

TECHNICAL PRE QUALIFICATION REQUIREMENT

Name of Project : - 220kV GIS for 2x60MW Vyasi HEP
Name of Customer : -UJVN Ltd.
Name of Item : - Testing Equipments

TECHNICAL PRE QUALIFICATION REQUIREMENT

- a) The bidder should have supplied the offered make/ model in past to Power Utility, Industry, any NABL accredited testing laboratory, etc.
- b) The bidder should be manufacturer/ authorized distributor of the item/ items quoted

SUPPORTING DOCUMENTS TO BE ATTACHED

Sr	Required Criteria	Supporting Documents to be submitted by bidder along with technical bid
1	Manufacturer/ Authorized Distributor	Proof of Manufacturing facilities/ Valid authorization letter from OEM etc.
2	Supply	PO / Dispatch clearance / LR / Material Receipt certificate at site / installation or commissioning certificate etc.

Notes (General points):

1. Consideration of offer shall be subject to customer's approval of bidder's, if applicable.
2. Bidder to submit all supporting documents in English. If documents submitted by bidder are in language other than English, a self- attested English translated document should also be submitted.
3. Notwithstanding anything stated above, BHEL reserves the right to assess the capabilities and capacity of the bidder to perform the contract, should the circumstances warrant such assessment in the overall interest of BHEL.
4. After satisfactory fulfilment of all the above criteria / requirement, offer shall be considered for further evaluation as per NIT and all the other terms of the tender.

PREPARED BY

REVIEWED BY

APPROVED BY



BHARAT HEAVY ELECTRICALS LIMITED
TRANSMISSION BUSINESS ENGINEERING MANAGEMENT
NOIDA

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CUSTOMER	UJVN Ltd.				

PROJECT 220kV GIS for 2x60MW Vyasi HEP

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Remarks: Bidder to note that data and details of Guaranteed Technical Particulars & Design documents shall not be reviewed during Technical Evaluation/ Review, hence compliance of Guaranteed Technical Particulars in line with Technical Specification shall be bidder's responsibility.

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SECTION 1

SCOPE, PROJECT SPECIFIC TECHNICAL REQUIREMENTS & BILL OF QUANTITIES

1. SCOPE

This technical specification is intended to specify the requirements for Testing Equipments to be used during testing, commissioning and operation stage at site as mentioned in subsequent clause. The scope of work shall encompass at least the following:

- a) Inspection and testing before supply
- b) Packing, Loading & Transportation to site
- c) Providing Brochures and O & M manuals for BHEL/UJVNL review/ approval and records.
- d) Testing, Demonstration at site of the testing equipment.

The equipment is required for the following project:

Name of the Customer:	UJVN Limited
Name of Main Contractor:	Bharat Heavy Electricals Limited
Name of the Project:	220kV GIS for 2x60MW Vyasi HEP

Refer section-3 of this document for project details and general specification.

Major items supplied and installed in this project are as follows:

- i) 220kV, ABB make GIS
- ii) Substation Automation System (SAS) and Control and Relay Panels, BHEL Make
- iii) 2X60MW BHEL Make Generator & Turbine

Note: The terms used in this specification namely, "Employer/Purchaser/Owner" refers to UJVNL, "Contractor" refers to BHEL & "Sub-contractor/ Supplier/ Vendor" refers to bidder.

The scope of supplies shall be as per commercial terms and conditions enclosed separately with the notice inviting tender/ enquiry.

2. CODES & STANDARDS

The various equipment covered under this specification shall comply with the requirements of the latest edition of the relevant IEC/IS/IEEE/ISO standards only. Preference for latest IEC standards for particular equipment / system shall be governed over IEEE/ IS/ ISO standards. Further rules, guidelines and standard laid down by international/ national agency shall be applicable in this specification.

3. SPECIFIC TECHNICAL REQUIREMENTS

Technical requirements for the equipment shall be as per Section-2. Specific requirement is follows:

1. Supplier should specify the Make & Model & accessories/complete scope of supply offered against each item along with Technical Bid.
2. Supplier is required to provide all the Technical details/ Catalogue/Datasheet of the

offered make/model against each item.

