Annexure-I

OIL INDIA LIMITED
(A Government of India Enterprise)
P.O. Duliajan - 786602, Assam, India
FAX: 91-0374-2800533; E-mail : material@oilindia.in

A) OIL INDIA LIMITED invites Indigenous Competitive Bid (e-tenders) through its e-Procurement portal - *https://etender.srm.oilindia.in/irj/portal* for following e-tender :

E-Tender No.	B.C Date	Material Description & Quantity
SDI4921P15 DT: 20.09.2014 (SINGLE STAGE COMPOSITE BID SYSTEM)	**13.11.2014**	**PMCC PANEL – 01 NOS**
SDI4914P15 DT; 19.09.2014 (SINGLE STAGE TWO BID SYSTEM)	**13.11.2014**	**CISCO SWITCHES**
SDI4916P15 DT; 19.09.2014 (SINGLE STAGE TWO BID SYSTEM)	**13.11.2014**	**CISCO FIREWALL**
SDI4922P15 DT: 20.09.2014 (SINGLE STAGE COMPOSITE BID SYSTEM)	**13.11.2014**	**ELECTRICAL FITTINGS – 06 NOS**

Application showing full address/email address with Tender Fee (Non-refundable) of Rs. 1,000.00 (Excepting PSUs and SSI units registered with NSIC) in favour of M/s Oil India Limited and payable at Duliajan is to be sent to Head-Materials, Oil India Limited, P.O. Duliajan, Assam-786602. Application shall be accepted one week prior to Bid Closing date. The envelope containing the application for participation should clearly indicate "REQUEST FOR ISSUE OF USER ID AND PASSWORD FOR E TENDER NO …" for easy identification and timely issue of user ID and password. On receipt of requisite tender fee, USER_ID and initial PASSWORD will be communicated to the bidder (through e-mail) and will be allowed to participate in the tender through OIL's e-`` Procurement portal. No physical tender documents will be provided. Details of NIT can be viewed using "Guest Login" provided in the e-Procurement portal. The link to e-Procurement portal has been also provided through OIL's web site www.oil-india.com.

Note :
PSUs and SSI units are provided tender documents Free of Cost (as per govt guidelines), however they have to apply to OIL's designated office to issue User ID and Password.

CORRIGENDUM

B) BID CLOSING DATE OF E –TENDER NO SDI4385P15 DT: 28.07.2014 FOR 1 NO - PRE FABRICATED SUBSTATION FOR SS-6 AND SSI4392P15 DT: 28.07.2014 FOR 4" ERW GALVANISED LINE PIPE – 11,000 METERS HAS BEEN EXTENDED UPTO 09.10.2014 (UPTO 11.00 HRS). APPLICATION FOR ISSUE OF USER ID AND PASSWORD WILL BE ACCEPTED UPTO 04.10.2014 (UPTO 15.30 HRS) & BIDS SHALL BE OPENED ON 09.10.2014 (AT 14.00 HRS).

ALL OTHER TERMS AND CONDITIONS OF THE E-TENDER'S SHALL REMAIN UNCHANGED

OIL INDIA LIMITED
(A Government of India Enterprises)
PO : Duliajan – 786602
Assam (India)

TELEPHONE NO: (91-374) 2808719
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Email: ranjanbarman@oilindia.in; erp_mm@oilindia.in

FORWARDING LETTER

Tender No.	**: SDI4922P15 DT: 20.09.2014**
Tender Fee	**: Rs 1,000.00**
Bid Security Amount	**: Rs. 42,500.00**
Bidding Type	**: SINGLE STAGE COMPOSITE BID SYSTEM**
Bid Closing on	**: As mentioned in the e-portal**
Bid Opening on	**: -do-**
Performance Security	**: Applicable**
Integrity Pact	**: Not Applicable**

OIL invites Bids for **Supply of 6 nos NGR Electrical Fittings** through its e-Procurement site under **SINGLE STAGE COMPOSITE BID SYSTEM**. The bidding documents and other terms and conditions are available at Booklet No. MM/LOCAL/E-01/2005 for E-Procurement LCB Tenders. The prescribed Bid Forms for submission of bids are available in the Technical RFx -> External Area - > Tender Documents

The general details of tender can be viewed by opening the RFx [Tender] under RFx and Auctions.. The details of items tendered can be found in the Item Data and details uploaded under Technical RFX.

The tender will be governed by:

a) "General Terms & Conditions" for e-Procurement as per Booklet No. MM/LOCAL/E-01/2005 for E-Procurement LCB Tenders.

b) Technical specifications and Quantity as per **Annexure – 1A**.

c) The prescribed Bid Forms for submission of bids are available in the Technical RFx -> External Area - > Tender Documents.

d) In the event of receipt of only a single offer against the tender within B.C. date, OIL reserves the right to extend the B.C. date as deemed fit by the Company. During the extended period, the bidders who have already submitted the bids on or before the original B.C. date, shall not be permitted to revise their quotation.

e) Any sum of money due and payable to the contractor (including Security Deposit refundable to them) under this or any other contract may be appropriated by Oil India Limited and set-off against any claim of Oil India Limited (or such other person or persons contracting through Oil India Limited) for payment of sum of money arising out of this

contract or under any other contract made by the contractor with Oil India Limited (or such other person or persons contracting through Oil India Limited).

f) Bidder are advised to fill up the Technical bid check list (**Annexure EEE**) and Response sheet (**Annexure FFF**) given in MS excel format in Technical RFx -> External Area - > Tender Documents. The above filled up document to be uploaded in the Technical RFX Response.

Special Note:

1.0 General Qualification Criteria:

In addition to the general BRC/BEC, following criteria on Bidders' Experience and their financial capabilities shall be considered **(Documentary evidence to be provided along with the bid in Technical RFx -> External Area - > Tender Documents)** as on the Bid Closing Date:

Criteria	Complied / Not Complied. Documentary evidence submitted / not submitted
a) Bidder should have experience of successfully executing similar order of Rs 12.76 Lakhs during last 3 years.	
b) Annual financial turnover of the firm in any of the last 3 financial years or current financial year should not be less than Rs 42.54 Lakhs.	

2.0 Application showing full address/email address with Tender Fee (Non-refundable) of Rs. 1,000.00 in favour of M/s Oil India Limited and payable at Duliajan is to be sent to Head-Materials, Oil India Limited, P.O. Duliajan, Assam-786602. Application shall be accepted only upto one week prior to Bid Closing date (or as amended in e-portal). The envelope containing the application for participation should clearly indicate "REQUEST FOR ISSUE OF USER ID AND PASSWORD FOR E TENDER NO …" for easy identification and timely issue of user ID and password. On receipt of requisite tender fee, USER_ID and initial PASSWORD will be communicated to the bidder (through e-mail) and will be allowed to participate in the tender through OIL's e- Procurement portal. No physical tender documents will be provided. Details of NIT can be viewed using "Guest Login" provided in the e-Procurement portal. The link to e-Procurement portal has been also provided through OIL's web site www.oil-india.com.

NOTE: PSUs and SSI units are provided tender documents Free of Cost (as per govt guidelines), however they have to apply to OIL's designated office to issue the tender documents before the last date of sale of tender document mentioned in the tender.

3.0 Please note that all tender forms and supporting documents are to be submitted through OIL's e-Procurement site only except following documents which are to be submitted manually in sealed envelope super scribed with **Tender no.** and **Due date** to **Head Materials, Materials Department, Oil India Limited, Duliajan - 786602, Assam** on or before the Bid Closing Date and Time mentioned in the Tender.

a) **Original Bid Security**
b) **Detailed Catalogue (if any)**
c) **Any other document required to be submitted in original as per tender requirement**

All documents submitted in physical form should be signed on all pages by the authorised signatory of the bidder and to be submitted in triplicate.

