OIL INDIA LIMITED
(A Govt. Of India Enterprise) Tel :033 2230 1657, 1658
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Kolkata-700001 E-mail :oilcalmn@oilindia.in

Tender No. & Date : KID8689L16/03 24.09.2015

Bid Security Amount : INR 0.00 OR USD 0.00
(or equivalent Amount in any currency)

Bidding Type : Single Bid (Composite Bid)

Bid Closing On : 03.11.2015 at 14:00 hrs. (IST)
Bid Opening On : 03.11.2015 at 14:00 hrs. (IST)

Performance Guarantee : Not Applicable

OIL INDIA LIMITED invites Limited tenders for items detailed below:

Item No./ Mat. Code	Material Description	Quantity	UOM
10 0C000242	**SUPPLY AND INSTALLATION & COMMISSIONING OF 40 KVA DIESEL ENGINE DRIVEN GENERATING SET AT DIROI HOUSE, KOLKATA** 40 KVA DIESEL ENGINE DRIVEN ACOUSTIC GENERATING SET SPECIFICATIONS GIVEN AS PER ANNEXURE A1 ENCLOSED.	1	NO
	INSTALLATION & COMMISSIONING		
10	INSTALLATION & COMMISSIONING	1	AU

Special Notes : SAFETY POINT : Bidder engaging the person for commissioning of the Generating Set should have valid electrician licence from competent Authority, copy of which is to be enclosed with the offier.

1. INSPECTION AND TEST:

a) The plant and materials may be subjected for inspection during manufacture at the purchaser#s discretion but such inspection shall not relieve the supplier of his responsibility to ensure that the equipment supplied is free from all manufacturing and other defects and conform to correct specifications. The supplier will be notified in advance, if it is intended to inspect plant or material.
b) Pre dispatch inspection of the sets shall be carried out by us at the works of manufacture. Load testing of the generator sets for output and performance shall be carried out in presence of the purchaser or his representative appointed for the purpose and to his satisfaction. If natural gas to run the engine for load testing is not available at manufacturer's works, the generating set must be tested at purchaser's premises and accordingly supplier to depute service engineer to commission the set at purchaser's premise.The purchaser, in such case, will provide fuel gas and arrangement for loading the generator. All other appliances, apparatus, labor etc. necessary for the tests shall have to be provided by the supplier at his cost.
c) The generating set shall be acceptable to the purchaser only after satisfactory load test.

2. TEST CERTIFICATES :
The supplier shall submit detailed records and certificates of the foregoing tests to the purchaser. The certificates/records shall be supplied in quadruplicate and those for electrical

equipment shall be endorsed # suitable for use in the climatic conditions specified # . Supplier should also certify that spark plug cables are protected and possibility of spark is completely eliminated.

3. PACKING :

The packing shall be sufficiently robust to withstand rough handling. Boxes/packing cases containing electrical equipment shall be water proof lined. All the matters on the control panel should be packed separately for mounting at site or mounted in such a manner to prevent transit damage.

4. INSTALLATION , COMMISSIONING, TESTING AND HANDING OVER :

Installation and Commissioning of the generating set and control panels shall be carried out by the bidder in the presence of OIL representatives at its fields at Duliajan, Assam (India). Services of qualified and competent personnel from equipment manufacturer is essential during installation and commissioning of the generating sets. Persons engaged for installation, testing and commissioning of alternator and control panel should have valid electrical license issued by State Licensing Board.. A person who is authorized for supervision of all electrical works should have valid supervisory license. Materials such as line pipes, fittings necessary for fabricating fuel/ water lines, supports for engine exhaust shall be provided by OIL . However bidder has to arrange welding and cutting facilities that may be required during installation and commissioning the generating sets. OIL will provide necessary statutory permits for welding and cutting jobs in classified areas as and when required.

Installation / commissioning charges should be quoted separately which shall be considered for evaluation of the offers. These charges should included amongst others to and from fares, boarding/ lodging and other expenses of the commissioning engineers during their stay at Duliajan, Assam (India). All Personal, Income and Service Tax etc. towards the services provided by the supplier shall be borne by the supplier and will be deducted at source. Bidders should also confirm about installation/ commissioning in the Technical Bid.

