Bank Guarantee and Loading against non acceptance of BHEL's Payment Terms: If payment terms as mentioned by BHEL are not agreed by bidder, such bidder have to submit Bank Guarantee at the time of payment/opening of LC in the prescribed Format of the amount, exceeding 80% of the PO value, valid till issue of E&C Certificate for the equipment. However, in no case, payment against dispatch shall exceed 90% of the PO Value. Additionally, for any deviation sought including as mentioned above, in Payment Terms by bidder w.r.t. tender conditions, following loading shall be followed: (A) Base rate of SBI as applicable on the date of tender opening + 6%, for the amount & period of relaxation sought by bidder. (B) On account of payment through LC if insisted by bidder , bank charges shall also be loaded for the deviation in (i) opening of LC by BHEL and (ii) period and amount of LC as per prevailing bank rates.	
13	E&C	Supplier to quote Supply and E&C portion with relevant taxes and time requirement separately. BHEL reserves the right to issue two separate orders.	
14	Nature of Vendor submitting the Offer	OEM / Agent / Representative / Dealer / Distributor / Stockist / Trader / Reseller / Channel Partner/ System Integrator / Any Other (Pl. Specify)	
15	Foreign Suppliers without Indian Agent	To be quoted in Foreign Currency. Purchase Order will be placed on Foreign Supplier.	
16	Foreign Principal availing services of an Indian Agent	Foreign principal should ensure compliance to regulatory guidelines which require mandatory submission of Agency agreement. (as per *) To be quoted in Foreign Currency. Purchase order will be placed on Foreign Supplier. Agency Commission will be paid to Indian Agent in Indian rupees. * The Agency Agreement shall specify 1) Agency commission, 2) Responsibilities of the Agent, 3) Territory, 4) Agreement Period	

Note : All the clauses of the above format should be filled and submitted with the Techno Commercial Bid (Part-1). The filled in BHEL Commercial terms & Conditions format submitted with technical bid, responding to all the clauses duly signed with seal **only shall be considered**. Any other Commercial terms & conditions of bidders entered else where in their offer shall not be considered and are liable for rejection.

Read and understood the above commercial terms and conditions

Signature of the bidder with Seal & Date

	OTHER TERMS & CONDITIONS	Volume - 1 Enquiry No 431800771
Supply, E&C of 2X500 KVA DG Sets with synchronisation panel and associated accessories		

SL.No.	Clause	BHEL REQUIREMENT	SUPPLIERS ACCEPTANCE / REMARKS
1	Technical Queries	Contact V Subash Reddy, Dy Manager(Ph No. 9160033885), for any technical queries.	
2	Packing & forwarding	Mention the packing & forwarding , freight & insurance , if any in terms of % of basic cost.	
3	Regarding Concessional	1.Concessional duties/taxes, if any, available to BHEL at price bid opening shall be taken into account for evaluating landed cost calculation. Hence suppliers are requested to submit their bids clearly stating applicable taxes/duties. However, all suppliers have to accept Concessional duties in case if the same is available to BHEL at dispatch. 2. Hence all offers shall be evaluated at available concessional rates of, if any, on or before opening of price bid date or otherwise it shall be evaluated with quoted/prevaling rates as on date of price bid opening for landed cost comparison. However, all suppliers have to accept Concessional taxes/duties in case if the same is available to BHEL as on date of dispatch.	
4	Details required	Submission of GST Registration details along with offer is required for consideration of the Offer. IT Permanent Account No. (PAN): GSTIN Registration Status: Tax type: CGST/SGST/IGST/UGST GSTIN No: GSTIN No. Issuance Date : Provisional/ Final Registration : Name of the Contact Person : Contact Phone / Mobile : Email id for correspondence : Address with PIN code and State: HSN code, service account code. Plz Submit the unpriced bid format masking prices in the way invoice is to be raised.	
5	Taxes and Duties	1.Kindly provide the HSN code and the breakup of the tariff/taxes (CGST/SGST/IGST/UGST) based on from and to locations with individual components. 2. Taxes and duties to be governed by GST acts. Strict adherence to new provisions by the vendors like timely submission of invoices, tax payment, filing of returns-GSTR-I etc. will form base of new regime for release of payment from BHEL. Hence, any financial loss occurred due to noncompliance of the GST provisions would be endured at defaulters end	
6	Force Majeure	If at any time during the continuance of the contract the performance in whole or in part by either party of any obligations under the contract is prevented or delayed by reason, of any war, hostilities, acts of the public enemy, civil commotion, sabotage, fires, explosions, epidemics, quarantine, restrictions or acts of GOD (hereinafter referred to as events) and notice of happening of any such events is given by either party to other within twenty one days from the date of occurrence thereof then neither party shall by reason of such events be entitled to terminate the contract. If the performance in whole or part of any obligation under this contract is prevented or delayed by reason of occurrence of such events, then claims for extension of time shall be granted for period considered reasonable by the purchaser subject to prompt notification by the seller to the purchaser the particulars of the events, if required with supporting evidence. Any waiver of time in respect of partial instalment shall not be deemed to be a waiver of time in respect of remaining deliveries.	
		The equipment enquired forms a part of a Government of India funded Project (Scheme) and the delivery period mentioned below has been derived keeping in view of the Scheme completion date. Vendor shall comply with this required period. Bidder should quote time period separately for 'Supply' and 'E&C' of equipment (A)	

7	Delivery Period	Supply period: i) For Supply portion, duration shall be counted from the date of Purchase Order. ii) Delivery period shall not be linked to , Order acceptance, submission of drawings etc. iii) Supply period indicated by bidder should include reasonable time required for approval of drawings and other inputs from BHEL. iv) In the Techno- Commercial Bid, the bidder shall submit milestones for various activities in correlation with Supply and E&C period quoted by the vendor/ supplier v) Time period required for dispatch (OBL (Ocean Bill of Lading) date for out-side India Suppliers/ LWB (Lorry waybill) date for FOR-BHEL R&D Stores for Indian Suppliers) from the date of Purchase Order. vi) “Vendor’s confirmation” below DELIVERY PERIOD (in Weeks) REQUIRED BY BHEL (SUPPLY PORTION) (PO date to OBL/LWB date):: 8 weeks a) An additional period of 4 weeks from OBL date to IGM (Inward Goods Manifest) date at Mumbai/Nhavaseva/Chennai Seaport, India, b) An additional period of 6 weeks from OBL date to IGM date at ICD Sanathnagar, Hyderabad, India, shall be given towards sailing period for outside India Suppliers. c) An additional 2 weeks (LWB date to BHEL R&D Stores) shall be given to Indian Suppliers DELIVERY PERIOD (in Weeks) OFFERED BY VENDOR (SUPPLY PORTION) (PO date to OBL/LWB date):: _____ (B) E&C period: Duration shall be counted from the E&C start date. E & C PERIOD (in Weeks) REQUIRED BY BHEL: 2 weeks E & C PERIOD (in Weeks) OFFERED BY VENDOR (E & C PORTION): _____ However, while evaluating the offers, those offers which are not conforming to the requested delivery and E & C period by BHEL, COMMERCIAL LOADING @ 0.5 % of the purchase order value per week will be done for the EXTRA PERIOD requested. Commercial loading on the offered price will be done during evaluation of the offers	
8	warranty	a) Warranty for all parts: Warranty for 60 months from the date of completion of E&C or 66 months from the date of receipt at BHEL R&D, Stores whichever is earlier. If any vendor quotes more than the above stipulated warranty period, cost implication of extra warranty period will not be considered for cost comparison. b) During warranty period, the repairs/ maintenance of the equipment, if any, shall be carried out by the vendor at free of cost at BHEL R&D, Hyderabad only. c) During warranty period, all upgrades to the operation related, data acquisition, processing and data-logging software must be provided free of cost. d) During warranty period, spares to be procured under recommended spares along with equipment will not be utilized as this is comprehensive in nature. Hence, all necessary parts other than consumables should be provided by the OEM as and when required during warranty period. e) If during warranty period, there is any breakdown of the equipment for a duration beyond 7 days from the date of reporting, warranty period will be extended by that duration. This should be complied by the vendor. f) Contact information of service engineers MUST be provided at the time of installation or E&C. g) Availability of trained service engineers in India for attending the problem in at most 3 days has to be ensured and complied to.	
10	PRE QUALIFYING CRITERIA (PQC)	BHEL will carry out independent verification of performance certification. Hence, prospective bidders are required to give only reference of those customers who are willing to confirm independent verification and not refrain from the same on the grounds of confidentiality.	

Signature of the bidder with Seal & Date

	ITEM SPECIFICATIONS	Volume - 2 Enquiry NO 431800771
Supply, E&C of 2X500 KVA DG Sets with synchronisation panel and associated accessories		

SL.No.	Item			
1	500 KVA DG set along with associated accessories			
	sl no	Descriptions	BHEL Specifications	Vendor Specifications/ Deviations
	1	500 KVA DG set	Refer Document DNA-HTSTR-DG-2018-1 and Technical annexure-I	
	2	Associated accessories for DG stes	Refer Document DNA-HTSTR-DG-2018-1 and Technical annexure-I (List of accessories has to be provided by vendor for the supply)	
	3	Mandatory spares	Refer Document DNA-HTSTR-DG-2018-1 and Technical annexure-I (List of spares has to be provided by vendor for the supply)	
	4	Warranty	Refer Document DNA-HTSTR-DG-2018-1 and Technical annexure-I	
2	Synchronisation panel along with associated accessories			
	sl no	Descriptions	BHEL Specifications	Vendor Specifications/ Deviations
	1	Synchronisation panel	Refer Document DNA-HTSTR-DG-2018-1 and Technical annexure-I	
	2	Associated accessories	Refer Document DNA-HTSTR-DG-2018-1 and Technical annexure-I (List of Accessories has to be provided by vendor)	
	3	Mandatory spares	Refer Document DNA-HTSTR-DG-2018-1 and Technical annexure-I	
	4	Warranty	Refer Document DNA-HTSTR-DG-2018-1 and Technical annexure-I	
3	Erection and Commissioning of 2X500 KVA DG sets along with one Synchronisation panel			
	sl no	Descriptions	BHEL Specifications	Vendor Specifications/ Deviations
	1	Erection and Commissioning of 2X500 KVA DG sets along with one Synchronisation panel	Refer Document DNA-HTSTR-DG-2018-1 and Technical annexure-I	

* Vendors are advised to write specifications in detail and not to write like 'Complied/ Yes / No ' etc. in specifications.