4.0 Bidders are requested to examine all instructions, forms, terms and specifications in the bid. Failure to furnish all information required as per the NIT or submission of offers not substantially responsive to the bid in every respect will be at the bidders risk and may result in rejection of its offer without seeking any clarifications.

5.0 Bidders must ensure that their bid is uploaded in the system before the tender closing date and time. Also, they must ensure that above documents which are to be submitted in a sealed envelope are also submitted at the above mentioned address before the bid closing date and time failing which the offer shall be rejected.

6.0 Bid must be submitted electronically only through OIL's e-procurement portal. Bid submitted in any other form will be rejected.

7.0 The tender shall be governed by the Bid Rejection & Bid Evaluation Criteria given in enclosed **Annexure-CCC**. However, if any of the Clauses of the Bid Rejection Criteria / Bid Evaluation Criteria (as per **Annexure-CCC**) contradict the Clauses of the tender and / or "General Terms & Conditions" as per Booklet No. MM/LOCAL/E-01/2005 for E-procurement (LCB Tenders) elsewhere, those in the BEC / BRC shall prevail.

8.0 Please do refer the User Manual provided on the portal on the procedure How to create Response for submitting offer.

NOTE:

Bidders should submit their bids (preferably in tabular form) explicitly mentioning compliance / non compliance to all the NIT terms and conditions of NIT.

Yours Faithfully

Sd-

(R.BARMAN)
SR MANAGER MATERIALAS (ID)
FOR : HEAD-MATERIALS

Annexure - CCC

Tender No & Date: SDI4922P15 DT: 20.09.2014

BID REJECTION CRITERIA (BRC) / BID EVALUATION CRITERIA (BEC)

The following BRC/BEC will govern the evaluation of the bids received against this tender. Bids that do not comply with stipulated BRC/BEC in full will be treated as non responsive and such bids shall prima-facie be rejected. Bid evaluation will be done only for those bids that pass through the "Bid Rejection Criteria" as stipulated in this document.

Other terms and conditions of the enquiry shall be as per General Terms and Conditions vide MM/LOCAL/E-01/2005 for E-Procurement LCB Tenders. However, if any of the Clauses of the Bid Rejection Criteria / Bid Evaluation Criteria (BRC / BEC) contradict the Clauses of the tender or MM/LOCAL/E-01/2005 elsewhere, those in the BRC / BEC shall prevail.

Criteria	Complied / Not Complied. (Remarks if any)
1.0 BID REJECTION CRITERIA (BRC): **A) TECHNICAL:** The bid shall conform generally to the terms and conditions given in this document. Notwithstanding the general conformity of the bids to the stipulated specifications, the following requirements will have to be particularly met by the Bidders without which the same will be considered as non-responsive and rejected. **B) COMMERCIAL:** **i).** Bid security: The bid must be accompanied by Bid Security of **Rs 42,500.00** in OIL's prescribed format as Bank Guarantee or a Bank Draft/Cashier cheque in favour of OIL. The Bid Security shall be submitted manually in sealed envelope superscribed with Tender no. and Bid Closing date to Head Materials, Materials Department, Oil India Limited, Duliajan- 786602, Assam on or before the Bid Closing Date and Time mentioned in the Tender. If bid security in ORIGINAL of above mentioned amount is not received within bid closing date and time , the bid submitted through electronic form will be rejected without any further consideration. For exemption for submission of Bid Security, please refer Clause No. 8.8 of General Terms and Conditions vide MM/LOCAL/E-01/2005 for E-Procurement LCB Tenders. **The Bank Guarantee towards Bid Security shall be valid for 10 months from Bid closing date. (i.e. upto 13.08.2015).** The format of Bank Guarantee towards Bid Security (Annexure – VII) has been amended to Annexure – VII (Revised) and bidders should submit Bank Guarantee towards Bid Security as per Annexure – VII (Revised) only.	

In case of extension of Bid Closing date against the tender where a bidder has already submitted his bid with requisite bid security validity within the original B.C. Date, such bidders will extend validity of bid security covering the extended period of the bid closing date.

ii). Performance Security:

Successful bidder will be required to furnish a Performance Security **@10% of the order value.** For exemption for submission of Performance Security, please refer Clause No. 9.12 of General Terms and Conditions vide MM/LOCAL/E-01/2005 for E-Procurement LCB Tenders. **The** Performance Security **must be valid for 12 months from the date of commissioning or 18 months from the date of despatch whichever concludes earlier. Bidder must confirm the same in their bid. Offers not complying with this clause will be rejected.**

The validity requirement of Performance Security is assuming despatch within stipulated delivery period and confirmation to all terms and conditions of order. In case of any delay in despatch or non-confirmation to all terms and conditions of order, validity of the Performance Security is to be extended suitably as advised by OIL.

iii). *The Bank Guarantee should be allowed to be encashed at all branches within India*.

iv). Validity of the bid shall be minimum 120 days from the Bid Closing Date.

v). The prices offered will have to be firm through delivery and not subject to variation on any account. A bid submitted with an adjustable price will be treated as non-responsive and rejected.

vi). Bids received after the bid closing date and time will be rejected. Similarly, modifications to bids received after the bid closing date & time will not be considered.

vii). All the Bids must be Digitally Signed using "Class 3" digital certificate with Organisation's name *(e-commerce application)* as per Indian IT Act obtained from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India. The bid signed using other than "Class 3 with Organisation's Name" digital certificate, will be rejected.

viii). Price should be maintained in the "online price schedule" only. The price submitted other than the "online price schedule" shall not be considered.

2.0 BID EVALUATION CRITERIA (BEC)

The bids conforming to the terms and conditions stipulated in the tender and considered to be responsive after subjecting to the Bid Rejection Criteria as well as verification of original of any or all documents/ documentary evidences pertaining to BRC, will be considered for further evaluation as per the Bid Evaluation Criteria given below.

A) TECHNICAL:

(i) Offers which meet the BRC requirement clauses as above shall be evaluated only.

B) COMMERCIAL:

i). To evaluate the inter-se-ranking of the offers, Assam Entry Tax on purchase value will be loaded as per prevailing Govt. of Assam guidelines as applicable on bid closing date. Bidders may check this with the appropriate authority while submitting their offer.

ii). To ascertain the substantial responsiveness of the bid OIL reserves the right to ask the bidder for clarification in respect of clauses covered under BRC also and such clarifications fulfilling the BRC clauses in toto must be received on or before the deadline given by the company, failing which the offer will be summarily rejected.

NOTE:

Bidders should submit their bids (preferably in tabular form) explicitly mentioning compliance / non compliance to all the NIT terms and conditions of NIT.