Note : Once commissioned at designated site the generating set will be subjected to a trial run (reliability run) on available load for a minimum period of 72 hrs continuously and on satisfactory performance shall be subsequently handed over to OIL.

5. RESPONSIBILITY:

The responsibility for performance to the specifications shall not be divided among individual component manufacturers, but must be assumed solely by the primary manufacturer. This includes generating system design, manufacture, test, and having a local supplier responsible for service, parts and warranty for the total system.

6.AFTER SALES SERVICE :

The nature of after sales service, which can be provided by the supplier, during initial erection and commissioning as also subsequent operation should be clearly stated in the quotation.

7. SERVICE AND WARRANTY :

(i) The manufacturer shall have a local authorized dealer who can provide factory trained servicemen, the required stock of replacement parts, technical assistance, and warranty administration.

(ii) The manufacturer's authorized dealer shall have a parts and service facility within 300 km of the jobsite.

(iii) The generator set supplier shall have factory trained service representatives and tooling necessary to install and commission all provided equipment.

The warranty period for the Gen set and ancillary equipment should be a minimum of 18 months from the date of dispatch/ shipment or 12 months from the date of commissioning of the equipment whichever is earlier. Any defects in the Engine or Alternator during warranty period shall be replaced by the supplier at his cost without any extra charge to OIL

iv)The bidder must undertake and confirm from OEMs that the equipment to be supplied are not going to become obsolete for the next 10 years and provisioning of spares can be continued.

8. BID REJECTION CRITERIA (TECHNICAL)

The bids must conform to the specifications and terms and conditions given in the enquiry. Bid shall be rejected in case the items(s) offered do not conform to the required minimum / maximum parameters stipulated in the technical specifications and to the respective international / national standards wherever stipulated. Notwithstanding the general conformity of the bids to the stipulated specifications and terms and conditions, the following requirements shall have to be particularly met by the bidders, without which the offer will be considered as non-responsive and rejected.

i) The diesel engine should be a four stroke, naturally aspirated , radiator cooled engine, conforming to ISO 3046 / BS 5514 / IS 10000 standards and capable of developing a net minimum of 63HP at 1500 rpm with a maximum compression ratio of 10.5 : 1.

ii) The Alternator must be brushless type

iii) Bidders should have the experience of successfully completing at least one order having order value for at least Rs. 1,89,300.00 in the last 3(three) years as on the bid closing date of this enquiry against supply, installation, commissioning and testing of Diesel Engine driven Generating set of capacity minimum 10 KVA or above along with the Control Panels and accessories in PSUs, Central Govt. or any other reputed Company. Documentary evidence in this regard must be provided along with the quotation failing which offer will be rejected.

iv) Bidder should be an OEM or authorized dealer of OEM for the engine, alternator, the complete generating set an OEM approved assembler of generating set or his authorized representative .

v) If the bidder is an OEM of engine or their authorized dealer then he must purchase the Alternator from OEM of Alternator or their authorized dealer and vice versa and necessary documentary certificates from the OEM must be submitted along with the offer.

vi) If the bidder is an OEM approved assembler of generating set, he must purchase the engine and the Alternator from OEM or their authorized dealers. Documentary evidence in this regard must be enclosed with the offer failing which offer will be rejected.

9. BID REJECTION CRITERIA (COMMERCIAL) :

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

ii) The annua; tirmover in any of the last 3 (three) financial years or current financial year should nopt be less than Rs. 6,31,000.00.

Note : For proof a Annual Turnover, any of the following documents / photocopies (self attested / attested) must be submitted along with the bid:-

a) A certificate issued by a practicing Chartered / Cost Accounts Firm with membership No. and Firm's registration no certifying the Average Annual Turnover and nature of business.

or

b) Audited balance sheet and profit & loss account.

iii) Bids received after the bid closing date and time will be rejected.

iv) **Validity of the bid shall be minimum 75 days from the Bid Closing Date. Bids with**

lesser validuity will be rejected.

v) Bids containing incorrect statement will be rejected.