Signature of the bidder with Seal & Date

BHEL R&D
RD:DP:MPX:F-22

LOADING FACTORS



NOTE : IN CASE OF DEVIATION TO BHEL TENDER SPECIFIED TERMS, LOADING FACTOR INDICATED IN FOLLOWING TABLE WILL BE APPLIED TO QUOTED PRICE WHILE EVALUATING THE LOWEST QUOTE

A. FOR INDIGENOUS PURCHASES					
SLNO	SCOPE	COMMERCIAL TERMS	BHEL STANDARD TERM	AS OFFERED	LOADING FACTOR FOR NON COMPLIANCE TO BHEL STANDARD TERMS
A.1	SUPPLY OF EQUIPMENT	PAYMENT TERMS	100% PAYMENT, WITH IN 30 DAYS FROM THE DATE OF RECEIPT AND ACCEPTANCE OF MATERIAL AT BHEL R & D	SAME	NIL
				PAYMENT AGAINST PROFORMA INVOICE / DESPATCH DOCUMENTS	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON THE TOTAL PO VALUE FOR ONE MONTH
				FULL ADVANCE PAYMENT WITH BANK GUARANTEE	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON THE TOTAL PO VALUE FOR THE DELIVERY PERIOD (Rounded off to nearest month) + 1 MONTH
				PART ADVANCE (X%) PAYMENT WITH BANK GUARANTEE AND BALANCE PAYMENT WITH IN 30 DAYS FROM THE DATE OF RECEIPT AND ACCEPTANCE OF THE MATERIAL	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON PART ADVANCE AMOUNT (X%) FOR THE DELIVERY PERIOD (Rounded off to nearest month) + 1 MONTH
				PART ADVANCE (X%) PAYMENT WITH BANK GUARANTEE AND BALANCE PAYMENT ON RECEIPT AND ACCEPTANCE OF MATERIAL	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON PART ADVANCE AMOUNT (X%) FOR THE DELIVERY PERIOD (Rounded off to nearest month) + 1 MONTH AND LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON BALANCE AMOUNT FOR ONE MONTH
				SAME	NIL
A.2	SUPPLY OF EQUIPMENT INCLUDING ERECTION AND COMMISSIONING (E&C)	PAYMENT TERMS	90% PAYMENT, WITH IN 30 DAYS FROM THE DATE OF RECEIPT AND ACCEPTANCE OF MATERIAL AND BALANCE 10% WITH IN 30 DAYS OF COMPLETION OF E&C.	100% PAYMENT WITH IN 30 DAYS AFTER COMPLETION OF SUPPLIES AND E&C	NIL
				90% PAYMENT AGAINST PROFORMA INVOICE/ DESPATCH DOCUMENT AND BALANCE 10% WITH IN 30 DAYS AFTER COMPLETION OF E&C.	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON 90% OF THE VALUE OF PO FOR ONE MONTH
				90% PAYMENT AGAINST PROFORMA / DESPATCH DOCUMENT AND BALANCE 10% AFTER COMPLETION OF E&C	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON TOTAL VALUE OF THE PO FOR ONE MONTH
				90% ADVANCE PAYMENT WITH BANK GUARANTEE AND BALANCE 10% PAYMENT WITH IN 30 DAYS AFTER COMPLETION OF E&C	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON 90% OF THE PO VALUE FOR DELIVERY PERIOD (ROUNDED OFF TO THE NEAREST MONTH) + 1 MONTH
				PART ADVANCE (X%) PAYMENT WITH BANK GUARANTEE AND (90 - X) % PAYMENT ON RECEIPT AND ACCEPTANCE OF THE MATERIAL AND 10% PAYMENT WITH IN 30 DAYS AFTER COMPLETION OF E&C	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON THE PART ADVANCE AMOUNT (X%) FOR THE DELIVERY PERIOD (ROUNDED OFF TO THE NEAREST MONTH) + 1 MONTH AND LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON BALANCE (90-X)% AMOUNT FOR ONE MONTH
				PART ADVANCE (X%) PAYMENT WITH BANK GUARANTEE AND BALANCE (90 - X) % PAYMENT AFTER RECEIPT AND ACCEPTANCE OF THE MATERIAL AND 10% PAYMENT AFTER COMPLETION OF E&C	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON THE PART ADVANCE AMOUNT (X%) FOR THE DELIVERY PERIOD (ROUNDED OFF TO THE NEAREST MONTH) + 1 MONTH AND LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON BALANCE AMOUNT (100-X)% FOR ONE MONTH

B. FOR FOREIGN PURCHASES (IMPORTED)					
SL.NO	SCOPE	C. COMMERCIAL TERMS	BHEL STANDARD TERM	AS OFFERED	LOADING FACTOR FOR NON COMPLIANCE TO BHEL STANDARD TERMS
B.1	SUPPLY OF EQUIPMENT	PAYMENT TERMS	100% PAYMENT BY WIRE TRANSFER WITHIN 30 DAYS FROM THE DATE OF RECEIPT AND ACCEPTANCE OF MATERIAL AT BHEL R&D (DESPATCH DOCUMENTS WILL BE SENT TO BHEL R&D DIRECTLY ALONG WITH BANK DETAILS)	SAME	NIL
				SIGHT DRAFT ON PRESENTATION OF DESPATCH DOCUMENTS VIZ INVOICE, AWB ETC TO OUR BANKERS	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+6%) ON THE BASIC VALUE FOR ONE MONTH PLUS PAYMENT RELATED BANK CHARGES INCURRED BY BHEL
				LC PAYMENT AGAINST DESPATCH DOCUMENTS	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON THE BASIC VALUE FOR ONE MONTH PLUS LC RELATED BANK CHARGES INCURRED BY BHEL
				FULL ADVANCE PAYMENT BY WIRE TRANSFER /LC WITH BANK GUARANTEE	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON THE BASIC VALUE FOR DELIVERY PERIOD(Rounded off to nearest month) + 1 MONTH PLUS LC RELATED BANK CHARGES INCURRED BY BHEL
				PART ADVANCE (X%) PAYMENT BY WIRE TRANSFER/LC WITH BANK GUARANTEE AND BALANCE PAYMENT WITH IN 30 DAYS FROM THE DATE OF RECEIPT AND ACCEPTANCE OF THE MATERIAL	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+ 6%) ON THE PART ADVANCE AMOUNT (X%) FOR THE DELIVERY PERIOD (Rounded off to nearest month) + 1 MONTH PLUS LC RELATED BANK CHARGES INCURRED BY BHEL
B. FOR FOREIGN PURCHASES (IMPORTED)					
SL.NO	SCOPE	C. COMMERCIAL TERMS	BHEL STANDARD TERM	AS OFFERED	LOADING FACTOR FOR NON COMPLIANCE TO BHEL STANDARD TERMS
B.2	SUPPLY OF EQUIPMENT INCLUDING ERECTION AND COMMISSIONING (E&C)	PAYMENT TERMS	90% PAYMENT BY WIRE TRANSFER WITH IN 30 DAYS FROM THE DATE OF RECEIPT AND ACCEPTANCE OF THE MATERIAL AND BALANCE 10% WITH IN 30 DAYS AFTER COMPLETION OF E&C	SAME	NIL
				SIGHT DRAFT ON PRESENTATION OF DESPATCH DOCUMENTS VIZ INVOICE, AWB ETC TO OUR BANKERS	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+6%) FOR ONE MONTH PLUS PAYMENT RELATED BANK CHARGES INCURRED BY BHEL
				90 PAYMENT BY WIRE TRANSFER /LC AGAINST DESPATCH DOCUMENTS BALANCE 10% WITH IN 30 DAYS AFTER COMPLETION OF E&C	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+6%) ON 90% OF BASIC VALUE FOR ONE MONTH PLUS LC RELATED BANK CHARGES INCURRED BY BHEL
				90% PAYMENT BY WIRE TRANSFER /LC AGAINST DESPATCH DOCUMENTS BALANCE 10% AFTER COMPLETION OF E&C	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+6%) ON THE BASIC VALUE FOR ONE MONTH PLUS LC RELATED BANK CHARGES INCURRED BY BHEL
				90% OF BASIC VALUE AS ADVANCE PAYMENT BY WIRE TRANSFER /LC WITH BANK GUARANTEE AND BALANCE 10% WITH IN 30 DAYS AFTER COMPLETION OF E&C	LOADING @ (SBI BASE RATE ON TENDER OPENING DATE+6%) ON 90% OF THE BASIC VALUE FOR DELIVERY PERIOD (Rounded off to nearest month) + ONE MONTH PLUS LC RELATED BANK CHARGES INCURRED BY BHEL
C. PENALTY FOR DELAYED DELIVERY (COMMON FOR INDIGENOUS AND IMPORTS)					
SL.NO	COMMERCIAL TERMS	BHEL STANDARD TERM	AS OFFERED	LOADING FACTOR FOR NON COMPLIANCE TO BHEL STANDARD TERMS	
C	LD CLAUSE	IN THE EVENT OF DELAY IN AGREED CONTRACTUAL DELIVERY, PENALTY OF 0.5% (HALF PERCENT) PER WEEK BUT LIMITED TO A MAX OF 10% OF TOTAL ORDER VALUE WILL BE APPLICABLE	AGREED	NIL	
			IF NOT AGREED	LOADING @ 10% OF THE BASIC MATERIAL COST	
			IF AGREED FOR X%	LOADING @ (10-X)% OF THE BASIC MATERIAL COST	
D. GUARANTEE/WARRANTY PERIOD (COMMON FOR INDIGENOUS AND IMPORTS)					
SL.NO	COMMERCIAL TERMS	BHEL STANDARD TERM	AS OFFERED	LOADING FACTOR FOR NON COMPLIANCE TO BHEL STANDARD TERMS	
D	GUARANTEE/WARRANTY PERIOD	STIPULATED OR REQUIRED GUARANTEE/ WARRANTY PERIOD(X)	AGREED	NIL	
		MINIMUM ACCEPTABLE GUARANTEE / WARRANTY PERIOD(Y)	NOT AGREED FOR STIPULATED BUT AGREED FOR MINIMUM GUARANTEE/WARRANTY(Y)	LOADING @ 10 % OF THE ORDER VALUE PER ANNUM FOR THE REDUCED GUARANTEE PERIOD (X-Y)	

BHEL R&D

Terms & Conditions of Reverse Auction



Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to "REVERSE AUCTION PROCEDURE" i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
2. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit online sealed bid in the Reverse Auction. Non-submission of online sealed bid by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
3. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
4. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
5. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
6. Bidders have to fax the Compliance form (annexure IV) before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
7. In line with the NIT terms, BHEL will provide the calculation sheet (e.g. EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
8. Reverse auction will be conducted on scheduled date & time.
9. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.
10. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, (Annexure VII) as provided on case-to-case basis to Service provider within two working days of Auction without fail.
11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL standard practice.
12. Bidders shall be required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the „Business Rules of Reverse Auction?, which will be communicated before the Reverse Auction.
13. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
14. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
15. In case BHEL decides to go for reverse auction, the H1 bidder (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.

AUTHORISATION LETTER FOR E-PAYMENT/ NEFT / RTGS
(PLEASE FILL UP THE FORM COMPLETELY IN CAPITAL LETTERS ON YOUR COMPANY LETTERHEAD ONLY)

Vendor Code (to be filled by BHEL)	
------------------------------------	--

Type of Request (Tick one)	NEW	CHANGE
1 Company Name		
2 Address		
3 City with PIN Code		
4 State		
5 PAN Number		
6 TIN/ VAT No.		
7 CST No.		
8 Service Tax No.		
9 Name of Contact Person		
10 Mobile number		
11 Ph. no. with STD Code		
12 Fax No. with STD Code		
13 Email ID		
14 Website (URL)		

BANK DETAILS FOR EFT / RTGS

1	Bank Name	
2	Branch	
3	Branch Code	
4	Branch Address	
5	Branch Phone No	
6	Account No.	
7	Account Type: SB/ Current/ other (Specify)	
8	MICR Code	
9	IFSC Code	

I, as an authorized representative / owner of the above named company, hereby state as under:

1. Enclosed here with a cancelled cheque in support of our company's bank details.
2. Authorize BHEL R&D Hyderabad, to electronically make payments to the designated bank account with bank charges, if any, to our account.
3. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold BHEL / transferring Bank responsible.
4. I hereby certify that the particulars given above are true, complete and correct.
5. This authority remains in full force until BHEL receives and acknowledge written notification requesting change or cancellation.