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TECHNICAL SPECIFICATIONS WITH QUANTITY

Tender No & Date: SDI4922P15 dt: 20.09.2014

	Complied / Not Complied. (Remarks if any)
Item no. 10 **Design, Engineering & Manufacture, Supply, Installation, Testing and Commissioning of Neutral Grounding Resistor (NGR panel) Panel with protection and monitoring facility for Kathalguri New Mud Plant– 02 NOS** A. APPLICATION AND DETAILED TECHNICAL SPECIFICATIONS NGRs are used in industrial Power Systems for resistance grounding of star connected generators and transformers. NGR is connected between ground and neutral of transformers, generators, busbars and grounding transformers. NGR limits the faults current to value enough to operate protective relays, thereby preventing unwanted damage to the system. CONSTRUCTION The NGR unit shall consist of two parts: 1) the resistor grid enclosed in a metallic enclosure, and 2) the NGR monitoring system, enclosed in a separate panel. 1) Resistor and resistor enclosure a) Resistor assembly The resistive element/grid material shall be low temperature coefficient, resistor grade stainless steel, resistor grade 1JR (or Cu-Ni, Ni-Cr or Fechral) of sufficient mass to withstand the rated current and prescribed duty. The resistive element/ resistor grid shall be made of unbreakable, corrosion proof jointless elements wire wound around a ceramic (or micanite) core supported on a through-rod. The resistors shall be mounted in heavy gauge corrosion resistant support frames, using stainless-steel hardware. The entire resistor assembly shall be mounted and supported on glazed insulators rated for the system voltage. All resistor terminals and interconnections between resistor units shall be stainless-steel using stainless steel hardware including lock washers. High current connections shall be spot or TIG welded as appropriate. Connections between resistors and bushings shall be solid copper or stainless steel bars. The unit shall be designed to permit the expansion of supporting rods when submitted to high operating temperatures. With lower quality resistance material (high temperature coefficient), the change in resistance value will be excessive. This may result in insufficient fault current to actuate the earth fault detection relay and the fault will stay on the system and eventually destroy the resistor and whatever distribution equipment it is protecting. Resistor grid assembly mounting structure shall be properly supported to absorb vibration and stress during faults and transit. Neutral cable shall be brought to one terminal of the NGR unit. The other end of the NGR unit shall be suitable for connection to ground through earth electrode. These end connections of the resistor unit will be brought out to terminal box or through top or side mounted high voltage	

bushings. Stand ‘ off / support insulators shall be ceramic or epoxy resin cast.
The resistor grid shall be suitable for
Rated Voltage : 240 Volts
Rated Current : 750 mA
Rated Resistance : 330 Ohms
Time Rating : 30 Sec.
Temperature Rise : 375 Deg. C.
Location : Indoor
Tolerance : + / - 10 %
Degree of Protection: IP -33
Applicable Standard: IEEE -32: 1972

b) Resistor enclosure panel
Resistor grid assembly shall be housed in an enclosure made of heavy gauge sheet steel (= 2mm), self supporting and floor mounted, cubicle type, indoor, dust and vermin protected. Enclosure shall be supported on steel support channels, suitable for fixing with grouting bolts. Sheet steel shall be used on a rigid framework of suitably sized steel angles and channels, welded or bolted together with stainless-steel hardware. Front of the panel shall be hinged on the left side to serve as an inspection and service door, fitted with clamps and special non-deteriorating neoprene gaskets. Enclosure shall be provided with bolt-on louvered covers (fitted with fine wire mesh inside) on sides for circulation of air. The top of the enclosure shall be embossed with stiffening ribs. Lifting lugs shall be provided on the top of panels. Bottom shall be elevated to 4 to 6 inches above the base of the unit. Bottom shall be screened for maximum cooling of resistors. Suitable earthing studs are to be provided on two sides.
Protection rating of the enclosure shall be IP 42, using roof shaped louvers shielded with wire mesh (inside). A durable corrosion resistant nameplate permanently attached to one side cover shall show the manufacturer and the complete rating. Clear warning labels (danger, high voltage, earthing etc.) shall also be fixed at appropriate places.
Enclosures shall be suitably cleaned, primed and powder coated/ spray painted, colour of paint light gray to shade 631 as per IS: 5.

One strip type panel heater shall be installed in the resistor panel. The heater shall be provided with a adjustable setting thermostat.

Limiting Dimensions (L X B X H) = 600 mm x 500mm x 600 mm
2) NGR monitoring system

NGR MONITORING CONSIDERATIONS

Ground-fault protection, coordination, and annunciation systems depend on the integrity of the NGR. If the NGR fails, these systems become inoperative. In addition, an open NGR causes the system to become ungrounded and exposure to transient overvoltages is possible.

Monitoring of the NGR shall include the following considerations:
1) Monitoring the NGR connections to the neutral and to the ground bus- for continuity (as resistors are unlikely to fault on short circuit)
2) Monitoring the neutral/NGR current through a residual current CT provided in the NGR path
3) Monitoring the neutral-to-ground voltage
4) Audio- visual annunciation of ground fault and NGR fault

The NGR monitor shall measure changes in NGR resistance, current in the neutral and neutral-

to-ground voltage. The NGR monitor shall coordinate these three measurements and operate output contacts when an NGR fault or a ground fault is detected. NGR monitor shall respond to fundamental-frequency current and voltage, and it is not influenced by harmonics.

The output contacts shall be used to operate alarms (buzzer) and visual annunciation devices. Potential free output contacts (minimum 02 pairs) shall also be provided for future use, such as tripping of main breakers etc.

Main components of the NGR monitoring system shall include, but not limited to, the following:

a) Monitor for Ground Fault & NGR (with band pass filter for frequencies other than 50 Hz)
b) Coupling device/sensing resistor for NGR Monitor
c) Residual current sensing C. T. for NGR Monitor
d) Output relay with sufficient nos. of potential free NO and NC contacts
e) Alarm indicator & operator panel with visual annunciation for NGR fault and ground fault and buzzer
f) Incoming 230/240 V, 50 Hz AC supply with sufficiently rated HRC fuse for power supply to monitor panel

NGR monitoring system shall be housed in an enclosure made of heavy gauge sheet steel (= 2mm), self supporting, cubicle type, indoor, dust and vermin protected. The enclosure shall be supported on steel support angles/channels, suitable for fixing (with nuts and bolts) on top of the NGR housing panel. At least 6 (six) inches gap shall be maintained between the top of the NGR housing and bottom plate of the NGR monitoring system panel, for maintaining air flow. Sheet steel shall be used on a rigid framework of suitably sized steel angles and channels, welded or bolted together with stainless-steel hardware.

Front of the monitoring panel shall be hinged on the left side for easy access to the components inside and fitted with clamps and special non-deteriorating neoprene gaskets. The top of the enclosure shall be slightly overhung and sloped. It shall be embossed with stiffening ribs. Lifting lugs shall be provided on the top of panels.
Suitable earthing studs are to be provided on two sides.
Protection rating of the enclosure shall be minimum IP 53. A durable corrosion resistant nameplate permanently attached to one side cover shall show the manufacturer and the complete rating. Clear warning labels (danger, high voltage, earthing etc.) shall also be fixed at appropriate places.
Enclosure shall be suitably cleaned, primed and powder coated/ spray painted, colour of paint light gray to shade 631 as per IS: 5.

The buzzer and indication lights/test/reset buttons shall be mounted on the front door. Suitable engraved, corrosion resistant legends shall be used for each component/function. Monitor windows for remote indicator alarm and operator panel will also be mounted on the door.

As the components of NGR monitoring system shall be wired up to the NGR, steel rigid conduits shall be used to run the signal cables from NGR to monitoring panel. It may be noted that residual current transformer (for sensing NGR current) and coupling device/sensing resistor may be required to be installed in the NGR panel for maximum effectiveness. Conversely, neutral cable shall be first routed through the monitoring panel and then to NGR.
In such a case, the monitoring panel shall be provided with suitable bushings/ terminal box (as given in the description for NGR panel) for termination of the neutral cable.

Elements connected to the NGR are subject to line-to-neutral ground-fault voltages and must be evaluated in all failure modes. Coupling devices must not transfer hazardous voltages to associated monitoring equipment.
Atmospheric electrical conditions, such as the presence of charged clouds, can affect an electrical substation feeding overhead lines. An NGR monitor used in this application must be immune to these conditions.

The measurements made by an NGR monitor can be useful when evaluating system problems. An analog signal can be used to provide local earth-leakage-current metering. An NGR monitor with a communications interface can allow data access with a local PC or with a network.
NGR Monitor panel Limiting Dimensions (L X B X H) = 600 mm x 500mm x 600 mm

Technical data for NGR monitoring panel components:

Components like NGR monitor, coupling device and current transformer shall be of one make only for compatibility, from either of the following manufacturers.