3. The Catalogue of the offered make/ Model shall be available on OEM website as on Technical Bid opening date. The catalogue submitted should match with the one available on website.
4. Make/Model offered is subject to UJVNL approval. UJVNL approval shall be considered as final.
5. All the equipment shall be supplied with standard accessories & any other accessory required to meet the technical specification.
6. The Test equipment shall be delivered to site in new/ fresh condition.
7. Supplier shall provide valid calibration certificate, test certificate & warranty certificate for the quoted test equipment (as applicable), in the event of order.
8. Supplier is required to give an undertaking "to address issue of warranty / after sales services either itself or from the respective manufacturer/OEM of the equipment" along with technical offer on its/OEM letterhead.
9. Supplier is required to give undertaking (in the technical offer) from respective manufacturer/OEM of the equipment on OEM letterhead stating that the offered make/model is suitable for use in 220kV GIS substation & there will be no change in technical performance of the equipment during the equipment life in the site conditions.
10. The test and maintenance equipment shall be of top quality & UJVNL may call for demonstration of the offered test equipment at site, to ensure satisfactory performance before accepting the equipment. The same shall be deemed to be included in the offer without any price implication to BHEL/UJVNL.
11. The instrument is intended for use in high-voltage substation and in hydro power plant environment. The testing equipment are generally meant for carrying out testing at site and movement from one place to another is unavoidable. Therefore, equipment shall be robust in design so that it gives desired performance even in adverse site conditions. Necessary transport packing arrangement shall be provided along with the equipment.
12. Necessary tools, accessories, hardware and licensed-software are deemed to be included in the equipment price which are necessary for successful demonstration of instrument at site and to analyze the diagnosed values/ measured parameters. These tools and hardware include connectors, connecting-leads, wires, converters, adaptors, standard accessories etc.
13. Bidder shall offer equipment complying to the requirements given in Section-2 of this specification. Bidder can, however, offer alternative features and parameters which meet the functional requirements of end-customer. End-customer, M/s UJVNL, will have final say on its acceptance/ rejection of the model. Bidder shall be liable for considering the same without any implication to BHEL.
14. Laptops shall be provided wherever it is necessary for the offered instrument to operate. Price for the Laptop and its accessories is deemed to be included in offered price.
15. Price for conduction of FAT, Inspection, testing and site-demonstration is deemed to

- be included in offered price. No price implication will be entertained by BHEL/UJVNL.
16. Technical Evaluation of above items will be done item wise. Bidder may quote for One or more no of items from the above BOQ.
 17. In event of placement of order, if the selected make/model is obsolete during the supply stage, vendor need to supply equivalent/better make/model without any price implication with prior approval of BHEL/UJVNL.

4. BILL OF QUANTITIES

SN	Detailed Description	Unit	Total Qty
1.	1kV Insulation Tester (Meggar)	Nos.	1
2.	5kV Motorized Insulation Tester (Meggar)	Nos.	1
3.	Digital Multi-meter	Nos.	2
4.	Micro-ohm meter	Nos.	1

5. INSPECTION & TESTING:

Bidder to submit Certificate of conformance (COC) and Manufacturer's Test Certificate for customer dispatch clearance. MRC shall be issued after successful demonstration at site for items mentioned in the BOQ

6. DRAWINGS & DOCUMENTATION

6.1. Drawings / documents required for engineering manufacturing clearance

The drawings/ documents, as follows shall be used for providing engineering manufacturing clearance of the equipment and furthermore, it shall be used for delay analysis, if any from bidder. The schedule for submission and resubmission shall be in line with activity schedule of Purchase Order. The successful bidder is required to submit drawings and documents that shall cover but not limited to the following:

Sl.	Description of Drawing
1	Instruments - Guaranteed Technical Particulars/ catalogues
2	Instruments - Test Reports and Test Certificate

NOTE:

1. Date of Submission of first lot of drawings/ documents shall be counted only from the date of submission of reasonably correct drawings/ documents.

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2. The successful bidder shall ensure vendor approvals, if required as well as approvals of all requisite drawings/ datasheets/ type test reports/ QAP etc, wherever required, for the offered equipment as per this specification from Customer/UJVNL.
 3. The successful bidder shall have to extend all possible supports like timely submission/ resubmission of drawings, visit to end customer to facilitate documents approval without any commercial implications to BHEL. Acceptance of bidder's documents shall be subject to end customer approval

7. PACKING AND DISPATCH

1. All equipments shall be suitably protected, coated, covered or boxed and crated to prevent damage or deterioration during transit, handling and storage at site. While packing all the materials, the limitations from the point of view of availability of transportation facilities in India should be taken into account. The Bidder shall be responsible for any loss or damage during transportation, handling and storage.
2. The Bidder shall include and provide for security, protection and packing the equipment so as to avoid loss or damage during transport by any mode.
3. The cases containing easily damageable material shall be very carefully packed and marked with appropriate caution symbols i.e. FRAGILE, HANDLE WITH CARE, THIS SIDE UP etc. along with WEIGHT, OWNER PARTICULARS/ PO Nos.
4. Any material found short inside the packing cases shall be supplied by the Bidder without any extra cost.
5. The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract and, subject to any subsequent instruction ordered by the Employer consistent with the requirements of the Contract as per relevant Clause of Section 2 & Section-3.