Date :
Company
Seal

Authorised Signatory
Designation :



RD:MPX:F-13

Bharat Heavy Electricals Limited

Corp. R&D DIVISION

VIKAS NAGAR,

HYDERABAD- 500 093 (INDIA)

VENDOR REGISTRATION FORM

(Indigenous supplier)

[FORM TO BE SUBMITTED* BY THE BIDDER ALONG WITH TECHNICAL-BID]

Before filling, please refer to instructions on page-4

1.0 VENDOR PROFILE:

1.1 Name and address of the vendor:

Phone Nos.:

Fax No.:

Email: 1.

2.

1.2 Local representative name & address in Hyderabad/Secundrabad :

Phone Nos.:

Fax No.:

Email:

Contact Person:

Mobile No:

2.0 TYPE OF ORGANISATION:

PROPRIETORSHIP	Company:	Sister Concern (mention vendor registration number of main organization)	
Partnership	CORPORATION	Small Scale Industry	ANY OTHER(Please specify)

In case of SSI unit, copy of registration to be enclosed. It is requested that MSME registration certificate to be enclosed and tick the following:

Type of Major Activity: Manufacturing / Service

Category of Enterprise: Micro / Small / Medium

Social Category : GENERAL / SC / ST / OBC

Udyog Adhaar Number (UAN): _____

3.0 ANNUAL TURN OVER:

#	Year	Turn-Over, Rs.
1	Current Year(budgeted)	
2	Previous year (200 - 0)	
3	Prior Year (200 - 0)	

4.0 NAME AND ADDRESS OF THE BANKER:

4.1 Bank Name

4.2 Branch name

4.3 Account number

4.4 Account Type

4.5 MICR Code:

4.6 IFSC Code(RTGS/NEFT):

4.7 Bank Phone number(s),

Blank cheque, duly cancelled, to be enclosed.

Please note that all payments shall be made through Electronic clearance services to your above account against the orders executed, if any.

5.0 REGISTRATION PARTICULARS(relevant copies to be enclosed)

5.1 IT Permanent Account No.(PAN):

5.2 State Sales Tax/VAT Registration No:

5.3 Central Sales Tax Registration No:

5.4 ED Registration No:

5.5 Service Tax Registration No:

5.6 PF Account No:

5.7 Labour Licence No:

5.8 ESI Account No:

6.0 CONTACT PERSON: S/Sri:

Designation:

Phone / Mobile No:

7.0 TOTAL NUMBER OF EMPLOYEES:

Graduates(Engr/Scientists/Mgmt/Fin.)	Consultants	Workers		
		Sup./Skilled	Semiskilled	Unskilled

8.0 LIST OF PRODUCTS/ SERVICES OFFERED:

#	Products/ Services	Capacity
1		
2		
3		
4		
5		

9.0 REFERENCE LIST :

(Only recognized public and private sector companies, attach if printed copy available)

#	Customer	Volume / Year
1		
2		
3		
4		
5		

10.0 INFRASTRUCTURE / FACILITIES:

#	Facility (with specifications)	Age/ Year procured
1		
2		
3		
4		
5		

11.0 REGISTRATION WITH OTHER BHEL UNIT/UNITS:

#	Unit	Registration No	Year
1			
2			
3			
4			

12.0 ANY OTHER INFORMATION :

DECLARATION:

The information furnished above is true and authentic.

(CEO / PROPRIETOR)

SEAL:
DATE:

Note:

-
1. Registered bidders, having BHEL (R&D) registration no. or have submitted this format for registration, need not furnish this information again.
 2. The competent authority reserves the right to accept or reject the registration.
 3. Vendors approved for registration will be informed by mail / email, as convenient. A separate communication will be sent in case of non-registration also, citing reasons thereof.
 4. BHEL reserves the right to take penal action as deemed fit if any of the information provided by the vendor(s) is found to be incorrect.
 5. AGM, Head (MM) may be contacted for clarification/additional information on registration.

Instructions

1. Fill all items. Please mention "N.A." for items/ clauses not applicable.
2. Use A4 sheets for this document and the enclosures. Use of additional sheets is permitted if space provided is not adequate.
3. Attach copies of latest documents in respect of items 5.0 (Registration no.s)
4. Photographs of registered office and the chief executive/proprietor shall be furnished.



RD:MPX:F-14

Bharat Heavy Electricals Limited

Corp. R&D DIVISION

VIKAS NAGAR,

HYDERABAD- 500 093 (INDIA)

SUPPLIER REGISTRATION FORM

(FOREIGN SUPPLIER)

ALL COLUMNS SHOULD BE PROPERLY FILLED IN THE SPACE PROVIDED FOR.WHEREVER IT IS NOT APPLICABLE PLEASE WRITE "NOT APPLICABLE".INCOMPLETE OR INCORRECT FORMS MAY NOT BE CONSIDERED.

1.0 GENERAL INFORMATION:

1.1 NAME OF COMPANY

1.2 DETAILS OF HEAD OFFICE:

ADDRESS :
 TELEPHONE :
 FAX :
 EMAIL :
 WEB SITE :

1.3 DETAILS OF FACTORY/WORKS:

ADDRESS :
 TELEPHONE :
 FAX :
 EMAIL :
 WEB SITE :

1.4 DETAILS OF MARKETING AGENT

ADDRESS :
 TELEPHONE :
 FAX :
 EMAIL :
 WEB SITE :

1.5 CHIEF EXECUTIVE

1.6 CONTACT PERSON(S)

FOR PRODUCT OFFERED

NAME(S) :
 OFFICIAL CPACITY :
 ADDRESS :
 TELEPHONE :
 FAX :
 EMAIL :

1.7 YEAR OF ESTABLISHMENT

1.8 PRODUCTION CAPACITY PER ANNUM

1.9 PARTICULARS OF PRODUCT INCLUDING SPECIFICATION AND RANGE OFFERED FOR REGISTRTION (Attach brouchers and catalogues)

1.10 NAME(S) OF BANKERS

1.11 BANKER'S CERTIFICATE

1.12 PORT OF LOADING

1.13 NEAREST AIRPORT

1.14 NAME OF THE INDIAN AGENT, IF ANY
WITH AUTHORIZATION LETTER

2.0 FINANCIAL INFORMATION:

2.1 TOTAL CAPACITY

2.2 ANNUAL TURN OVER FOR LAST 3 YEARS

2.3 WHEHER CREDIT LICENSE ACCEPTABLE YES/NO

3.0 QUALITY MANAGEMENT SYSTEMS

ENCLOSED FORMAT PART-B

3.1 EXPERIENCE LIST FOR SAME/ SIMILAR ITEMS
TO BE ENCLOSED

4.0 FUTURE EXPANSION PLANS:

(Give details)

5.0 LIST OF ENCLOSURES:

(Including brouchers, catalogues, technical literature etc)

6.0 ANY OTHER INFORMATION:

SIGNATURE OF SUPPLIER (Authorized signatory)

NAME :

DESIGNATION :

DATE :

OFFICIAL SEAL

Note:

1. BHEL Reserves the right to take penal action as deemed fit if any of the information provided by the vendor is found to be incorrect.
2. Please attach separate sheets, if space found is inadequate



Bharat Heavy Electricals Limited

Corp. R&D DIVISION

VIKAS NAGAR,

HYDERABAD- 500 093 (INDIA)

Ph: 040 – 23772704, Fax: 040 – 23770698, email: mpx@bhelrnd.co.in

RD:MPX:F-13

GUIDE LINES REGARDING DEALINGS WITH INDIAN AGENTS OF FOREIGN SUPPLIERS

- 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. Whenever Indian agents are representing on behalf of their principals the relevent authorisation letter and agreement copy to be enclosed along with Technical bid to consider the offer.

Un-Priced Bid Format for Supply, E&C and testing of 2x 500 KVA DG sets along with 1 Synchronisation panel

Sl. No.	Description	Quantity	Basic price/unit (Rs)	Total basic price (Rs)	GST (%)	Total GST (Rs)	Total price (Rs)
		A	B	C=A*B	D	E=C*D/100	F=C+E
1.0	500 kVA DG Set comprising of but not limited to: ➤ Offer shall include all fitting and accessories and mandatory spares for two years. ➤ Offer shall include 5 years warranty period ➤ Offer shall include all the supplies required for successful E&C including tools and tackles for E&C and maintenance other than exclusions as per Document no: DNA-HTSTR-DG-2018-01.	2 set	Quoted	Quoted	#	Quoted	Quoted
2.0	Synchronisation panel comprising of but not limited to ➤ Offer shall include all standard fitting and accessories and mandatory spares required for 2 years ➤ Offer shall include 5 years warranty period ➤ Offer shall include all the supplies required for successful E&C including tools and tackles for E&C and maintenance other than exclusions as per Document no: DNA-HTSTR-DG-2018-01.	1 set	Quoted	Quoted	#	Quoted	Quoted
3.0	Erection, Testing & Commissioning of two DG sets and one synchronisation panel along all associated accessories except the exclusions as per Document no: DNA-HTSTR-DG-2018-01.	1 lot	Quoted	Quoted	#	Quoted	Quoted

Note: # Vendor has to quote the % of GST and submit along with the technical bid.

Price Bid Format for Supply, E&C and testing of 2x 500 KVA DG sets along with 1 Synchronisation panel

Sl. No.	Description	Quantity	Basic price/unit (Rs)	Total basic price (Rs)	GST (%)	Total GST (Rs)	Total price (Rs)
		A	B	C=A*B	D	E=C*D/100	F=C+E
1.0	500 kVA DG Set comprising of but not limited to: ➤ Offer shall include all fitting and accessories and mandatory spares for two years. ➤ Offer shall include 5 years warranty period ➤ Offer shall include all the supplies required for successful E&C including tools and tackles for E&C and maintenance other than exclusions as per Document no: DNA-HTSTR-DG-2018-01.	2 set	#	#	#	#	#
2.0	Synchronisation panel comprising of but not limited to ➤ Offer shall include all standard fitting and accessories and mandatory spares required for 2 years ➤ Offer shall include 5 years warranty period ➤ Offer shall include all the supplies required for successful E&C including tools and tackles for E&C and maintenance other than exclusions as per Document no: DNA-HTSTR-DG-2018-01.	1 set	#	#	#	#	#
3.0	Erection, Testing & Commissioning of two DG sets and one synchronisation panel along all associated accessories except the exclusions as per Document no: DNA-HTSTR-DG-2018-01.	1 lot	#	#	#	#	#

Note: # Vendor has to quote the values and submit along with the price bid.