1) Bender, USA, 2) Startco, Canada, 3) i-Gard, Canada

a) Monitor:
(Model nos.: Bender- "RC48N" / Startco- "SE-330" / i-gard- "Sigma")
Supply voltage 230-250 VAC, 50 Hz
Response value, voltage measurement adjustable from 20 V to 400 V
Response value, residual current adjustable from 0.1 A to 10 A
Response delay adjustable 0.1 s to 2 s
Switching elements (alarm relay) 2 Form C contacts
Rated contact voltage AC 250 V / DC 300 V
Limited making capacity AC/DC 5 A
Switching elements (GFA, NRA) 1 N/O contact each
Rated contact voltage AC 250 V / DC 300 V
Limited making capacity AC/DC 5 A
Test of the electromagnetic compatibility (EMC)
Immunity according to IEC 62020
Emissions according to EN 50081
Emissions according to EN 55011/CISPR11 Class A

b) Coupling device/sensing resistor for NGR Monitor: As per manufacturer’s design and catalogue

c) Residual current sensing C. T. for NGR Monitor
Internal dia: >= 70 mm
Rated voltage: >800 V
Rated primary residual current: 10 A
Rated secondary residual current: 0.01 A

d) Output relay with sufficient nos. of potential free NO and NC contacts
The relay shall be used for initiating audio-visual alarm (or shutdown of the main breaker of generator or transformer). Relay shall be contactor type. No plug-in type relay shall be used.
The make of the relay shall be Telemecanique (model TeSys, D or K model)/ GE /

Siemens/Legrand/L & T/ABB/Indo-Asian

e) Alarm indicator & operator panel with visual annunciation for NGR fault and Ground fault and buzzer
Suitable alarm indicator and operator panel with LED indication lamps for Ground fault and NGR fault annunciation and push buttons for test and reset functions along with buzzer shall be installed in the monitor panel.
Visual annunciation for NGR fault and ground fault will be through LEDs (labeled "NGR Fault" and "Ground Fault").
LEDs shall be of suitable voltage, size 22.5 mm. Make-Siemens/ L&T/ BCH/ Binay/ Telemecanique.
Audio annunciation will be through a buzzer mounted inside the monitor panel. Buzzer shall be suitably rated for continuous duty. Buzzer supply shall be of suitable AC voltage. Make-Siemens/Schneider/BCH/L & T.
LEDs and Buzzer shall be mounted on the front door of the monitor panel. Test and reset buttons on the front door of monitor panel shall be provided for testing of the NGR and GFA test circuits from the NGR monitor.
Test and reset buttons make-Siemens/Schneider/BCH/L & T.

Reset button will silence the buzzer, but the LEDs will remain on till the time fault is detected and cleared.

The indication LEDs and test and reset push buttons on the front door shall be in addition and external to the G/F & NGR monitor (which may have these functions built-in).

f) Incoming 230/240 V, 50 Hz AC supply with HRC fuse base and link for power supply to monitor panel
Power supply to the monitor panel shall be through suitably rated HRC fuse link, MCB and transformers (if required to step down to the voltage level of monitor panel components supply). Separate circuits through fuses shall be used for the monitor and audio-visual annunciation panel.
Moulded HRC fuse holders with suitably rated fuse links; make- GE/Telemecanique. MCB make: Legrand, Telemecanique, Havells. Control transformer make: AE/L&T/Kappa.

Separate isolation fuse link and an MCB shall be provided for switching power supply to NGR space heater. Space heater shall be controlled through an adjustable thermostat.

3) General:

a) Control wiring shall be done with 1.5 sq mm, flexible copper, 1100 V grade PVC insulated wires approved by ISI, TAC, FIA. All wiring will have tinned copper lugs & terminal blocks as required. Wiring for the residual current CT shall be done with 2.5 sq mm, flexible copper, 1100 V grade PVC insulated wires approved by ISI, TAC, FIA & have copper lugs. Colour code for wires shall be followed as per IS. Ferrules shall be provided for identification of cables. Make of cables: Finolex, Havells, L&T or other reputed make.

b) All components shall be labeled for easy identification with metallic embossed identification tags.

c) Panels shall be duly tested as per IS: 8623 at manufacturer's works and routine test certificate shall be submitted at the time of final inspection.

B. DOCUMENTS

1. The following Documents / drawings shall be submitted with the offer:

a) GA drawing of the NGR with enclosure and NGR monitoring panel
b) Technical literature of NGR and NGR monitoring system
c) Confirmation that the party agrees to all the points mentioned under electrical specification of the NGR system in Part "A". Any deviation from the electrical specifications of the tender will be specifically mentioned by the party with proper justification. Acceptance of deviations shall be at discretion of OIL. Type and make of components shall be as per tender. Equivalent make shall not be acceptable.

Party shall also specifically confirm even if there is no deviation in their offer from technical specifications.

2. The successful bidder shall obtain approval for the following drawings / documents prior to manufacturing of panels within 30 days of placement of order:
a) Documentary evidence from the manufacturer/s of NGR and NGR monitoring system (if separately procured) confirming that the system supplied will meet all specifications as mentioned in the order.
b) Detailed GA drawings for NGR, NGR enclosure and monitoring panel
c) Detailed power & control wiring diagram
d) Component layout drawing showing all components
e) Bill of materials of all components.

3. Three sets per NGR system of following documents shall be submitted in bound form:
a) As built final GA drawings
b) As built detailed power & control wiring diagram
c) Scheme and component layout plan of the unit showing all parts/components
d) Bill of materials of all components
e) Technical literature/catalogues of NGR and components of NGR monitoring panel
f) O&M manual for NGR and Monitoring panel.
g) All test certificates from manufacturers of the NGR as well as NGR monitoring system for tests carried out to establish compliance with the declared parameters.
h) Guarantee certificate for alternator and control panel. Guarantee shall be for 12 months after commissioning of Gen set or 18 months after supply, whichever is earlier.

C. GENERAL NOTES FOR ELECTRICAL ITEMS AND WORKS:

1. In case of an order the complete electrical specification as mentioned in the tender shall be mentioned in the order. However, deviations from tender specifications, if mentioned by bidder in their offer and if accepted by OIL in writing, shall also be mentioned in the order.
2. In the event of an order the bidder will submit all documents as per Para B.1 under "B. DOCUMENTS" for OIL's approval.
3. The manufacture of the unit shall start only after written approval of the drawings/ documents (as per Para B.1) by OIL.
4. In case party cannot submit documents complying with all points mentioned in the order the order will be cancelled without any obligation on part of OIL.
5. The NGR units will be treated as installed and commissioned successfully after successful testing of the unit at OIL's field sites with available load and submission of all documents as per

Para B.2 under "B. DOCUMENTS" of electrical specifications and supply of all spares as mentioned under Para "D. SPARES" of electrical specifications.

D. SPARES

Following spares shall be supplied by the party along with the NGR units. The cost of these spares may suitably be adjusted with the cost of NGR units.

1. Monitor for Ground Fault & NGR- 01 (one) no.
2. Coupling device/sensing resistor for NGR Monitor- 01 (one) no.
3. Residual current sensing C. T. for NGR Monitor - 01 (one) no.
4. Output relay with NO and NC contacts- 02 (two) nos.
5. Colour LEDs (complete) set for "NGR Fault" and "Ground Fault" indication- 02 (two) nos. EACH

E. INSPECTION AND TESTING

All the routine tests of the NGR monitor and NGR monitoring panel shall be witnessed by OIL engineers at manufacturer's works. The routine test will include the following minimum tests/measurements: -

1. 1. Physical checks & Operation check of all components
2. 2. HV test of monitoring panel
3. 3. Insulation tests (before and after HV tests).