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SECTION-2

29.3.1.1 Measuring devices

Following items shall be supplied with all accessories, carrying cases, connecting leads, power supply unit/cells etc. necessary for operation.

- (i) ~~Two (2)~~ DC insulation testers (Meggar) with:
- Accuracy: $\pm 2\%$,
 - Range $100\text{K}\Omega$ to $100\text{G}\Omega$ at Steps of 500V, 1KV, 2.5 KV and 5 KV with locking and non-locking test buttons,
 - Battery
- (ii) ~~Two (2)~~ AC motorized insulation testers (Meggar) with:
- Accuracy: $\pm 2\%$
 - Range $1\text{M}\Omega$ to $100\text{G}\Omega$ at 1KV, 2.5 KV and 5 KV
 - Battery
- (iii) ~~One (1)~~ portable universal bridge with:
- Accuracy class: 1,
 - Built in capability for storing, printing and downloading test results,
 - Ranges:
 - Resistance: $100\text{m}\Omega$... $10\text{M}\Omega$,
 - Inductivity: 1...100 H,
 - Capacity: 10 pF...1 μF ,
 - $\tan \delta$: 0...1 in several steps,
 - Frequency range: 15...1000 Hz,
- (iv) ~~One (1)~~ portable digital power measuring instrument for 3-phase and single phase measurement:
- ~~One (1) double W meter, accuracy class 0.2,~~
 - ~~Three (3) ammeters, accuracy class 0.2,~~
 - ~~One (1) voltmeter, accuracy class 0.2,~~
 - ~~One (1) phase sequence indicator,~~
 - ~~Power factor meter (Lead and Lag)~~
 - ~~Rated power ranges: 0 to 100 kW in several steps,~~
 - ~~Rated current ranges: 0 to 100 A in several steps,~~
 - ~~Rated voltage ranges: 0 to 500 V in several steps,~~
 - ~~Frequency range: 15 to 200 Hz,~~
- (v) ~~Five (5)~~ digital multi-meters for AC and DC with:
- Accuracy:
 - DC: $\pm 1\%$,
 - AC: $\pm 1.5\%$,
 - Ohm: $\pm 1\%$.

- Ranges:
 - voltage: 60 mV... 1000 V in several steps,
 - current : 1.5 mA... 30 A in several steps,
 - Resistance: 0... 50 k Ohm.
 - Continuity audible test,
 - Diode test, capacitance measurement, frequency measurement,
 - Hold display features,
 - Overload protection.
- (vi) ~~Two (2) analog multimeters for AC and DC with:~~
- Accuracy:
 - DC: $\pm 1\%$,
 - AC: $\pm 1.5\%$,
 - Ohm: $\pm 1\%$.
 - Ranges:
 - voltage : 60 mV... 1000 V in several steps,
 - current : 1.5 mA... 30 A in several steps,
 - resistance: 0... 50 k Ohm.
- (viii) ~~Two (2) precision multiple decade resistors with rotary switches for DC and AC current, with:~~
- Five-crank resistors: $10 \times (0.1 + 1 + 10 + 100 + 1000)$ Ohms,
 - Maximum frequency: 10 kHz,
 - Limits of error: $\pm 0.1\%$.
- (viii) ~~Laboratory connection leads, suitable for all specified instruments, with vulcanized banana plugs on both ends, 1.5 mm² copper, high-flexible, insulator voltage 1000 V with:~~
- Twenty (20) leads of each colour namely yellow, black, green, red, blue length 0.5 m,
 - Twenty (20) leads of each colour namely yellow, black, green, red, blue length 1.5 m,
 - One (1) ring (100 m) laboratory cable 1 x 1.5 mm² Cu.
 - Fifty (50) banana plugs.
 - Fifty (50) test clips fitting to banana plugs
- (ix) ~~Two (2) single phase toroidal transformers with:~~
- Primary voltage: 230 V,
 - Secondary voltage: 0 ... 230 V stepless adjustable,
 - Rated power: 2500 VA.
- (x) ~~Two (2) three phase toroidal transformers with:~~
- Primary voltage: 400 V,
 - Secondary voltage: 0 ... 400 V stepless adjustable,
 - Rated power: 1500 VA.