Tender No. : **KID8689L16/03**
Tender Date : **24.09.2015**
Bid Closing On : **03.11.2015 at 14:00 hrs.(IST)**
Bid Opening On : **03.11.2015 at 14:00 hrs.(IST)**

Tender issued to following parties only:

Slno	V_Code	Vendor Name	City/Country
1	200211	STEEL & INDUSTRIAL STORES	ASSAM
2	200243	SHEW MACHINERY STORES	TINSUKIA
3	200392	RAVI BROTHERS	GUWAHATI
4	200591	BERRY GENERATORS PVT LTD	JALANDHAR
5	200662	DASSANI ELECTRA (P) LTD	KOLKATA
6	200838	INDUSTRIAL TRADE & AGENCIES	GUWAHATI
7	200854	JAKSON ENGINEERS LTD	NOIDA
8	200856	JEEVAN DIESELS	KOLKATA
9	202039	SAURAV AUTO PRIVATE LIMITED	GUWAHATI
10	202745	WATERTECH ENGINEERS PVT. LTD.	KOLKATA
11	202941	SACHIN SALES & SERVICE PVT LTD,	GUWAHATI
12	203032	DATRE CORPORATION LTD.	KOLKATA
13	203033	RHINO INDUSTRIAL EQUIPMENTS,	GUWAHATI
14	203382	TECHNOCON SERVICES	KOLKATA
15	203524	ACC LIMITED	GUWAHATI
16	203968	WESTERN CONSOLIDATED PVT LTD.	KOLKATA
17	205335	INDUSTRIAL TRADE & AGENCIES	TINSUKIA
18	209114	SOHUM INDUSTRIAL SALES CORP	KOLKATA
19	211146	FORTUNE IMPEX	KOLKATA

NOTICE

Other than the vendors to whom the enquiry has been issued, interested vendors who wish to participate in the tender may apply with proper credentials and other relevant details so as to reach Head-Calcutta Branch, Oil India Limited , ICC Building, 4th Floor, 4 India Exchange Place, Kolkata - 700001, West Bengal (E-mail : oilcalmn@oilindia.in , Fax : 033-22302596) within 10 days of publication of the tender in OIL's website.

The vendors must fulfill the following conditions :

i) The party should have three year's experience for the same item.
ii) The party should have received one order for at least 50% quantity in last three years for the item from any reputed firm.
iii) Annual turnover of the firm in any of the last three financial years or current financial year should be more than Rs 6.31 lakhs.

NOTE :i) Relevant documents in support of experience, last order and annual turnover must be submitted along with the application.

ii) Application without complete supporting document will not be considered.

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KID 8689L16/03 OF 24.09.2015 ANNEXURE = A1

SUPPLY AND INSTALLATION & COMMISSIONING OF 40 KVA DIESEL ENGINE DRIVEN GENERATING SET AT DIROI HOUSE, KOLKATA

40 KVA DIESEL ENGINE DRIVEN ACOUSTIC GENERATING SET

40 KVA, 3 Phase, 415 Volts, 50 Hz, 0.8 Power Factor, 1500 R.P.M. Electric Start Diesel Generating Set under N.T.P. conditions having Engine and Alternator directly coupled to each other through a Tyre Flex or equivalent make flexible coupling suitably Guarded. The 40 KVA DG set should comprise in Acoustic Enclosure (ARAI, Pune/ NPL, New Delhi/ NSTL, Visakapatnam/ FCRI, Palghat / NAL, Bangalore approved) mounted on to common base frame.

1.0 PRIME MOVER (DIESEL ENGINE):

The prime mover should be a Multi cylinder four Stroke cycle naturally aspirated Air Cooled, vertical, in-line Diesel Engine developing Horse Power in the range of 50 to 55 H.P for Prime Duty (Output available with varying load for an unlimited time) with an overload capacity of 10% for a period not exceeding One Hour in any 12 hours running when running at 1500 R.P.M. as per site conditions given below and shall conform to specifications IS:10000/BS:5514 and rated The Governing is to be in accordance with Class A-2 specifications to IS:10000 / BS: 5514.