Intimation for inspection for each item must be sent to OIL at least 30 days in advance.
Any modification suggested during inspection, to comply with order specs, shall be carried out by supplier at no additional cost. Supplier shall affect dispatch of the unit to OIL, Duliajan only on receipt of OIL's dispatch advice.

F. COMMISSIONING

1. Installation and Commissioning of the NGR units shall be carried out by the supplier as per NEC, ISI, IE Rules (now superseded by CEA Regulations) at OIL's field area around Duliajan, Assam (India). Services of qualified and competent personnel of supplier are essential during commissioning of the sets. All tools, instruments, test kits, drill machine, vice, hardware, clamps etc. required for the job shall be provided by the supplier. Operational tests of all devices including their settings shall also be carried out during commissioning job by the supplier. Accommodation and travel to site for supplier's all persons shall be arranged by supplier.
2. Party shall carry out all installation jobs which encompass all activities including placing and grouting of the NGR unit at the site, all cabling jobs including terminations at generator/transformer/busbar neutral, at the incoming end of NGR and outgoing end to earth electrode from the NGR, all earthing jobs installing of earth electrode, earthing of panels, making of earth pits (as per OIL design) and earth pit enclosure etc.
OIL shall supply insulated cables, GI Straps, earth electrodes, lugs and glands and make road crossings with pipes, cable trenches as required for the complete installation and commissioning work.
Any other item required for the job but not specified shall be supplied by party without any cost to OIL.
3. All working persons of the commissioning party shall possess valid electrical license issued by licensing board, Assam.
4. The NGR units will be treated as installed and commissioned successfully after successful

testing of the unit at OIL's field sites with available load and submission of all documents as per Para B.2 under "B. DOCUMENTS" of electrical specifications and supply of all spares as mentioned under Para "D. SPARES" of electrical specifications. G. GUARANTEE NGR and monitoring panel shall be guaranteed for 12 months after commissioning or 18 months after supply, whichever is earlier.	
Item No. 20 **Installation and Commissioning – 01 AU** 1. Installation and Commissioning of the NGR units shall be carried out by the supplier as per NEC, ISI, IE Rules (now superseded by CEA Rules) at OIL's field area around Duliajan, Assam (India). Services of qualified and competent personnel of supplier are essential during commissioning of the sets. All tools, instruments, test kits, drill machine, vice, hardware, clamps etc. required for the job shall be provided by the supplier. Operational tests of all devices including their settings shall also be carried out during commissioning job by the supplier. Accommodation and travel to site for supplier's all persons shall be arranged by supplier. 2. Party shall carry out all installation jobs which encompass all activities including placing and grouting of the NGR unit at the site, all cabling jobs including terminations at generator/transformer/busbar neutral, at the incoming end of NGR and outgoing end to earth electrode from the NGR, all earthing jobs installing of earth electrode, earthing of panels, making of earth pits (as per OIL design) and earth pit enclosure etc. OIL shall supply insulated cables, GI Straps, earth electrodes, lugs and glands and make road crossings with pipes, cable trenches as required for the complete installation and commissioning work. Any other item required for the job but not specified shall be supplied by party without any cost to OIL. 3. All working persons of the commissioning party shall possess valid electrical license issued by licensing board, Assam. 4. The NGR units will be treated as installed and commissioned successfully after successful testing of the unit at OIL's field sites with available load and submission of all documents as per Para B.2 under "B. DOCUMENTS" of electrical specifications and supply of all spares as mentioned under Para "D. SPARES" of electrical specifications	
Item No. 30 **Design, Engineering & Manufacture, Supply, Installation, Testing and Commissioning of Neutral Grounding Resistor (NGR panel) Panel with protection and monitoring facility for Barekuri QPS Expansion project – Qty = 02 NOS** **Item Description Same as Item No. 10**	
Item No. 40 **Installation and Commissioning – 01 AU** **Same as Item No. 20**	
Item No. 50 **Design, Engineering & Manufacture, Supply, Installation, Testing and Commissioning of Neutral Grounding Resistor (NGR panel) Panel with protection and monitoring facility for Hebeda OCS. – Qty = 02 Nos**	

APPLICATION AND DETAILED TECHNICAL SPECIFICATIONS

NGRs are used in industrial Power Systems for resistance grounding of star connected generators and transformers. NGR is connected between ground and neutral of transformers, generators, busbars and grounding transformers. NGR limits the faults current to value enough to operate protective relays, thereby preventing unwanted damage to the system.

CONSTRUCTION

The NGR unit shall consist of two parts: 1) the resistor grid enclosed in a metallic enclosure, and 2) the NGR monitoring system, enclosed in a separate panel.

1) Resistor and resistor enclosure

a) Resistor assembly

The resistive element/grid material shall be low temperature coefficient, resistor grade stainless steel, resistor grade 1JR (or Cu-Ni, Ni-Cr or Fechral) of sufficient mass to withstand the rated current and prescribed duty.

The resistive element/ resistor grid shall be made of unbreakable, corrosion proof jointless elements wire wound around a ceramic (or micanite) core supported on a through-rod.

The resistors shall be mounted in heavy gauge corrosion resistant support frames, using stainless-steel hardware. The entire resistor assembly shall be mounted and supported on glazed insulators rated for the system voltage. All resistor terminals and interconnections between resistor units shall be stainless-steel using stainless steel hardware including lock washers. High current connections shall be spot or TIG welded as appropriate. Connections between resistors and bushings shall be solid copper or stainless steel bars. The unit shall be designed to permit the expansion of supporting rods when submitted to high operating temperatures.

With lower quality resistance material (high temperature coefficient), the change in resistance value will be excessive. This may result in insufficient fault current to actuate the earth fault detection relay and the fault will stay on the system and eventually destroy the resistor and whatever distribution equipment it is protecting.

Resistor grid assembly mounting structure shall be properly supported to absorb vibration and stress during faults and transit.

Neutral cable shall be brought to one terminal of the NGR unit. The other end of the NGR unit shall be suitable for connection to ground through earth electrode. These end connections of the resistor unit will be brought out to terminal box or through top or side mounted high voltage bushings. Stand # off / support insulators shall be ceramic or epoxy resin cast.

The resistor grid shall be suitable for

Rated Voltage : 415/v3 Volts
Rated Current : 750 mA
Rated Resistance : 330 Ohms
Time Rating : 30 Sec.
Temperature Rise : 375 Deg. C.
Location : Indoor
Tolerance : + / - 10 %
Degree of Protection : IP #33
Applicable Standard : IEEE # 32: 1972

b) Resistor enclosure panel

Resistor grid assembly shall be housed in an enclosure made of heavy gauge sheet steel (= 2mm), self supporting and floor mounted, cubicle type, indoor, dust and vermin protected. Enclosure shall be supported on steel support channels, suitable for fixing with grouting bolts. Sheet steel shall be used on a rigid framework of suitably sized steel angles and channels, welded or bolted together with stainless-steel hardware. Front of the panel shall be hinged on the left side to serve as an inspection and service door, fitted with clamps and special non-deteriorating neoprene gaskets. Enclosure shall be provided with bolt-on louvered covers (fitted with fine wire mesh inside) on sides for circulation of air. The top of the enclosure shall be embossed with stiffening ribs. Lifting lugs shall be provided on the top of panels. Bottom shall be elevated to 4 to 6 inches above the base of the unit. Bottom shall be screened for maximum cooling of resistors. Suitable earthing studs are to be provided on two sides.

Protection rating of the enclosure shall be IP 42, using roof shaped louvers shielded with wire mesh (inside). A durable corrosion resistant nameplate permanently attached to one side cover shall show the manufacturer and the complete rating. Clear warning labels (danger, high voltage, earthing etc.) shall also be fixed at appropriate places.