Technical Annexure-I to DNA-HTSTR-DG-2018-01 for supply and E&C of 2X 500 KVA DG sets along with One Synchronization Panel

	BHARAT HEAVY ELECTRICAL LTD	Enquiry No. :	
	Corporate Research and Development	Due Date :	
	Vikasnagar, Balanagar	Supplier Qtn. No.:	
	Hyderabad-500093		
	Telangana, India	Date :	
	SPECIFICATION CUM COMPLIANCE FOR 2 X 500KVA DIESEL GENERATOR SET SYSTEM ALONG WITH SYNCHRONISATION PANEL AT BHEL CORP R&D, HYDERABAD, TELANGANA.		
	NAME & ADDRESS OF THE SUPPLIER :		
	CONTACT PERSON:		
	TELEPHONE NOS.:		
	FAX NOS.:		
	E-MAIL ADDRESS :		
NOTE:-			
1	The "Offer" Column and where applicable, the "Deviations" & "Remarks" Column of this format shall be filled in by the Vendor and submitted along with the offer. Inadequate / incomplete, ambiguous, or		
2	The offer and all documents enclosed with offer should be in English language only.		
3	Vendor has to submit the list of standard fitting and accessories for the DG set along with Technical offer		
4	Vendor has to submit the list of standard fitting and accessories for the Synchronisation panel along with Technical offer		
5	Vendor has to submit the list of standard supplies which are mandatory for the Erection and commissioning of DG sets and Synchronisation panels accessories for the DG set along with Technical offer		
6	The Equipment and services to be furnished under this contract are detailed here under for reference. The items, though not specifically mentioned but required for safe and satisfactory operation of system will also be treated as included and the same shall be supplied at NO EXTRA COST to purchaser		
7	Exclusions: Civil work for foundation, cable laying, Earth pit preparation, supply of power cable from DG set to Synch panel and panel to BUS duct or Distribution panel		
8	Vendor has to submit the mandatory spares for the warranty period and has to be included in the scope		
9	Vendor has to quote the prices as per the given price bid format. Unpriced bid format with tax rates are to submitted along with technical offer		
10	Vendor has to submit the SLD for the synchronisation panel along with technical bid		

SNO	DESCRIPTION FOR BHEL REQUIREMENT	BHEL SPEC	VENDOR OFFER	DEVIATIONS	REMARKS
1.0	DG SET SYSTEM GENERAL REQUIREMENT				
1.1	Design, Manufacture, Testing, Supply, Installation & Commissioning of 2 Nos. 500 KVA, 0.8 PF, Diesel Generator Set system along with synchronisation panel and associated accessories. <u>The DG set system comprising of the following:</u> a) Four Stroke Diesel Engine suitable for operation on High Speed Diesel fuel, RADIATOR COOLED b) 415 V Alternator coupled to the Diesel Engine c) Fuel Tank (≥900L) for each DG set d) Mounting arrangement e) Common Base Frame for the DG Set f) Batteries with leads for starting g) Control Panel h) Standard Accessories	Vendor to Confirm			
1.2	DG set shall also be rated for 110% of full load for 1 hour in every 12 hours of continuous running	Vendor to Confirm			
1.3	Synchronisation panel along with associated accessories	Vendor to Confirm			
1.4	Acoustic Enclosure - 1No for each DG set	Vendor to Confirm			
1.5	First Fill of Lube Oil	Vendor to Confirm			
1.6	Interconnecting power and control cables within the system	Vendor to Confirm			
1.7	Painting, Installation, Erection & Commissioning	Vendor to Confirm			
1.8	Civil work in BHEL scope, the foundation layout and drawings shall be provided by the vendor after placement of PO (within 15 days).	Vendor to Confirm			
2.0	SPECIFICATION:				
2.1	GENERATOR SET:				
2.1.1	Prime Power Rating (KVA)	500			
2.1.2	Output Voltage & Frequency	415V, 50 Hz			
2.1.3	Voltage Regulation Shall be within +/- 2 % of the nominal voltage under following conditions: • Between no load and nominal load with p.f. of 0.8 lag to unity. • With the machine cold or warm. • At a speed drop of approximately 3% of the nominal speed.	Vendor to Confirm			
2.1.4	Frequency Regulation: The generator shall be suitable for continuous operation at rated load for a frequency variation of +/- 2 % of rated value. In addition the vendor shall furnish the short time under-frequency operating limits.	Vendor to Confirm			
2.1.5	Power Factor (lagging)	0.80			
2.1.6	No of Phases	3 Phase			
2.1.7	Model	Vendor to Specify			
2.1.8	Application	Outdoor.			

2.2	DIESEL ENGINE:				
2.2.1	Prime Power Output (BHP)	Vendor to Specify			
2.2.2	Rated Speed (RPM)	Vendor to Specify			
2.2.3	Speed Stability	Vendor to Specify			
2.2.4	Direction of rotation when looking from engine towards the driven Machine	Vendor to Specify			
2.2.5	Make	Vendor to Specify			
2.2.6	Model no	Vendor to Specify			
2.2.7	Method of Aspiration	Vendor to Specify			
2.2.8	Electronic Governor	Class A1			
2.2.9	Guaranteed limits of governing	Vendor to Specify			
2.2.10	Permanent variations 1.Full load thrown off 2. Full load put on	Vendor to Specify			
2.2.11	No. of cylinders	Vendor to Specify			
2.2.12	Arrangement of Cylinder	Vendor to Specify			
2.2.13	Bore & Stroke (mm)	Vendor to Specify			
2.2.14	Displacement (litres)	Vendor to Specify			
2.2.15	Piston Speed (m/s)	Vendor to Specify			
2.2.16	Compression ratio	Vendor to Specify			
2.2.17	BMEP of the engine	Vendor to Specify			
2.2.18	Rated output at normal temperature and Pressure conditions as defined in BS:649 latest in the case of Diesel Engine i.e. at 1000 M above mean sea level and ambient temperature above 40 degrees Overloaded for one hour at standard operating conditions	Vendor to Specify			
2.2.19	Guaranteed output at site (continuous running for 12 hours)	vendor to confirm			
2.2.20	Over load for one hour at site	vendor to confirm			
2.2.21	Fuel as per IS 1460	HSD			
2.2.22	Guaranteed fuel oil consumption	Vendor to Specify			
2.2.23	(A) under standard temperature and pressure (S.T.P)				
	i) at full rated output (litres/metric horse power/hour)	Vendor to Specify			
	ii) at 3/4 rated output ,,	Vendor to Specify			
	iii) at 1/2 rated output ,,	Vendor to Specify			
	Time required for starting from cold	Vendor to Specify			
2.2.24	Air Filter-Dry Type with replaceable elements	Vendor to Specify			
	The engine shall have closed loop lubricating system. No moving parts shall require lubrication by hand prior to the start of engine or while it is in operation	Vendor to confirm			
2.2.25	Lube Oil Capacity	Vendor to Specify			

2.2.26	Specification of lubricating oil recommended	Vendor to Specify			
2.2.27	Guaranteed lubricating oil consumption at full rated output in Litres	Vendor to Specify			
2.2.28	Lube Oil Cooling System	Vendor to Specify			
2.2.29	Lube Oil Filter	Vendor to Specify			
2.2.30	Coolant	Vendor to Specify			
2.2.31	Coolant Capacity (Engine & Radiator) (litres)	Vendor to Specify			
2.2.32	Exhaust Temperature (deg C)	Vendor to Specify			
2.2.33	Total speed variation which can be effected by hand speed regulating gear	Vendor to Specify			
2.2.34	Mechanical /Electronic over speed trip device	Vendor to Specify			
2.2.35	Low lubrication oil trip to be provided	Vendor to confirm			
2.2.36	Starting	Electric & Battery Start			
2.2.37	Complete air and exhaust gas system comprising intake filters, intake manifold, expansion bellows, exhaust piping, bends, fittings, silencer etc.	Vendor to confirm			
2.2.38	Mechanical efficiency %	Vendor to Specify			
2.2.39	Thermal efficiency %	Vendor to Specify			
2.2.40	Length (Engine Alone) (mm)	Vendor to Specify			
2.2.41	Width (Engine Alone) (mm)	Vendor to Specify			
2.2.42	Height (Engine Alone) (mm)	Vendor to Specify			
2.2.43	Weight (Engine, radiator and fan)	Vendor to Specify			
2.2.44	Details of standard accessories offered with the engine (List to be given by vendor)	Vendor to Specify			
2.3	FUEL INJECTION AND REGULATOR				
2.3.1	The engine shall be fitted with electronic governor suitable for class A-1 as per IS 10000.	Vendor to confirm			
2.3.2	The engine shall be fitted with a heavy, dynamically balanced flywheel suitable for constant speed governor duty.	Vendor to confirm			
2.4	ALTERNATOR:				
2.4.1	Make	Vendor to Specify			
2.4.2	Model	Vendor to Specify			
2.4.3	Design Maximum Rating (KVA)	Vendor to Specify			
2.4.4	Max Continuous Rating (KVA) as per BS 2613-57	Vendor to Specify			
2.4.5	Rated Full Load Current (Amps)	Vendor to Specify			
2.4.6	Rated continuous output in KW at 0.8 PF	Vendor to Specify			
2.4.7	Rated voltage	Vendor to Specify			
2.4.8	Number of phases-3	Vendor to Confirm			
2.4.9	Excitation	Brushless			
2.4.9(a)	Excitation Type	Self excitation, self regulated			
2.4.10	Field	Salient Pole revolving field			
2.4.11	Automatic voltage regulation of +/- 1%,	Vendor to confirm			

2.4.12	Inherent voltage regulation in % (increase in voltage from full load to no load with constant speed and excitation)	Vendor to Specify			
2.4.13	The alternator shall be drip-proof, screen protected as per IP-23 degree of Protection				
2.4.14	Alternator shall be supplied with voltage adjusting potentiometer and under/over speed protection				
2.4.15	Class H Insulation with temperature rise limited to Class-H	Vendor to confirm			
2.4.16	Temperature rise of the windings measured by thermometer after continuous run at full rated output, rated voltage, frequency and PF and with surrounding air temperature at 45degrees C (Amb. Temperature)	Vendor to Specify			
	a) Efficiency at 0.8 PF at full load	Vendor to Specify			
	b) Efficiency at 0.8 PF at 3/4 load	Vendor to Specify			
	c) Efficiency at 0.8 PF at 1/2 load	Vendor to Specify			
2.4.17	Overload capacity	Vendor to Specify			
2.4.18	a) 10 percent for Hrs	Vendor to Specify			
2.4.19	b) 50 percent for Hrs	Vendor to Specify			
2.4.20	Peripheral speed of the rotor	Vendor to Specify			
2.4.21	Method of lubrication	Vendor to Specify			
2.4.22	Radial clearance between stator and rotor (air gap)	Vendor to Specify			
2.4.23	Excitation voltage	Vendor to Specify			
2.4.24	Alternator excitation current at full load on	Vendor to Specify			
2.4.25	i) Unity PF	Vendor to Specify			
2.4.26	ii) 0.8 PF	Vendor to Specify			
2.4.27	Bearing Temperature Sensors (min 1 No per Bearing)	Vendor to Confirm			
2.4.28	Winding Temperature Sensors in each phase for monitoring the temperature (2 nos. of RTD's per phase).	Vendor to Confirm			
2.4.29	Automatic Voltage Regulator suitable for parallel operation of generators	Vendor to Specify			
2.4.30	Engine mounted instruments and control with provision for remote indication/ operation comprising set start/stop, speed raise/lower, alarm, annunciation, gauges, meters etc.	Vendor to furnish details			
2.4.31	Whether DG set is suitable for Rectifiers/Inverter and computer type loads	Vendor to Specify			
2.4.32	What is the maximum motor load to which the DG set can be used with DOL Starter	Vendor to Specify			
2.4.33	Weight (Kgs)	Vendor to Specify			
2.5	FUEL TANK:(Day Tank)				
2.5.1	Capacity (900 litres or Higher), separate tank for each DG set with inter connection	Vendor to Confirm			
2.5.2	Location	Vendor to Specify			
2.5.3	Size (L mmx B mmx H mm)	Vendor to Specify			
2.5.4	Fuel pipes, Overflow pipes , Drain valve for Fuel Tank, Vent connection for Fuel Tank, Fill connection for Fuel Tank, Inspection and Cleaning Hole for Fuel Tank, Level Gauge and Level Indicator for the fuel tank should be provided	Vendor to Specify			