Maximum Temperature : 45 Deg.C
Minimum Temperature : 5 Deg.C
Maximum Relative Humidity at 21 Deg C : 100 %
at 35 Deg C : 95 %
at 41 Deg C : 70%
Maximum Altitude above mean Sea Level : 150M
HSD conforming to IS: 1593:1982.

The Engine shall comprise of the following system:

A) Cooling System: The Cooling System of the air cooled engine should comprise of Belt/ Pulley Driven Blower Fan Assembly.

B) Air Intake System: The Air Intake System should comprise of: Heavy duty Oil Bath type Air Cleaner and Air intake manifold.

C) Starting System: The Starting System should comprise of Maintenance Free Battery of Reputed Make, Engine mounted Battery charging Alternator (Make: LUCASTVS). 12 Volt Starter (Make: LUCAS TVS/ DELCO REMY) and Starting ring fitted to the Engine Flywheel. Batteries shall be maintenance free, lead acid type mounted near the alternator. Batteries should be housed in a hard rubber or polypropylene case with provision for venting. Required cables should be furnished and sized to satisfy circuit requirements.

D) Exhaust System: The Exhaust System should comprise of: Exhaust Manifold, Stainless steel Exhaust Flexible connection, Exhaust Silencer, Spark Arrestor and associated Piping connections with proper clamping arrangement.

E) Fuel System: The Fuel System should comprise of Mechanical Governor, Fuel Injectors, Fuel Pump, Fuel Filter Assembly, Fuel lines and Fuel Tank having storage capacity to meet the Fuel requirements of 12 hours of full load operations.

F) Lubricating System: The Lubricating System should comprise of Gear driven lubricating Oil Pump. Lubricating Oil Filter with a replaceable Filter Element. Lubricating Oil Cooler, Lubricating Oil Pan, Oil level dipstick and Crankcase breather.

G) Instrument Panel: The instrument Panel should include the following:

i) Lubricating oil pressure gauge
ii) Lubricating oil temperature gauge
iii)Starting Switch
iv) Digital/Mechanical Tachometer and Hour Meter
v) Ammeter
vi) Engine Low Lube Oil Pressure indication display red lamp

H) Engine Safety Controls: Safety shut off/trip system for tripping the Engine in the event of:

i) Low Lubricating oil pressure
ii) Engine over speed
I) Other Features should be as under
i) Flywheel
ii) Flexible Coupling
iii)Lifting eyes
iv) Standard Guards over Belt Drives (Blower Fan Drive, charging Alternator drives pulley and flexible coupling).
v) Standard Painting
vi) SAE standard rotation

1.1 GENERAL NOTES ON ENGINE :

a) The bidder should submit the following information along with relevant performance rating curves and engine product catalogues.
i) Gross HP developed at rated RPM
ii) Deduction of blower fan, charging alternator and other ancillary equipment
iii) Net HP developed at rated RPM
iv) Fuel consumption at rated power as 110%, 75%, and 50% of rated load.

b) The set should be ready for operation after carrying out initial servicing and making provision for fuel.

c) The engine and alternator should be mounted on suitably selected and sized Anti vibration Mounting onto a common skid and coupled to each other through a flexible coupling to make the DG set vibration free.

d) Make : CUMMINS/CATERPILLER/GREAVES/KIRLOSKAR/WAUKESHA

2.0 SPECIFICATION OF ALTERNATOR :

1) Make : KIRLOSKAR / NGEF / STAMFORD/CROMPTON GREAVES

2) Rated Output : 40 KVA continuous rating at 0.8 PF at Specified ambient conditions for Motor loads conditions for Motor loads

3) Rated Voltage : 415 Volts ± 5%

4) Armature Winding : 3 Phase, 4 wire type

5) Rated Frequency : 50 Hz ± 3%

6) Rated power factor : 0.8 lagging

7) Class of insulation:Class F/H but temp rise limited to class B

8) RPM : 1500

9) Phase sequence : UVW - phase sequence and direction of rotation shall be clearly marked on the alternator.