Enclosures shall be suitably cleaned, primed and powder coated/ spray painted, colour of paint light gray to shade 631 as per IS: 5.

One strip type panel heater shall be installed in the resistor panel. The heater shall be provided with a adjustable setting thermostat.

Limiting Dimensions (L X B X H) = 600 mm x 500mm x 600 mm

2) NGR monitoring system

NGR MONITORING CONSIDERATIONS

Ground-fault protection, coordination, and annunciation systems depend on the integrity of the NGR. If the NGR fails, these systems become inoperative. In addition, an open NGR causes the system to become ungrounded and exposure to transient overvoltages is possible.

Monitoring of the NGR shall include the following considerations:

1) Monitoring the NGR connections to the neutral and to the ground bus- for continuity (as resistors are unlikely to fault on short circuit)
2) Monitoring the neutral/NGR current through a residual current CT provided in the NGR path
3) Monitoring the neutral-to-ground voltage
4) Audio- visual annunciation of ground fault and NGR fault

The NGR monitor shall measure changes in NGR resistance, current in the neutral and neutral-to-ground voltage. The NGR monitor shall coordinate these three measurements and operate output contacts when an NGR fault or a ground fault is detected. NGR monitor shall respond to fundamental-frequency current and voltage, and it is not influenced by harmonics.

The output contacts shall be used to operate alarms (buzzer) and visual annunciation devices. Potential free output contacts (minimum 02 pairs) shall also be provided for future use, such as tripping of main breakers etc.

Main components of the NGR monitoring system shall include, but not limited to, the following:

a) Monitor for Ground Fault & NGR (with band pass filter for frequencies other than 50 Hz)

b) Coupling device/sensing resistor for NGR Monitor
c) Residual current sensing C. T. for NGR Monitor
d) Output relay with sufficient nos. of potential free NO and NC contacts
e) Alarm indicator & operator panel with visual annunciation for NGR fault and ground fault and buzzer
f) Incoming 230/240 V, 50 Hz AC supply with sufficiently rated HRC fuse for power supply to monitor panel

NGR monitoring system shall be housed in an enclosure made of heavy gauge sheet steel (= 2mm), self supporting, cubicle type, indoor, dust and vermin protected. The enclosure shall be supported on steel support angles/channels, suitable for fixing (with nuts and bolts) on top of the NGR housing panel. At least 6 (six) inches gap shall be maintained between the top of the NGR housing and bottom plate of the NGR monitoring system panel, for maintaining air flow. Sheet steel shall be used on a rigid framework of suitably sized steel angles and channels, welded or bolted together with stainless-steel hardware.

Front of the monitoring panel shall be hinged on the left side for easy access to the components inside and fitted with clamps and special non-deteriorating neoprene gaskets. The top of the enclosure shall be slightly overhung and sloped. It shall be embossed with stiffening ribs. Lifting lugs shall be provided on the top of panels.
Suitable earthing studs are to be provided on two sides.
Protection rating of the enclosure shall be minimum IP 53. A durable corrosion resistant nameplate permanently attached to one side cover shall show the manufacturer and the complete rating. Clear warning labels (danger, high voltage, earthing etc.) shall also be fixed at appropriate places.
Enclosure shall be suitably cleaned, primed and powder coated/ spray painted, colour of paint light gray to shade 631 as per IS: 5.

The buzzer and indication lights/test/reset buttons shall be mounted on the front door. Suitable engraved, corrosion resistant legends shall be used for each component/function. Monitor windows for remote indicator alarm and operator panel will also be mounted on the door.

As the components of NGR monitoring system shall be wired up to the NGR, steel rigid conduits shall be used to run the signal cables from NGR to monitoring panel. It may be noted that residual current transformer (for sensing NGR current) and coupling device/sensing resistor may be required to be installed in the NGR panel for maximum effectiveness. Conversely, neutral cable shall be first routed through the monitoring panel and then to NGR.
In such a case, the monitoring panel shall be provided with suitable bushings/ terminal box (as given in the description for NGR panel) for termination of the neutral cable.

Elements connected to the NGR are subject to line-to-neutral ground-fault voltages and must be evaluated in all failure modes. Coupling devices must not transfer hazardous voltages to associated monitoring equipment.
Atmospheric electrical conditions, such as the presence of charged clouds, can affect an electrical substation feeding overhead lines. An NGR monitor used in this application must be immune to these conditions.

The measurements made by an NGR monitor can be useful when evaluating system problems. An analog signal can be used to provide local earth-leakage-current metering. An NGR monitor with a communications interface can allow data access with a local PC or with a network.
NGR Monitor panel Limiting Dimensions (L X B X H) = 600 mm x 500mm x 600 mm

Technical data for NGR monitoring panel components:

Components like NGR monitor, coupling device and current transformer shall be of one make only for compatibility, from either of the following manufacturers.

1) Bender, USA, 2) Startco, Canada, 3) i-Gard, Canada

a) Monitor:

(Model nos.: Bender- "RC48N" / Startco- "SE-330" / i-gard- "Sigma")
Supply voltage 230-250 VAC, 50 Hz
Response value, voltage measurement adjustable from 20 V to 400 V
Response value, residual current adjustable from 0.1 A to 10 A
Response delay adjustable 0.1 s to 2 s
Switching elements (alarm relay) 2 Form C contacts
Rated contact voltage AC 250 V / DC 300 V
Limited making capacity AC/DC 5 A
Switching elements (GFA, NRA) 1 N/O contact each
Rated contact voltage AC 250 V / DC 300 V
Limited making capacity AC/DC 5 A
Test of the electromagnetic compatibility (EMC)
Immunity according to IEC 62020
Emissions according to EN 50081
Emissions according to EN 55011/CISPR11 Class A

b) Coupling device/sensing resistor for NGR Monitor: As per manufacturer#s design and catalogue
c) Residual current sensing C. T. for NGR Monitor
Internal dia: >= 70 mm
Rated voltage: >800 V
Rated primary residual current: 10 A
Rated secondary residual current: 0.01 A
d) Output relay with sufficient nos. of potential free NO and NC contacts
The relay shall be used for initiating audio-visual alarm (or shutdown of the main breaker of generator or transformer). Relay shall be contactor type. No plug-in type relay shall be used.
The make of the relay shall be Telemecanique (model TeSys, D or K model)/ GE / Siemens
e) Alarm indicator & operator panel with visual annunciation for NGR fault and Ground fault and buzzer
Suitable alarm indicator and operator panel with LED indication lamps for Ground fault and NGR fault annunciation and push buttons for test and reset functions along with buzzer shall be installed in the monitor panel.
Visual annunciation for NGR fault and ground fault will be through LEDs (labeled "NGR Fault" and "Ground Fault").
LEDs shall be of suitable voltage, size 22.5 mm. Make-Siemens/ L&T/ BCH/ Binay/ Telemecanique.
Audio annunciation will be through a buzzer mounted inside the monitor panel. Buzzer shall be suitably rated for continuous duty. Buzzer supply shall be of suitable AC voltage. Make-Siemens/Schneider/BCH/L & T.
LEDs and Buzzer shall be mounted on the front door of the monitor panel. Test and reset buttons on the front door of monitor panel shall be provided for testing of the NGR and GFA

test circuits from the NGR monitor.
Test and reset buttons make-Siemens/Schneider/BCH/L & T.
Reset button will silence the buzzer, but the LEDs will remain on till the time fault is detected and cleared.
The indication LEDs and test and reset push buttons on the front door shall be in addition and external to the G/F & NGR monitor (which may have these functions built-in).
f) Incoming 230/240 V, 50 Hz AC supply with HRC fusebase and link for power supply to monitor panel
Power supply to the monitor panel shall be through suitably rated HRC fuse link, MCB and transformers (if required to step down to the voltage level of monitor panel components supply). Separate circuits through fuses shall be used for the monitor and audio-visual annunciation panel.
Moulded HRC fuse holders with suitably rated fuse links; make- GE/Telemecanique. MCB make: Legrand, Telemecanique, Havells. Control transformer make: AE/L&T/Kappa.