2.6	BATTERY:				
2.6.1	Rating (AH)	Vendor to Specify			
2.6.2	Voltage (12 V DC)	Vendor to Confirm			
2.6.3	Type (preferably maintenance free)	Vendor to Specify			
2.6.4	Make (reputed makes like Exide, Amaron, AMCO or equivalent)	Vendor to Specify			
2.6.5	Each battery shall have sufficient capacity to give minimum 10 nos. successive starting impulse to the diesel engine				
2.6.6	Scope of Supply includes battery leads	Vendor to Confirm			
2.6.7	No of Batteries/charger (Each set consists of 2 batteries and 1 charger of suitable capacity)	2 sets			
2.6.8	No of cold Starts before re-charging (min. 3 with 10 % spare capacity)	Vendor to Confirm			
2.6.9	The battery charger shall be compatible with transformer, suitable rating (415 V, 3 Ph., 50 Hz./230V, 1Ph., 50 Hz) rectifier circuit, charge rate selector switch for “trickle”/’boost’ charge, D.C. ammeter & voltmeter, annunciation panel for battery charge indication / loading / failures	Vendor to Confirm			
2.6.10	Charger shall be provided with Out-put Voltmeter & Ammeter	Vendor to Confirm			
2.6.11	Changeover scheme for selecting battery and battery charger by changeover switch should be provided.	Vendor to Confirm			
2.7	TERMINAL BOX				
2.7.1	Six output terminals shall be provided in alternator terminal box. Terminals shall be suitable for 4 runs of 3.5CX300 sq.mm Al XLPE cables and accordingly enough space and termination arrangement shall be ensured inside the alternator terminal box for accommodating these cables.	Vendor to Confirm			
2.7.2	The neutral shall be formed in AMF panel. The generator terminal box shall be suitable to house necessary cables and should be made of non-magnetic material.	Vendor to Confirm			
2.8	COUPLING				
2.8.1	The engine and alternator shall be directly coupled by means of self-aligning flexible flange coupling to avoid misalignment.	Vendor to Confirm			
2.8.2	The coupling shall be provided with a protecting guard to avoid accidental contact.	Vendor to Confirm			
2.9	MOUNTING ARRANGEMENT				
2.9.1	The engine and alternator shall be mounted on a common heavy duty, rigid fabricated steel base frame constructed from ISMC of suitable sections.	Vendor to Confirm			
2.9.2	Adequate number of Anti-Vibration Mounting (AVM) pads shall be fixed on the common base frame on which the engine and the alternator shall be mounted to isolate the vibration from passing on to the common base frame or the foundation of the D.G. Set.	Vendor to Confirm			

2.10	AMF, GENERATOR PROTECTION & SYNCHRONISING PANEL:				
2.10.1	Electronic / Micro processor /relay Based AMF, Protection & Synchronising Panel and it should be suitable for Auto Start & Stop and Auto changeover.	Vendor to Confirm			
2.10.2	Suitably rated Electrically operated draw out type 3 pole/ 4 pole isolation ACB with required C.T., P.T., Ammeter, Voltmeter, indication lamps for Alternator and Synchronisation panel.	Vendor to Confirm			
2.10.3	Rating of Switchgear 800A,3 P,35KA for DG Sets and EB incomer ACB - 1600 A,4P, 50 KA and Common outgoing feeder ACB - 1600 A, 4 P,50 KA.	Vendor to Specify			
2.10.4	Make of Switchgear (Shall be of reputed make like L&T, Schneider, ABB, Siemens etc.)	Vendor to Specify			
2.10.5	Bus Bars of suitable rating for incoming & outgoing terminations	Vendor to Confirm			
2.10.6	Overcurrent & Earth Fault, Differential, MFR, Master Trip, Bearing Temp Scanner to be provided	Vendor to Confirm			
2.10.7	Supply Failure Timer	Vendor to Confirm			
2.10.8	Restoration Timer	Vendor to Confirm			
2.10.9	Automatic Start / Stop of Engine	Vendor to Confirm			
2.10.10	Generator Voltage, Current & Frequency Monitoring & Display	Vendor to Confirm			
2.10.11	Battery Voltage Sensing & Monitoring	Vendor to Confirm			
2.10.12	Push Buttons for Manual Start / Stop	Vendor to Confirm			
2.10.13	Manual / Auto / Test -Mode Selector Switch	Vendor to Confirm			
2.10.14	Annunciation, Alarm & Trip Features	Vendor to Specify			
2.10.15	Indications for DG "ON", Load on DG	Vendor to Confirm			
2.10.16	Indications for MAINS "ON", Load on Mains.	Vendor to Confirm			
2.10.17	Indications for Over Current & Earth Fault	Vendor to Confirm			
2.10.18	KW & KWH Meter-Multi Data Meter	Vendor to Confirm			
2.10.19	Meter for Power Factor	Vendor to Confirm			
2.10.20	Instrument fuses duly wired	Vendor to Confirm			
2.10.21	SMPS Based automatic Trickle cum Boost Battery Charger with DC Voltmeter & Ammeter, Selector Switch for Auto / Manual & Float / Boost	Vendor to Confirm			
2.10.22	Synchronising logic panel comprising synchronising lamps, digital meters for generator/ Bus voltage/ frequency , synchroscope etc. as required.(suitable for auto and manual synchronising)	Vendor to Confirm			
2.10.23	Power and control cables for interconnection within the system	Vendor to Confirm			
2.10.24	Complete technical details of the control Panel	Vendor to Furnish			
2.10.25	Auxillary panel for battery charger,aviation lamp,accoustic lighting etc	Vendor to specify			
2.10.26	The Panels, ACB's etc. to be housed in indoor type control room. Room shall be provided by BHEL.	Vendor to Furnish			
2.10.27	Synchronisation panel shall meet the requirements as specified in Section-3 of Doc No: DNA-HTSTR-DG-2018-01	Vendor to Confirm			

2.11	PROTECTION (Alarm or Tripping):				
2.11.1	High Water Temperature	Vendor to Specify			
2.11.2	Low Lube Oil Pressure	Vendor to Specify			
2.11.3	Over Speed	Vendor to Specify			
2.11.4	Low Coolant Oil Level	Vendor to Specify			
2.11.5	Air Filter Clog Indicator	Vendor to Specify			
2.11.6	Starting Failure	Vendor to Specify			
2.11.7	Generator Overload	Vendor to Specify			
2.11.8	Battery Voltage Low	Vendor to Specify			
2.11.9	Others	Vendor to Specify			
2.12	ACCOUSTIC ENCLOSURE:				
2.12.1	The maximum permissible sound pressure level shall not exceed 75 dB(A) at 1 metre from the enclosure surface.	Vendor to Confirm			
2.12.2	Enclosure should be provided with an "Emergency-off" Push Button	Vendor to Confirm			
2.12.3	Enclosure shall be of suitable gauge sheet steel and painted	Vendor to Confirm			
2.12.4	View Glass shall be provided	Vendor to Confirm			
2.12.5	The enclosure shall be fabricated from at least 14 Gauge CRCA sheet steel and of Modular construction for easy assembling and dismantling	Vendor to Specify			
2.12.6	Accoustic Material	Vendor to Specify			
2.12.7	Openings for pipe connections to be provided (Vendor to Furnish Details)	Vendor to Confirm			
2.12.8	Doors for easy access to the DG Set should be provided for easy inspection & maintenance	Vendor to Confirm			
2.12.9	Suitable accoustic insulation beading shall be provided for the doors	Vendor to Specify			
2.12.10	Suitable arrangement for fresh air inlet and hot air outlet shall be provided	Vendor to furnish details			
2.12.11	Sufficient fluorescent tube lamp lighting shall be provided inside the enclosure	Vendor to Confirm			
2.12.12	Arrangement shall be made for housing the Battery set in a tray inside the Enclosure.	Vendor to Confirm			
2.12.13	Exhaust from the Engine shall be let off through Silencer arrangement to keep the noise level within desired limits. Interconnection between silencer and engine should be through stainless steel flexible hose/ pipe	Vendor to Confirm			
2.12.14	The enclosure shall allow sufficient ventilation to the enclosed D.G. Set so that the body temperature is limit to 50°C	Vendor to Confirm			
2.12.15	Doors shall be large sized for easy access and provided with long lasting gasket to make the enclosure sound proof. All the door handles shall be lockable type	Vendor to Confirm			
2.12.16	The sheet metal components shall be pre-treated by Seven Tank Process and Powder coated (PURO Polyester based) both-inside and outside for long life. The hardware and accessories shall be high tensile grade. Enclosure shall be given a lasting anti-rust treatment and finished with pleasant environment friendly paint. All the hardware and fixtures shall be rust proof and able to withstand the weather conditions	Vendor to Confirm			