10) Duty/load : Continuous base load duty for
Motor Loads

11) Winding Connection : Y connected

12) Ambient :Min- 5 ºC Max- 40 ºC, RH 95% max

13) Alternators Enclosure Protection : IP 23

14) Alternators Terminal Box Protectio: IP 54

15) Excitation syste : Brush less, self excited and self
Regulated with solid state AVR

16) Mounting: Foot mounted on Gen set skid that has been mounted on anti vibration pad.

17)Permissible voltage variatio: ± 2 % at rated speed,load and power factor

18)Permissible frequency variation :Generator should be able to
give rated output at 2 % variation in rated frequency

19)Frame size : Bidder to confirm

20) Motor starting ability : 200 to 250% of FLC for 10 sec
with max. 10%. Voltage dip

21)Unbalanced current : Max. 20 % of FLC

22)Short circuit current: Max. 3 to 4 times of FLC for 3 sec.

23)Cooling : Air cooled by integral fan

24)The brush less alternator shall have exciter and rotating rectifier-bridge mounted on shaft complete with diodes and surge suppressor, main field windings and stator windings. PIV of exciter diodes must be 800v or 8 times the maximum exciter armature operating voltage, whichever is higher. At nominal speed the excitation system must produce sufficient residual voltage in order to ensure self excitation.

25) All windings should be made from electrolytic grade copper of high purity.

26) The alternator shaft shall be supported on rolling element bearings at NDE.

27) Voltage swing (Transient response) when rated load is suddenly switched on should be maximum10 % with 0.2 to 0.7 sec (Recovery time). Automatic voltage regulation shall be ± 0.5 % to ± 1.0 % from no load to full load.

28) The alternator should be capable of sustaining a 10 % over load for one hour in any 12 hours operation.

29) The alternator should be capable of continuous operation at 110 % of rated voltage.

30) Total voltage harmonic distortion should be less than 3 % between phases at no load.

31) The alternator should be capable of withstanding 1.2 times the rated speed for two minutes without any damage.

32) Alternator stator winding terminals are to be connected to 4 nos. of suitably rated tinned copper terminals supported on SMC/GRP supports inside the alternator terminal box.

33) The alternator terminal box should be of suitable size and should be suitable for terminating one no. 4X 16 sq.mm PVC insulated and PVC sheathed, 1100V grade, armoured, stranded conductor copper cable approved by IS-1554. Separate cable box shall be provided for supporting power cable. Suitable size of heavy duty single compression cable gland should be fitted in the cable box. Cable gland and entry hole shall also be required for AVR cables as AVR shall be mounted in the control panel.

34) 2 nos. of earth points are to be provided on both sides of the alternator.

35) Lifting hooks are to be provided for lifting the alternator.

36) Automatic voltage regulator should be mounted in the control panel with approved rubber bushes under AVR mounting holes to reduce vibration. AVR should have under speed, over excitation protection features with LED display. AVR shall be suitable for motor loads.

37) Alternator windings and AVR should be suitable for humid atmosphere as per ambient conditions mentioned in the enquiry.

38. Bidder to mention the following information in offer

i. Unbalanced current carrying capacity
ii. Efficiency of the alternator at 25 %, 50 %, 70 % and 100 % load.
iii. Power factor of the alternator at 25 %, 50 %, 70 % and 100 % load.
iv. Motor starting capability.
v. Dimensional drawings.

39. Alternator frame and enclosure shall be made from MS or Cast steel.

40. The max. vibration of the alternator should not be more than 4.5 mm/Sec (rms) at full load.

41. The alternator shall conform to the following standards:
IS : 12065 Noise limit
IS : 12075 Vibration
IS : 4722 Governing Standards
IS : 4691 Enclosure Protection
IS : 6362 Cooling
IS : 2253 Mounting
IS : 13364 Specification of Alternator coupled with IC Engines