Separate isolation fuse link and an MCB shall be provided for switching power supply to NGR space heater. Space heater shall be controlled through an adjustable thermostat.

3) General:
a) Control wiring shall be done with 1.5 sqmm, flexible copper, 1100 V grade PVC insulated wires approved by ISI, TAC, FIA. All wiring will have tinned copper lugs & terminal blocks as required. Wiring for the residual current CT shall be done with 2.5 sqmm, flexible copper, 1100 V grade PVC insulated wires approved by ISI, TAC, FIA & have copper lugs. Colour code for wires shall be followed as per IS. Ferrules shall be provided for identification of cables. Make of cables: Finolex, Havells, L&T.
b) All components shall be labeled for easy identification with metallic embossed identification tags.
c) Panels shall be duly tested as per IS: 8623 at manufacturer's works and routine test certificate shall be submitted at the time of final inspection.

B. DOCUMENTS
1. The following Documents / drawings shall be submitted with the offer:
a) GA drawing of the NGR with enclosure and NGR monitoring panel
b) Technical literature of NGR and NGR monitoring system
c) Confirmation that the party agrees to all the points mentioned under electrical specification of the NGR system in Part "A". Any deviation from the electrical specifications of the tender will be specifically mentioned by the party with proper justification. Acceptance of deviations shall be at discretion of OIL. Type and make of components shall be as per tender. Equivalent make shall not be acceptable.

Party shall also specifically confirm even if there is no deviation in their offer from technical specifications.

2. The successful bidder shall obtain approval for the following drawings / documents prior to manufacturing of panels within 30 days of placement of order:
a) Documentary evidence from the manufacturer/s of NGR and NGR monitoring system (if separately procured) confirming that the system supplied will meet all specifications as mentioned in the order.
b) Detailed GA drawings for NGR, NGR enclosure and monitoring panel
c) Detailed power & control wiring diagram
d) Component layout drawing showing all components

e) Bill of materials of all components.

3. Three sets per NGR system of following documents shall be submitted in bound form:
a) As built final GA drawings
b) As built detailed power & control wiring diagram
c) Scheme and component layout plan of the unit showing all parts/components
d) Bill of materials of all components
e) Technical literature/catalogues of NGR and components of NGR monitoring panel
f) O&M manual for NGR and Monitoring panel.
g) All test certificates from manufacturers of the NGR as well as NGR monitoring system for tests carried out to establish compliance with the declared parameters.
h) Guarantee certificate for alternator and control panel. Guarantee shall be for 12 months after commissioning of Gen set or 18 months after supply, whichever is earlier.

C. GENERAL NOTES FOR ELECTRICAL ITEMS AND WORKS:
1. In case of an order the complete electrical specification as mentioned in the tender shall be mentioned in the order. However, deviations from tender specifications, if mentioned by bidder in their offer and if accepted by OIL in writing, shall also be mentioned in the order.
2. In the event of an order the bidder will submit all documents as per Para B.1 under "B. DOCUMENTS" for OIL's approval.
3. The manufacture of the unit shall start only after written approval of the drawings/ documents (as per Para B.1) by OIL.
4. In case party cannot submit documents complying with all points mentioned in the order the order will be cancelled without any obligation on part of OIL.
5. The NGR units will be treated as installed and commissioned successfully after successful testing of the unit at OIL's field sites with available load and submission of all documents as per Para B.2 under "B. DOCUMENTS" of electrical specifications and supply of all spares as mentioned under Para "D. SPARES" of electrical specifications.

D. SPARES
Following spares shall be supplied by the party along with the NGR units. The cost of these spares may suitably be adjusted with the cost of NGR units.

1. Monitor for Ground Fault & NGR- 01 (one) no.
2. Coupling device/sensing resistor for NGR Monitor- 01 (one) no.
3. Residual current sensing C. T. for NGR Monitor - 01 (one) no.
4. Output relay with NO and NC contacts- 02 (two) nos.
5. Colour LEDs (complete) set for "NGR Fault" and "Ground Fault" indication- 02 (two) nos. each

E. INSPECTION AND TESTING
All the routine tests of the NGR monitor and NGR monitoring panel shall be witnessed by OIL engineers at manufacturer's works. The routine test will include the following minimum tests/measurements: -
1. 1. Physical checks & Operation check of all components
2. 2. HV test of monitoring panel
3. 3. Insulation tests (before and after HV tests).

Intimation for inspection for each item must be sent to OIL at least 30 days in advance.
Any modification suggested during inspection, to comply with order specs, shall be carried out by supplier at no additional cost. Supplier shall affect dispatch of the unit to OIL, Duliajan only

on receipt of OIL's dispatch advice. F. COMMISSIONING 1. Installation and Commissioning of the NGR units shall be carried out by the supplier as per NEC, ISI, IE Rules (now superseded by CEA Rules) at OIL's field area around Duliajan, Assam (India). Services of qualified and competent personnel of supplier are essential during commissioning of the sets. All tools, instruments, test kits, drill machine, vice, hardware, clamps etc. required for the job shall be provided by the supplier. Operational tests of all devices including their settings shall also be carried out during commissioning job by the supplier. Accommodation and travel to site for supplier's all persons shall be arranged by supplier. 2. Party shall carry out all installation jobs which encompass all activities including placing and grouting of the NGR unit at the site, all cabling jobs including terminations at generator/transformer/busbar neutral, at the incoming end of NGR and outgoing end to earth electrode from the NGR, all earthing jobs installing of earth electrode, earthing of panels, making of earth pits (as per OIL design) and earth pit enclosure etc. OIL shall supply insulated cables, GI Straps, earth electrodes, lugs and glands and make road crossings with pipes, cable trenches as required for the complete installation and commissioning work. Any other item required for the job but not specified shall be supplied by party without any cost to OIL. 3. All working persons of the commissioning party shall possess valid electrical license issued by licensing board, Assam. 4. The NGR units will be treated as installed and commissioned successfully after successful testing of the unit at OIL's field sites with available load and submission of all documents as per Para B.2 under "B. DOCUMENTS" of electrical specifications and supply of all spares as mentioned under Para "D. SPARES" of electrical specifications. G. GUARANTEE NGR and monitoring panel shall be guaranteed for 12 months after commissioning or 18 months after supply, whichever is earlier.	
Item No. 60 **Installation and Commissioning – 01 AU** **Same as Item No. 20**	

Special Note (For All Items)

1. Bidder must be an OEM (NGR panel designer & manufacturer) or an authorized agent/dealer of the manufacturer. Bidders shall submit credentials in support of their supplying and commissioning of similar NGR panel units (minimum 05 nos.) to reputed national/ international PSUs/companies. Authorized agent/ dealer shall submit valid authorization/ dealership certificate along with the bid. Bids unaccompanied with the relevant credentials will be rejected.

As the panel housing NGR panel and protection circuits are to be chemically treated and powder coated, bidder shall also submit credentials establishing availability of minimum Seven Tank Chemical Treatment plant, powder coating facilities and oven for finishing at the manufacturer's work-s.

2. NGR panel shall be installed and commissioned by the supplier at OIL's designated places in Kathalguri New Mud Plant, Barekuri QPS & Hebeda OCS. Supplier will be intimated two weeks in advance for commissioning.