2.12.17	The Enclosure shall be provided with anti-vibration pads (suitable for the loads and vibration they are required to carry) with minimum vibration transmitted to the surface the set is resting on.	Vendor to Confirm			
2.12.18	High quality rock wool of required density and thickness shall be used with fire retardant thermo – setting resin to make the Enclosure sound proof.	Vendor to Confirm			
2.13	EXHAUST SYSTEM :				
2.13.1	Vendor to provide exhaust tail piping with all required connections	Vendor to Confirm			
2.13.2	Exhaust Silencer should be provided	Vendor to Confirm			
2.13.3	Emissions shall be within norms specified by Pollution Control Board and Environment Protection Rules.	Vendor to Confirm			
2.13.4	Emission Levels	Vendor to specify			
2.14	APPLICABLE CODES & STANDARDS:				
2.14.1	Rating Definition as per ISO 3046 / BS 5514	Vendor to confirm			
2.14.2	IS - 2253 Designation for type of construction and mounting arrangement of rotating electrical machines.	Vendor to confirm			
2.14.3	IS - 4691 Degree of protection provided by enclosures of Rotating Electrical Machinery	Vendor to confirm			
2.14.4	IS - 4722 Rotating electrical machines.	Vendor to confirm			
2.14.5	IS - 4728 Terminal marking and direction of rotation for rotating electrical machinery.	Vendor to confirm			
2.14.6	IS - 4889 Methods of determination of efficiency of rotating electrical machine.	Vendor to confirm			
2.14.7	IS - 6362 Designation of Methods of Cooling of Rotating Electrical Machines?	Vendor to confirm			
2.14.8	IS - 7132 Guide for testing synchronous machines.	Vendor to confirm			
2.14.9	IS - 7306 Methods of determining synchronous machines quantities from tests.	Vendor to confirm			
2.14.10	IS - 7816 Guide for testing of insulation of rotating machines.	Vendor to confirm			
2.14.11	IS -12065 Permissible limits of noise level for rotating electrical machines.	Vendor to confirm			
2.14.12	IS -12075 Mechanical vibration of rotating electrical machines with shaft heights 56 mm and higher - measurements, evaluation and limits of vibration severity.	Vendor to confirm			
2.14.13	IS -12802 Temperature rise measurement of rotating electrical machines.	Vendor to confirm			
2.14.14	IS - 13364 AC Generators driven by reciprocating internal combustion engines.	Vendor to confirm			
2.14.15	IS- 13947 Low voltage Switchgear and Control Gear: General Rules IEC- 34 Rotating Electrical Machines.	Vendor to confirm			
2.14.16	IS -1460 Fuel consumption conformation	Vendor to confirm			
2.14.17	BS- 5000 and ISO 8528 part 9- Rotating electrical machines-design for vibration withstand levels	Vendor to confirm			
2.14.18	BS-5514 Fuel consumption tolerance	Vendor to confirm			
2.14.19	IS- 10000, 10002 methods of tests for IC engines	Vendor to confirm			
2.14.20	The scope of the vendor shall not be limited to the conformance to above standards, the scope shall also conform to the any other required standards for safe and normal operation.	Vendor to confirm			

3.0	TOOLS FOR ERECTION, OPERATION & MAINTENANCE :				
3.1	Necessary tools like Torque Wrench, Spanners, Keys, grease guns etc. for operation and maintenance of the DG Set should be supplied. List of such tools should be submitted with offer	Vendor to Furnish			
4.0	SPARES:				
4.1	List of mechanical & Electrical spares in sufficient quantity as per requirement of the supplies for 5 years (year wise) of trouble free operation shall be submitted. Vendor to provide List with year wise requirement (parts and quantity)	Vendor to attach the list			
4.2	Itemised breakup of mechanical & Electrical spares in sufficient quantity as per recommendation of Vendor for 2 years of trouble free operation should be offered by vendor (shall include in the scope of supply). Vendor to provide List with items with quantities and same has to be supplied along with machine	Vendor to Confirm and attach the list			
4.3	Vendor to confirm that complete list of spares for DG Set and accessories, along with specification / type / model, and name & address of the spare supplier shall be furnished along with documentation to be supplied with the machine	Vendor to Confirm			
5.0	DOCUMENTATION : Three sets of following documents (Hard copies) in English language should be supplied along with the machine				
5.1	Operating & Maintenance Manuals for the Diesel Engine	Vendor to Confirm			
5.2	Operating & Maintenance Manuals for the Alternator	Vendor to Confirm			
5.3	Operation & Maintenance Manual for the AMF Panel and synchronization panel	Vendor to Confirm			
5.4	General arrangement plan of DG set.	Vendor to Confirm			
5.5	Piping schematic diagram	Vendor to Confirm			
5.6	Chimney drawing.	Vendor to Confirm			
5.7	Complete Master List of parts used in the DG Set shall be submitted by the vendor.	Vendor to Confirm			
5.8	One additional set of all the above documentation on CD ROM, wherever possible.	Vendor to Confirm			
6.0	FOUNDATION:				
6.1	BHEL will carryout the civil work for foundations, fencing . Vendor shall provide details of the foundation for this purpose immediately after placement of P.O (within 15 days)	Vendor to Confirm			
7.0	ERECTION & COMMISSIONING				
7.1	Supplier shall be responsible for carrying out the painting, erection, start up, testing and commissioning of the DG Set and synchronisation panel. Required technical personnel and labour required for the same shall be provided by the vendor. Tools, tackles, required for the same shall be arranged for by the vendor.	Vendor to confirm			
7.2	Schedule of Erection and Commissioning shall be submitted after placement of order	Vendor to confirm			
7.3	BHEL Estimated value of E&C charges are 5% of the total supply value. In case of vendor quotes less than 5%, minimum 5% of supply value will be retained as E&C charges and same will be paid after successful E&C.	Vendor to confirm			

8.0	MACHINE ACCEPTANCE: (Tests/Activities to be performed by Vendor)	Should be accepted & confirmed			
8.1	Tests/Activities to be carried out at supplier's works in the presence of BHEL Engineers before dispatch :				
8.1.1	Physical Inspection of all components of the DG Set	Vendor to Confirm			
8.1.2	All the routine tests of the diesel engine and alternator shall be carried out as per applicable standards	Vendor to Confirm			
8.1.2	Verification of Original test certificates in English for engine, alternator, acoustic enclosure, panels and all other bought out items if applicable.	Vendor to Confirm			
8.2	Test/ Activities to be carried out at BHEL works while commissioning the DG Set :				
8.2.1	8 hours Run Test-Fuel and load will be provided by BHEL	Vendor to Confirm			
8.2.2	Operation of protective devices.	Vendor to Confirm			
8.3	Training in O&M of the DG set to be given to BHEL personnel at BHEL R & D.	Vendor to Confirm			
8.3.1	Training on Operation of DG set for all possible startup and shut down sequences	Vendor to Confirm			
9.0	PACKING:				
9.1	Sea worthy / Road Worthy & rigid packing for the supplies (DG Set and accessories) to avoid any damage/loss in transit as required.	Vendor to confirm			
10.0	WARRANTY :				
10.1	60 months from the date of commissioning or 66 months from the date of supply of the DG set whichever is earlier.	Vendor to confirm			
10.2	The warranty of the Supply shall be backed up by OEM	Vendor to confirm			
10.3	In case of reseller/ distributor is offering , OEM authorisation certificate/letter shall be submitted along with technical offer	Vendor to confirm			
10.4	Warranty shall be for all parts and labour excluding consumable like gaskets, belts, filters, seals and Oil.	Vendor to confirm			
10.5	Periodic maintenance visits shall be 4 per year for the first two years and 2 per year for the next 3 years of warranty	Vendor to confirm			
10.6	There shall be no limit on break down visits for the 5 years warranty period	Vendor to confirm			

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SECTION 1

INTENT, DESIGN CRITERIA, SYSTEM REQUIREMENT AND SCOPE

1.1 SCOPE

- a) This specification is intended to specify the requirements for design, manufacture, assembly, inspection, packing & forwarding, transportation to site, unloading and complete erection of DG sets accessories and Synchronisation panel, testing of the system, trial run, commissioning of the system, final painting and carrying out acceptance test at site of **2X500kVA Diesel Generator Set and one synchronisation panel** along with its accessories and auxiliary equipment's/instruments etc. as mentioned in this specification and Technical Annexure-I.
- b) It is not the intent to specify herein all the details of design and manufacture. However, the equipment shall conform in all respect to high standards of design, engineering and workmanship and shall be capable of performing the required duties in a manner acceptable to Purchaser / Customer, who will interpret the meaning of drawings and specifications and shall be entitled to reject any work or material, which in his/their judgment is not in full accordance with the specifications.
- c) The bidder shall be deemed to have understood completely all the tender documents and quoted accordingly.
- d) In case of any deviation, the bidder shall indicate separately the deviations clause-wise with respect to the specification in the 'Technical Annexure-I'. Deviations in any other form including clarifications/assumptions/ etc. will not be considered and it will be construed that the bid conforms strictly to the specification.
- e) This specification makes it obligatory for the contractor to arrange/ obtain necessary approval/ clearance from statutory organizations wherever applicable for the plant/ machinery/ sub-systems under the scope specified.
- f) The system shall be designed to suit the extreme of outside conditions (Ambient of 45 deg.C and 95% relative humidity) for Hyderabad, Telangana-500093.

1.2 SPECIFIC TECHNICAL REQUIREMENTS

SYSTEM REQUIREMENT & DESIGN CRITERIA

Besides, the following shall be considered:

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1. Six terminals shall be brought out in alternator terminal box. Enough space and termination arrangement shall be ensured inside the alternator terminal box for 4 runs of 3.5 Cx300 sq. mm Al XLPE cable.
2. Neutral shall be formed in the AMF control panel, which shall be solidly grounded through GI pipe electrode. DG body shall be separately grounded through another GI pipe electrode.
3. ACBs for DG has to be provided as same to be synchronised along with main power using a synchronisation panel. AMF panel preferable location is in DG set but it is optional i.e. can be located in DG set along with control unit or can be located in Synch panel. Control scheme shall be accordingly made for auto start of DG and auto-closing and trip of DG ACB.
4. Sufficient no of CTs for differential protection shall be mounted in neutrals brought to the AMF panel while other CTs shall be mounted on the LVAC Board.

1.3 SCOPE OF SUPPLY & SERVICES

The equipment and services to be furnished under this contract are detailed here under for reference. The items, though not specifically mentioned but required for safe and satisfactory operation of system will also be treated as included and the same shall be supplied at **NO EXTRA COST** to Purchaser.

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SECTION-2

EQUIPMENT SPECIFICATION FOR 500 KVA DG SETS

2.1. SCOPE OF SUPPLY

A. Main Item

The scope covers supply of two (2) no. Diesel Generator Set of stationary type having a net electrical output of 500 kVA at specified site conditions of 45 °C ambient temperature & 95% relative humidity. The enclosure should be sound proof & weather proof in line with latest CPCB norms.

Essential components are:

- i) Diesel engine of adequate capacity to deliver 500 kVA at 45°C ambient temperature & 95% relative humidity.
- ii) Suitable alternator directly coupled to the engine through coupling, complete with all accessories.
- iii) Automatic Voltage Regulator
- iv) Complete starting arrangement including 2 sets of Batteries (2X 12 V DC in each set) & battery charger (1 charger for each set) with leads.
- v) Base frame and 1 set of AVM pads.
- vi) Fuel tank of ≥ 900 litres capacity complete with accessories viz. breather, level indicator, fuel inlet & outlet, air vent, drain plug, inlet arrangement for direct filling. The tank shall be painted with oil resistant paint.
- vii) Engine cooling and lubrication system.
- viii) Engine air filtering system.
- ix) Exhaust tail pipe and silencer package.
- x) Synchronisation and AMF control panel complete with all standard protection, alarm/ annunciations and meters necessary for 500 KVA DG set.
- xi) All control cables shall be in the scope of vendor.
- xii) Adequate Illumination & ventilation arrangement for DG set enclosure.
- xiii) All lubricants consumable touch up paints etc. for first testing & commissioning at site. Fuel (**HSD**) for first commissioning shall be provided by BHEL.
- xiv) All control cables and cable terminations.

B. Mandatory Spares

The list of mandatory spares for the supplies (DG sets and Synchronisation panel) shall be provided for the five years warranty period with quantities along with technical bid. Vendor shall include the mandatory spares for first two years in the scope of supply of DG sets.

It is to be noted that no mandatory spare shall be used during commissioning of the equipment. Any spares required for commissioning purpose shall be supplied separately by the contractor.