3.0 SPECIFICATION OF CONTROL PANEL :

Sheet steel clad, self supporting, floor mounting, cubicle type, dust and vermin proof generating set control panel made of 2mm thick MS CRCA sheet and built upon rigid framework of 3.15mm thick sheet, having front and rear hinged doors with danger plate fitted on both sides, lifting lugs on top, ventilation louvers on both sides, bottom detachable gland plates, double earthing studs on two sides, complete with suitably sized zinc passivated hard wares with heavy plain and spring washers. The panel doors

should have neoprene rubber gasket. The panel should be designed and manufactured as per IS-8623. The panel enclosure will be as per IP54 except for the open part of cooling louvers at bottom and top of the panel sides. Suitable wire mesh should be provided on the inner side of the louvers to prevent entry of insects. The metal surface of the panel should be given seven tanks anti corrosion treatment and then powder coated in DA grey colour (Min 50 micron thick paint). The frame should be able to withstand the stress and vibration during transportation and operation. The panel shall be mounted on the skid inside the acoustic enclosure.
The detail description of the panel is as described below:

1. AVR of the alternator shall be mounted inside the control panel with vibration proof supports.

2. MCCB should trip on the following faults with reset push buttons.

i) Earth leakage, through earth leakage relay.
ii) Over load & short circuit. Tripping from inbuilt trip unit of MCCB.
iii) Engine fault (Low lub oil, high water temp). Trip signal from engine protection switches, mounted on the engine and working on engine battery supply.

3. Control circuit, tripping and indication circuit shall operate on 24 V DC supply tapped from the engine starter battery. Suitable rating DC DP MCB shall be mounted in the panel for DC control circuit.

4.INSTRUMENTS AND INDICATING LAMPS: (Mounted on front hinged door)

i) 1 No. Power & Energy monitor showing Voltage, current, power (KW), Power factor, KWH & Maximum demand, 5 elements of power showing at a glance with communication port compatible to PCs. Make # Conzerv (Model EM 6600)/ SOCOMC #HPL (Model #DIRIS A 40/A41)/ Schnieder Group (Model- PM700)/ AEI
ii) The control panel should have indication lamps mounted on panel front door for following faults and indications. All lamps shall be of LED type, having long life and low energy consumption. Binay, L&T, Siemens Make. Lamps shall remain ON after tripping of MCCB. However, on engine fault the engine will stop and the fault indicating LED shall remain on.

a) Engine fault
b) Three nos. Red/ Yellow/ Blue for Incoming Supply
c) Set Running

5.0 MAIN COMPONENTS : (Mounted Inside the Panel)

i) Panel should have one set of TP & N electrolytic grade, high conductivity, electro tinned copper bus-bars, made from electrolytic grade copper of 99.0 % purity, rated 100 amps (Free air rating of copper sections) and supported at required intervals to withstand short circuit fault levels up to 25 KA for 3 Sec and connected at the outgoing of main SFU. Rating of neutral bus shall be minimum 50% of phase bus rating. Bus-bar support shall be non- hygroscope GRP/FRP and the Bus-bar shall be insulated with heat shrinkable PVC sleeves.

ii) Incoming and outgoing power cables shall terminate on electrolytic grade, high conductivity, tinned copper links rated for 100amp.

iii) 1No. 63 Amps, 4Pole, SFU, fitted with 63 Amps bolted type HRC fuses. Make-GE/ Siemens

iv) 1 No. 63 Amps, 4 pole, MCCB, 35 KA breaking, with inbuilt adjustable overload & short circuit protection, 240VAC Under voltage coil. Front Drive kit with door interlocking facility to ensure that the door can be opened only when the MCCB is in

the OFF position. Overload should be adjustable from 40% to 100% and short circuit setting should be adjustable. Make: Legrand/ Merlin-Gerin/ Siemens

v) 1No. CBCT along with Earth Leakage Relay for protection against earth leakage should be provided. Relay settings: 0.1 # 0.3- 1.0-3.0 Amp & 0.06-0.1-0.3-1.0# 5.0 Sec in steps. In case of earth leakage fault the relay should trip the MCCB through shunt trip coil. The CBCT core size should be such that relay should not trip during external short circuit due to core saturation. Similar to Cat No. (26092+ 26091) of Legrand. Make: Legrand/ Merlin Gerin.