(xxiv) One (1) micro ohm-meter of the portable type, suitable for measuring contact resistance of high voltage equipment, with:

- 230 V AC power supply,
- Measuring range: 0 - 1999 $\mu\Omega$,
- Accuracy: 1%,
- Output current: 0 - 400 A DC,
- All accessories,
- Case.

(xxv) ~~One (1) no. on-line DC earth fault locator with built-in charger and rechargeable batteries.~~

29.3.1.2

Testing devices

(i) Primary current injection set

~~The equipment offered shall be trolley mounted and shall consist of double wound transformer having primary winding rated for 230 V, 20kVA and eight secondary windings each rated for 500 A, 5 V. By connecting secondary windings in series, parallel and in series parallel, current range of 500A, 1000A, 2000A, 3000A and 4000A shall be obtainable.~~

~~All the secondary windings shall be brought out which shall be selectable by means of links for the above arrangement. Oil cooled type continuous rated Auto Transformer of 20 KVA rating for obtaining stepless variation on output shall be provided.~~

Ratings:

Input	230 V, single phase, AC, 50 Hz.
Output	500A, 1000A, 2000A, 3000A, 4000A
Duty cycle	Continuous
Accuracy	$\pm 1\%$

~~Unit shall be supplied with first filling of oil plus 10% extra oil and output connecting cable suitable for 4000 Amps and of 15m length. The cable should have two cores and should be provided with suitable clamps at both the end of the cable for testing of any outdoor EHV equipment.~~

~~The unit will have multi ratio current transformer (500/1000/2000/3000/4000A) and ammeter for measuring current output.~~

(ii) ~~One (1) DC rectifier of suitable rating for drying out generator winding completely, complete with:~~

- Variable transformer,
- Rectifier transformer,
- Rectifier panel,
- All accessories.

**CHECK LIST FOR INFORMATION TO BE FURNISHED WITH OFFER
RETURN THIS CHECKLIST AS PART OF THE OFFER DULY SIGNED**

PLEASE NOTE:

a) The offer may not be considered if the following information and this Checklist are not enclosed with the Offer.

BHEL ENQUIRY. NO:

BIDDER OFFER REFERENCE:

EQUIPMENT: Testing Equipments

S. No.	Parameters	Yes /No	Remarks
1.	Name of testing instrument Note - Please also write make and model of offered equipment's in remarks	Yes/No	
2.	Name of manufactures & address	Yes/No	
3	Make and model of offered equipment's as per section-1	Yes/No	
4	Following Document to be enclosed	Yes/No	
4.1	Authorized Distributor Certificate from original Manufacturer/OEM	Yes/No	
4.2	After sales service facility in India will be available	Yes/No	
4.3	Undertaking to address issue of warranty / after sales services from OEM in the event of order	Yes/No	
4.4	Catalogue and data sheet (if any)	Yes /No	
4.5	List of Past supplies in India & abroad	Yes/No	
4.6	List of Deviations if any in Deviation schedule.	Yes/No	
5	Technical parameter of offered testing equipment's as per Section -2 of technical specification and BoQ of section -1	Yes/No	

Note – Check list to be filled for each individual testing equipment's quoted.

SCHEDULE OF TECHNICAL DEVIATIONS

Bidder shall list out all technical potential deviation/ change request (s) along with clause with respect to technical specifications.

<u>Sl. No.</u>	<u>Page No.</u>	<u>Clause No.</u>	<u>Deviation</u>	<u>Reason / Justification</u>
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Any deviation not specifically brought out in this section shall not be admissible for any commercial implication at later stage. Except to the technical deviations listed in this schedule, bidder's offer shall be considered in full compliance to the tender specifications irrespective of any such deviation indicated / taken elsewhere in the submitted offer.

Date:

Bidder's Stamp & Signature

ANNEXURE-B:
COMPLIANCE CERTIFICATE OF TECHNICAL SPECIFICATION

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

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

Date:

Bidder's Stamp & Signature