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Mandatory spares for two years for 2 DG sets shall be supplied along with the DG sets.

C. Standard Tools & Tackles

Bidder shall include one set of standard tools and tackles required for erection, testing, commissioning & maintenance of equipment in the supply of E&C materials. The list of tools required shall be furnished in the technical bid.

2.2. SCOPE OF SERVICES

The contractor shall provide following, services:

- A. Design, manufacture and shop testing.
- B. Dispatch transportation to Site and unloading.
- C. Complete Erection, Testing & Commissioning of DG set.
- D. Certification and compliance for meeting noise level & emission parameters and other requirements in accordance with latest Notification of MOEF/CPCB.
- E. Submission of drawings, data sheet, design calculations & printed erection, operation & maintenance manual as per documentation requirements laid down in Technical Annexure-I.
- F. The foundation drawing and layout shall be submitted within 15 days after award of contract.
- G. The O&M manual shall be submitted along with supply.

The O&M manual shall contain the following information:

- Description of the system and equipment with design particulars
- Scheme of operation and interlocks in synchronisation and AMF panel with the BHEL (Purchasers) LVAC board/ACDB
- Instruction for installation, operation, maintenance and repair at site.
- Recommended inspection practices and inspection schedule.
- Ordering information for all replaceable parts
- Periodic maintenance schedule for at least 5 years
- Sequence of normal start-up and shut down
- Sequence of emergency shutdown.

2.3. EXCLUSIONS

The following has been excluded from the bidder's scope:

- 2.3.1.** Supply and laying of power cables.
- 2.3.2.** Supply of GI flats for equipment earthing.
- 2.3.3.** Earth pits construction along with electrode and filling material
- 2.3.4.** Construction of foundation for DG set However, the supplier shall submit the foundation details of equipment.
- 2.3.5.** Fuel (**HSD**) for commissioning/testing of DG set.

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2.4. INSPECTION AND TESTING

At vendor works:

- 2.4.1.** Physical Inspection of all components of the DG Set and assembly.
- 2.4.2.** All the routine tests of the diesel engine and alternator shall be carried out as per applicable standards.
- 2.4.3.** Verification of Original test certificates in English for engine, alternator, acoustic enclosure, panels and all other bought out items if applicable.

At Installation site:

- 2.4.4.** Physical Inspection of all components of the DG Set and assembly.
- 2.4.5.** 8 hours Run Test (Fuel and load will be provided by BHEL)
- 2.4.6.** Mock-up of Operation of protective devices.
- 2.4.7.** Confirmation on O&M and warranty services by the vendor.
- 2.4.8.** Any other test suggested by vendor.

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SECTION-3

EQUIPMENT SPECIFICATION FOR SYNCHRONISATION PANEL

3.1 GENERAL REQUIREMENT

DG Distribution-cum-Synchronization panel shall be complete in all respects and consist among others, the following equipment and features:

- Auto AMF, Auto Synchronizing and Auto Load sharing, Auto load dependent Relays along with all necessary accessories.
- Manual Synchronization System with Check Synchronizing Relay, Synchroscope and all other accessories
- Annunciation for DG Fault parameters/On-Off indications, Load on DG set etc.,
- Digital Type Ammeter/Voltmeter/KW Meter/kWH meter/PF meter for each incomer with required selector switches
- Bus - bar current density at 0.8A / sqmm for Aluminium Conductor and copper bus bar current density at 1.2 A/sq.mm.
- Vendor has to submit the SLD as per requirement of this specification.

3.2 Scope of the Specification:

This specification is to cover the requirement of design, supply, installation, testing and commissioning of LT DG Distribution-cum-synchronization panels with all components, Instruments, fittings and accessories for efficient operation without any trouble.

3.3 Standards:

The DGDS Panel specified herein, unless otherwise stated shall conform to the relevant and latest revisions of Indian standards and Indian Electricity Rules.

3.4 Design and construction :

3.4.1 Design requirements: The Panel shall be suitable for operation on 440volt, 3 phase, 4wire 50HZ system to withstand a short circuit level of 65 KA RMS symmetrical.

The Panel shall be designed for operation in high ambient temperature up to 45 degrees centigrade and high humidity up to 95% and tropical atmospheric conditions. Means shall be provided to facilitate ease of inspection, Maintenance and Servicing.

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3.4.2 Constructional requirements :

The Panel shall be of

- i) Metal clad, cubicle, indoor, free standing type suitable for Mounting on Built up Trenches with U Channels of adequate size/Free standing floor mounting type as specified.
- ii) Made up of the requisite vertical sections, which when coupled together shall form continuous dead front switch board.
- iii) Dust and damp protected, the degree of protection shall be better than IP - 54 as specified in IS-2147, if specified in schedule
- iv) Readily extendable on both sides by the addition of vertical sections after removal of the end covers.
- v) Single front construction with the circuit breaker feeder and/or switch-fuse/MCCB feeders suitable for operation from the front of the panel.

The Panel shall have the feeder ratings as per design requirement of supplies according to this specifications and constructed only of materials capable of withstanding the mechanical, electrical and thermal stresses as well as the effects of humidity, which are likely to be encountered in normal service.

3.4.3 Vertical Sections:

Each vertical section shall comprise a front framed structure rolled folded sheet steel channel section of minimum 2 mm thickness rigidly bolted together. This structure shall house the components contributing the major weight of the equipment such as circuit breaker, switch fuse units, main horizontal bus bars, vertical risers and other front mounted accessories. The structure shall be mounted on a rigid base frame of folded sheet steel of minimum of 2.5mm thickness and 100mm height. The design shall ensure Structural stability during Transit and also during Operation after Commissioning Suitable cable chamber housing the cable end connections and power / control cable terminations shall be provided. The design shall ensure generous availability of space for ease of installation and maintenance of cabling and adequate safety for working in one vertical section without coming into accidental contact with live parts in the adjacent section.

A cover plate at the top of the vertical section shall be provided with necessary ventilating arrangements. Any aperture for ventilation shall be covered with a perforated sheet having less than 1 mm diameter perforations to prevent entry of vermin.

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3.4.4 Sheet Steel Cubicle:

3.4.4.1 The sheet steel cubicle shall be designed in fully segregated multi-tier formation. Each cubicle shall have hinged front access door with easy operating fasteners. All the doors and covers shall be heavily gasketed to make the compartment dust tight. Each cubicle shall have a covering at the bottom to make a dust and vermin proof construction. Door hinges shall be of concealed type.

The cubicle shall be of minimum 2 mm thick sheet steel. Sheet steel shrouds and partitions shall be of minimum 1.6 mm thickness. All sheet steel work forming the exterior of switch boards shall be smoothly finished, levelled and free from flaws. The corners shall be rounded. The minimum Thickness of Gland plates shall be 3mm.

3.4.4.2 The apparatus and circuits in the panel shall be so arranged as to facilitate their operation and maintenance at the same time to ensure the necessary degree of safety.

Apparatus forming part of the panel shall have the following minimum clearance.

- i. between phases - 25 mm,
- ii. between phase and neutral - 25 mm,
- iii. between phases and earth - 25 mm,
- iv. Between neutral and earth - 19 mm,

When, for any reason, the above clearances are not available, suitable insulation shall be provided. Clearance shall be maintained during normal service conditions. Creepage distances shall comply with those specified in relevant standards.

3.4.4.3 All insulating materials used in the construction of the equipment shall be non-hygroscopic duly treated to withstand the effect of high humidity, high temperature and tropical ambient service conditions.

3.4.4.4 Functional units such as circuit breakers, fuse switches and MCCBs shall be arranged in multi-tier formation, except that not more than one air circuit breaker housed in a single vertical section.

3.4.4.5 Metallic/insulated barriers shall be provided within vertical sections and between adjacent sections to ensure prevention of accidental contact with:

- i) Main bus-bars and vertical risers during operation, inspection or maintenance of functional units and front connected accessories.
- ii) Cable terminations of one functional unit, when working on those of adjacent unit/units.

3.4.4.6 All doors/covers providing access to live power equipment/circuits shall be provided with tool operated fasteners to prevent unauthorized access.

3.4.4.7 Provisions shall be made for permanently earthing the frames and other metal parts of the switchgear by two independent connections. The earth connections shall be extended to the bases of SFUs

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3.4.5 Metal treatment and finish:

All steel works used in the construction of the switch boards shall have undergone a suitable rigorous metal treatment process so as to remove oxide scales and rust formation and to facilitate a durable coating of the paint on the metal surfaces and also to prevent the spreading of rust, in the event of the paint film being mechanically damaged.

Two coats of Anti Corrosive primer followed by a finishing coat of Epoxy powder coating of the shade 631 of IS: 5 (i.e. Siemens grey) shall be given. The total thickness of paint shall not be less than 25 micron.

3.4.6 Bus-Bars :

- 3.4.6.1** The bus-bars shall be housed in non-segregated sheet steel compartments in the cubicle at convenient locations with provision for access to the buses from the front of the panel. The bus-bar shall be suitably braced with DMC/SMC supports to provide a through fault withstand capacity of 80KA RMS symmetrical for one second and a peak short circuit withstand capacity 150 KA minimum. The neutral as well as the earth bus shall be capable of with-standing the above fault level.
- 3.4.6.2** Large clearance and creeping distance shall be provided on the bus-bar system to minimize the possibility of a fault.
- 3.4.6.3** High tension bolts, nuts and spring washers shall be provided at all bus-bar joints.
- 3.4.6.4** The continuous rating of the bus bar shall be 0.8A/sq.mm. Maximum temperature of the bus and the connections shall not exceed 85 degrees centigrade. The bus-bars shall be of liberal design The main phase bus-bars shall have continuous current rating throughout the length of each power control center and the neutral bus-bars shall have continuous rating of at least 50% of phase bus-bars.
- 3.4.6.5** Connections from the main bus-bars to functional circuits shall be arranged and supported so as to withstand without any damage or deformation, the thermal and dynamic stresses due to short circuit currents.
- 3.4.6.6** All bus-bars and tapping's shall be provided with colour coded heat shrinkable sleeves for phase identification.
- 3.4.6.7** All joints/tapping points of the buses shall be suitably shrouded to prevent accidental contact.

3.5 Air Circuit Breakers :

3.5.1 General :

- 3.5.1.1** Circuit breakers shall be of triple pole / four pole, air break, horizontal draw out /Fixed type, and comply with the requirements of relevant IS with latest amendments confirming to IS-13947/1&2 and shall have conform to Isolation standard and shall have the following:

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- i) A short circuit breaking capacity (I_{es} r.m.s of not less than 80KA RMS at 500 volts, 50 Hz AC)
- ii) A short circuit making capacity (I_{em} peak) of 105 KA.
- iii) Rated ultimate short circuit breaking capacity , (I_{eu} r.m.s) of 105 kA
- iv) A short time withstand capacity (I_{ew} of 150 KA for one second.
- v) Electrical overload performance at 6 times the rated current, 100% of the rated voltage as recovery voltage at 0.5 power factor.
- vi) Dielectric test of 2.5 KV applied for one minute on main circuits.

Note: The ratings given shall be reviewed by vendor and supply same or better ratings based on design requirement for the supplies.