Board, lodging and transportation of commissioning personnel will be in the scope of the supplier. Bidder shall quote commissioning charges separately.
All necessary manpower, tools and tackles, instruments etc. shall be in the scope of the supplier.
3. Detailed dimensional/GA and layout drawings of the offered NGR panel, single line diagram, indicative wiring diagram, Bill of Materials and datasheets/catalogues of all the components used in the NGR panel shall be submitted by the bidder along with the technical quotation (as per "B.1 DOCUMENTS") for scrutiny. In the event of an order, successful bidder shall submit fresh sets of drawings, which shall be approved by OIL before actual assembly/ manufacturing of the NGR panel.

4. Offered NGR and NGR monitoring panel must be new and in unused condition. No reconstructed/ rebuilt panel will be acceptable.

5. Components used in the NGR and NGR monitoring panel shall be of reputed make and easily available. Bidder shall submit Bill of Materials (including any additional item to the item list given in the detailed description, if considered essential). Bidder shall also supply all commissioning spares essential for installation and commissioning of the NGR and NGR monitoring panel at the designated site of OIL.

6. Spares as per Para "D. SPARES" in the technical specifications shall be supplied by the party along with the NGR units. The cost of these spares may suitably be adjusted with the cost of NGR units.

7. Bidder shall mention any deviations or other items/ points not indicated /included in the specifications but deemed necessary for design, Installation and commissioning, efficient control and operation of the NGR and NGR monitoring panel.

8. On arrival of the NGR and NGR monitoring panel and other materials (commissioning spares etc.) at OIL's premises at Duliajan and subsequent intimation by OIL, the supplier shall carry out inspection of the supplied items to ascertain/certify that there is no transit damage and items are complete in all respect and ready for installation. The party/supplier shall inspect within 15 days from OIL's date of intimation.

9. OIL representatives shall carry out pre-despatch inspection of NGR and NGR monitoring panel and witness all necessary testing at manufacturer's works. Bidders shall separately quote charges towards inspection and witness test, if any. [To and fro charges of OIL's personnel to manufacturer's works will be to OIL's account]. However inspection will be at OIL's discretion.

10. Routine Test certificates/reports for the NGR and NGR monitoring panel as per relevant standards shall be submitted at the time of final inspection by OIL's representative failing which despatch clearance will not be given.

11. NGR and NGR monitoring panel shall be guaranteed for 12 (twelve) months from the date of commissioning or 18 (eighteen) months from the date of supply whichever is earlier.

12. Supplier shall submit "As-Built" drawings and other related documents including technical literature (as per "B.3 DOCUMENTS", 3 sets each for each NGR unit) for the NGR and NGR monitoring panel (after final assembly and commissioning at site) before handing over the same to OIL.

13. Packing shall be done properly to avoid transit damage and water/ moisture ingress.

14. The NGR and NGR monitoring panel will be used in the NELP/PEL/ML areas of OIL.

15. Bidders should submit their bids (preferably in tabular form) explicitly mentioning compliance / non compliance to all the NIT terms and conditions of NIT.

Bidders Response Sheet **Annexure-FFF**

Tender No.	
Bidders Name	

Sl No.	Description	Remarks
1	Name of Bidder	
2	Whether tender document purchased from OIL's offices.	
3	Place of Despatch	
4	Whether Freight charges have been included in your quoted prices	
5	Whether Insurance charges have been included in your quoted prices	
6	Make of quoted Product	
7	Offered Validity of Bid as per NIT	
8	Delivery Period in weeks from placement of order	
9	Complied to Standard Payment Terms of OIL or not.	
10	Bid Security Submitted (if applicable)	
11	Details of Bid Security Submitted to OIL (if applicable)	
	a) Bid Security Amount (In Rs):	
	b) Bid Security Valid upto:	
	c) Name and Full Address of Issuing Bank:	
12	Confirm that the Bid Security submitted (In case of Bank Guarantee) is in toto as per format provided in the tender.	
13	Bid Security if Not submitted reasons thereof	
14	Whether you shall submit Performance Security in the event of placement of order on you (if applicable)	
15	Integrity Pact Submitted (if applicable)	
16	Confirm that the Integrity Pact submitted is in toto as per format provided in the tender.	
17	Whether submitted documents in support of General Qualification criteria of NIT	
18	If bidder is Small scale unit whether you have quoted your own product	
19	If bidder is Small scale unit whether you are eligible for purchase preference (as per Govt guideliness)	
20	Whether filled up the bank details for online payment as per Annexure GGG	

NOTE: Please fill up the greyed cells only.

Technical Bid Checklist **Annexure-EEE**

Tender No.	
Bidder's Name :	

		Compliance by Bidder	
SL. NO.	**BEC / TENDER REQUIREMENTS**	Indicate 'Confirmed' / 'Not Confirmed' / Not applicable	Indicate Corresponding page ref. of unpriced bid or Comments
1	**Bidder to confirm that he has not taken any exception/deviations to the bid document .**		
2	**Confirm that the product offered strictly conform to the technical specifications.**		
3	**Confirm that the Offer has been made with Bid Bond / Bank Guarantee / Earnest Money along with the offer (Wherever Applicable) ?**		
4	**Confirm unconditional validity of the bid for 120 days from the date of opening of techno-commercial bid.**		
5	**Confirm that the prices offered are firm and / or without any qualifications?**		
6	**Confirm that all relevant fields in the on-line biding format been filled in by the bidders for the items quoted by them.**		
7	**Confirm that the the price bid is in conformity with OIL's online bidding format ?**		
8	**Confirm that the Bid comply with all the terms & conditions ?**		
9	**Confirm that the offers and all attached documents are digitally signed using digital signatures issued by an acceptable Certifying Authority (CA) as per Indian IT Act 2000.**		
10	**CONFIRM THAT YOU HAVE SUBMITTED THE DULY SIGNED INTEGRITY PACT DOCUMENT (Wherever Applicable)**		
11	**CONFIRM THAT YOU HAVE SHALL SUBMIT PERFORMANCE BANK GUARANTEE AS PER NIT IN THE EVENT OF PLACEMENT OF ORDER ON YOU (Wherever Applicable)**		
12	**CONFIRM THAT YOU HAVE SUBMITTED DOCUMENTS AS PER GENERAL QUALIFICATION CRITERIA**		

NOTE: Please fill up the greyed cells only.

ANNEXURE - GGG

(TO BE FILLED UP BY ALL THE VENDOR IN THEIR OWN LETER HEAD)
(ALL FIELDS ARE MANDATORY)

Tender No.	**:……**
Name of Beneficiary	**:M/s……**
Vendor Code	**:……...**
Address	**:..…….**
	..……..
Phone No. (Land Line)	**:..…….**
Mobile No.	**:..…….**
E-mail address	**:..…….**
Bank Account No. (Minimum	
Eleven Digit No.)	**:..…….**
Bank Name	**:..…….**
Branch	**:..…….**
Complete Address of your	**:..…….**
Bank	**:..…….**
IFSC Code of your Bank	
a) RTGS	**:……...**
b) NEFT	**:……...**
PAN	**:……...**
VAT Registration No.	**:……...**
CST Registration No.	**:……...**
Service Tax Registration No.	**:……...**
Provident Fund Registration	**:……...**

I/We confirm and agree that all payments due to me/us from Oil India Limited can be remitted to our above mentioned account directly and we shall not hold Oil India Limited responsible if the amount due from Oil India Limited is remitted to wrong account due to incorrect details furnished by us.

……

Office Seal **Signature of Vendor**

Counter Signed by Banker:
Seal of Bank:

Enclosure: Self attested photocopies of the following documents-

1) **PAN Card**
2) **VAT Registration Certificate**
3) **Service Tax Registration**
4) **CST Registration**
5) **Provident Registration Certificate**
6) **Cancelled cheque of the bank account mentioned above (in original).**
7) **Bank Statement not older than 15 days on the date of submission.**