3.5.1.2 The circuit breakers shall be fitted with detachable arc chutes on each pole designed to permit rapid dispersion, cooling and extinction of the arc. Inter phase barriers shall be provided to prevent flash over between phases.

3.5.1.3 Arcing contacts shall be of hard wearing material copper tungsten or silver tungsten and shall be easily replaceable. Main contacts shall be of silver plated copper of high pressure type and generous cross section.

3.5.2 Operating Mechanism:

The operating mechanism shall be of robust design, with minimum number of linkages to ensure maximum reliability. Manually operated circuit breakers shall be provided with spring operated closing mechanism which are independent of speed of manual operation. Electrically shall be independent of the motor which shall be used slowly for charging the closing spring.

The operating mechanism shall be such that the breaker is at all times free to open immediately when the trip coil is energized. Mechanical operation indicators shall be provided to show open and close positions of the breaker. Electrically operated breakers shall be additionally provided with mechanical indications to show charged and discharged conditions of the charging spring.

Means shall be provided for slow closing and opening of the breaker for maintenance purposes, and for manual changing and closing of electrically operated breakers during emergencies,

3.5.3 Protection :

Provisions shall be available for fitting a minimum of five trip devices - three over current, as shunt trip and an under voltage release or two over current and earth fault release, a shunt trip and one under voltage release. The breakers shall be of the shunt or series trip type as specified in the schedule. The protection release must be Electronic /Micro Processor based, True RMS sensing compatible to EMC and with a provision of malfunctioning indications.

Following setting must be available on the relay:

- i) Over current setting (I_r) 70% to 100% of I_n
- ii) Short circuit setting (I_d) 1.25 to 10 of I_r

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3.5.4 Housing of Circuit Breaker :

Circuit breakers shall be individually housed in sheet-metal castle provided with hinged doors. The breaker along with its operating mechanism shall be mounted on a robust carriage moving on guide rollers with in the castle. Isolating contacts for both power and control circuits shall be of robust design and fully self-aligning. The assembly shall be designed to allow smooth and easy movement of the breakers within its cassette.

The breaker shall have three distinct positions within the castle as follows:

- Service' position: With main and auxiliary contacts connected.
- Test' position with power contacts fully disconnected and control circuit contacts connected.
- Isolated' position: with both power and control circuit contacts fully disconnected.

It shall be possible to achieve any of the above positions with the castle doors closed. Mechanical position indicators shall be provided for the three positions of the breakers.

3.5.5 Interlocking :

3.5.5.1 The moving portion of the circuit breaker shall be interlocked so that :

- i. It shall not be possible either to isolate it from the connected position, or to plug it in from the isolated position with the breaker closed.
- ii. The circuit breaker can be closed only when it is in one of the three positions or when it is fully out of the castle.
- iii. It shall not be possible to open the hinged door of the castle unless the breaker is drawn to the isolated position.
- iv. Inadvertent withdrawal of the circuit breaker too far beyond the supporters is prevented by the suitable stops.

3.5.5.2 Provisions shall be available for the padlocking of the circuit breaker accessible in any of the three positions.

3.5.5.3 Automatically operated safety shutters shall be provided to screen the fixed isolating contacts when the breaker is drawn out from the castle.

3.5.5.4 The moving portion of the circuit breaker shall be provided with a heavy duty, self-aligning earth contact, which shall make before and break after the main isolating contacts during insertion into withdrawal from the service position of the breaker. Even in the isolated position positive earthing contact should exist.

3.5.5.5 Auxiliary switches directly operated by the breaker operating mechanism and having 4 `NO' and 4 `NC' contacts, shall be provided on each breaker. The auxiliary switch contacts shall have a minimum rated thermal current of 10 amps.

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3.5.6 Accessories for Synchronisation Panel

3.5.6.1 Current Transformers.

Current transformers shall comply with the requirements of relevant latest IS. They shall have ratios, outputs and accuracy as specified in the schedule.

3.5.6.2 Indicating / Integrating Meters:

All indicating instruments shall be of flush mounted industrial pattern conforming to the relevant latest amended IS. The instrument shall have non-reflecting bezels, clearly, divided and indelibly marked scales, and shall be provided with zero adjusting devices in the front. Integrating instruments shall be of flush mounted switch board pattern complying with the requirements of relevant latest IS.

3.5.6.3 Control switches/Selector switches:

Control switches/Selector switches shall be of the heavy duty rotary type, with plates clearly marked to show the operating position. They shall be of semi-flush mounted type with only the front plate and the operating handle projected.

Circuit breakers control switches shall be of the spring return to neutral type.

3.5.6.4 Indicating lamps and push buttons:

Indicating lamps shall be of the LED type of low watt consumption, provided with series resistors where necessary and with translucent lamp covers. Bulbs and lenses shall be easily replaceable from the front.

Push buttons shall be of the momentary contact, push to actuate type fitted with self-reset contacts and provided with plates marked with its junctions.

3.5.6.5 Terminations :

The incoming and outgoing entries and terminals shall be provided in the switch board to suit Bus-duct connections and copper conductor control cables as indicated in the schematic diagram.

Barriers or shrouds shall be provided to permit safe working at the terminals of one circuit without accidentally touching that of another live circuit.

3.5.6.6 Control wiring :

- All control wiring shall be carried out with 1100/650 V grade single core Copper cable or better conforming to relevant IS having stranded copper conductors of minimum 2.5 sq.mm section for CT Circuit and 1.5sq.mm for other Control wiring or better.
- Wiring shall be neatly bunched, adequately supported and properly routed to allow easy access and maintenance.
- Wires shall be identified by numbered ferrules at each end. The ferrules shall be of the ring type of non-deteriorating material. They shall be firmly located on each wire so as to prevent free movement.
- All control circuit fuses shall be mounted in front of the panel and shall be easily accessible.

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3.5.6.7 Terminal blocks and labels:

- Terminal block shall be of 500 volts grade of the stud type.
- Insulating barriers shall be provided between adjacent terminals.
- Terminal block shall have minimum current rating of 10 amps and shall be shrouded.
- Provisions shall be made for label inscriptions.
- Labels shall be made of anodized aluminium, with white engraving on black background. They shall be properly secured with fasteners. Danger plate of size and descriptions as recommended in the relevant IS shall be provided on the Panel.

3.5.7 Tests:

- The Panel shall be completely assembled, wired, adjusted and tested for operation under simulated conditions to ensure correctness of wiring and interlocking and proper functioning of all components.
- Each Panel and components shall be subjected to standard routine tests as per applicable clauses of relevant standards.
- All current carrying parts and wiring of Panel shall be subjected to power frequency voltage withstand test.

3.5.8 Drawings:

After the award of the contract, the contractor shall submit three copies of the following drawings for approval by BHEL

- Outline dimensional drawing of the Panel showing the general arrangement indicating the following:
 - Bus-bar clearances;
 - Power and control cable entry points;
 - Configuration of bus-bars;
 - Details of support insulations and spacing's
 - Outgoing power cable termination arrangements.
- Single line diagram of panel showing Protection, Metering etc.
- Cubicle wiring diagram.
- List of Fitments with Ratings & makes / Models

3.5.9 Installation Testing and commissioning:

The Panel shall be installed over the cable trench/cable pit using suitable size of MS channel including grouting of the channel with necessary bolts and nuts. Proper earthing of Panel shall be done using two independent copper/GI strip of sizes as indicated in the schedule. The channel shall be painted with one coat of red oxide primer and two coats of anti-corrosive enamel paint of proper shade as directed by the Engineer-in-charge. The pre-commissioning tests as required shall be done and the Panel shall be commissioned.

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Bidder shall quote under the following heads

Sl. No.	Description	Quantity
1.0	500 kVA DG Set comprising of but not limited to: ➤ Diesel engine complete with all accessories ➤ Alternator directly coupled to engine through coupling, complete with all accessories ➤ Automatic voltage regulator ➤ Complete starting arrangement with starter motor, 2 sets of batteries and battery chargers (each set consists of 2 nos. of 12 V batteries and 1 no. of battery charger). ➤ Fuel tank of ≥ 900 litres capacity ➤ Motor driven oil pump to transfer fuel to day tank ➤ Engine cooling and lubrication system ➤ Engine air-filtration system ➤ Exhaust silencer package ➤ Acoustic and weather proof enclosure as per latest CPCB norms ➤ AMF panel for control, metering and alarm ➤ Inspection & testing of DG set as per specification ➤ Mandatory spares for 2 years ➤ Warranty for 5 years ➤ Erection material if any other than exclusions. Complete erection material but not limited to: ➤ 1 set of AVM Pads. ➤ Exhaust silencer package with 1 lot of MS class 'B' exhaust piping complete with hardware and fittings ➤ 1 lot of fuel piping from day tank to engine complete with Hardware & fittings. ➤ 1 lot of thermal insulation of exhaust piping and silencer beyond Flexible connections. ➤ Set of valves, strainers and unloading hose pipes as required ➤ First fill of lube oil. Standard tools and tackles for E&C and maintenance	2 set
2.0	Synchronisation panel comprising of but not limited to ➤ multi data meter ➤ KWH Meter ➤ Combined DC Voltmeter 0-50V And DC Ammeter 0- 20A for Battery Charging Circuit. ➤ LED Type Indicating Lamps ➤ Selector Switch for Engine Control, Auto / Manual/ Battery Charger Mode Selection ➤ Electrically Operated draw out type ACB with built in Over Load , Short Circuit protection for DG Incoming	1 set

 बी एच ई एल BHEL Corp. R&D	PURCHASE SPECIFICATION (SHALL BE READ ALONG WITH TECHNICAL ANNEXURE-I)	DNA-HTSTR-DG-2018-01
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	➤ Air-Break Power Contactor for DG incoming Neutral ➤ AMF, Auto Synchronizing & Auto-Load Sharing Relay with built in complete engine, generator and mains Protection and Controller into one unit a) AMF Start/Stop b) Synchronization and Load management - Automatic base load c) Automatic Start/Stop Sequencing d) Over/Under Voltage , over/under Frequency, over load/Reverse Power, over current, load imbalance Protection with can bus communication ➤ Auxiliary Contactor and Timer for Auto Signal ➤ Current Transformers ➤ 10A/24DC SMPS Type Battery Charger with built in protection ➤ ELR with CBCT ➤ 16 Rating Plate, Danger Sticker Earth Bolt Etc., ➤ Design , Manufacturing & Supply and commissioning of Synchronizing Panel: ➤ rail:7032 Indoor Type Floor Mounting Panel with IP 44 protection (Quantities shall be decided by vendor based on the system design for their supply by meeting all the technical and mandatory requirements) ➤ Warranty for 5 years ➤ Erection material if any other than exclusions	
3.0	Erection, Testing & Commissioning of two DG sets and synchronisation panel along all associated accessories except the exclusions given in this specification.	1 lot

* * *

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 BHEL House, Siri Fort, New Delhi - 110 049, India through its Unit at Corporate R&D, Vikasnagar, Hyderabad - 500 093, Telangana, (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 before _____¹⁰ 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 and 9} VALIDITY DATE: warranty period from Commissioning date.

^{7 and 10} DATE OF EXPIRY OF CLAIM PERIOD: 2 months beyond validity date

⁸ BG AMOUNT IN FIGURES AND WORDS.

Note:

1. 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.