vi) Bar Primary Resin Cast CT of 50/5 ratio 15 VA burden, class-1, conforming to IS 2705. No of CTs as per circuit requirement. Make: AEI/ kappa / Conzerv/ L&T

vii) Contactor type Auxiliary Relay, all relays with minimum 2 nos spare contacts. No. of relays should be as per the control circuit requirement. Plug in type relays and contactors shall not be used. Current rating of aux contacts shall be min 10amp DC, at 24 V DC. (Make-Siemens/ Schnieder/ GEPC)
viii) HRC instrument fuse holders NS type phenol moulded with suitable fuses & links for different circuits. Separate fuses and neutral links should be provided for control circuit indicating system lamps, instruments, enclosure illumination and tripping circuit (Make-GE / Siemens/ L&T)

6.0 WIRING SCHEME:

i) Control system will work on 24V DC. Control panel inside wiring shall be done with 2.5 sqmm, flexible copper, 1100v grade PVC insulated wires approved by ISI, TAC, FIA. All wiring will have copper lugs & terminal blocks as required. Wiring for lighting circuit MCB, power outlet and wiring for CT will be done with 2.5 sqmm, flexible copper, 1100v grade PVC insulated wires approved by ISI, TAC, FIA & have copper lugs. Colour code for wires shall be followed as per IS. Make: Finolex, Havells, L&T.

ii) Output from the Alternator terminal box should be connected to control panel input with heavy duty 4 X 16 sq.mm, 1100V grade, PVC insulated and PVC sheathed, armoured, and stranded copper conductor cable approved by IS-1554. Cable to be supplied & connected by the bidder using copper lugs. Make: NICCO, CCI, Finolex,Universal.

iii) AVR shall be mounted in control panel and its control wired from alternator terminal box to control panel by the party using heavy duty PVC insulated and PVC sheathed, 1100 v grade armoured, stranded, ISI approved copper cable of suitable size. Cable to be supplied and connected by the bidder using copper lugs. Make: NICCO, CCI, Finolex,Universal.

iv) Heavy duty Single Compression Cable Glands shall be provided at all cable entries for power and control cables. Cable Glands shall also be provided for the outgoing power cable. All cable glands to be supplied and fixed by the party. Make: Baliga/ GMI/Dowells.

v) All power and control cable terminal ends will have suitable heavy duty crimping lugs of tinned coper. All lugs to be supplied and crimped by the party. Make: Dowells.
vi) Engine control wiring will run from engine to control panel in heavy duty ISI approved galvanized flexible conduit supplied by the party.

vii) All control and power cables, AVR cable shall be protected with ISI approved heavy duty flexible GI conduit in their run from unit to control panel to avoid any damage.

viii) Suitable provision shall be made for safe routing of output cable from panel to outside of the unit. Opening in the acoustic enclosure should be guarded with rubber bush for safe passage of the outgoing power cable.

6.1 ON LOAD CHANGE OVER SWITCH PANEL FOR 40 KVA GEN SET:

Sheet steel clad, self supporting, floor mounting, cubicle type, dust and vermin proof generating set changeover control panel made of 3mm thick MS CRCA sheet and built upon rigid framework of 3.50mm thick sheet, having hinged doors with danger plate fitted, lifting lugs on top, ventilation louvers on both sides, three nos. bottom detachable gland plates, complete with suitably sized zinc passivated hardwares with heavy duty plain and spring washers. The panel doors should have neoprene rubber gasket. The panel should be designed and manufactured as per IS-8623. The panel enclosure will be as per IP54 except for the open part of cooling louvers at bottom and top of the panel sides. Suitable wire mesh should be provided on the inner side of the louvers to prevent entry of insects. The metal surface of the panel should be given seven tanks anti corrosion treatment and then powder coated in DA grey colour (Min. 50 micron thick paint). The frame should be able to withstand the stress and vibration during operation of the panel. The panel shall be mounted inside the genset house. The panel enclosure shall be mounted upon suitably sized heavy duty angle iron frame work on channel/angle iron sections (Min. 65x65x8mm angles and channels). The bottom plate of the enclosure shall be at a height of minimum 450 mm from floor level for ease of cable bending and entry.Two nos. earth points (one on each side) on the base channel/ angle shall be available for earthing.The panel door shall be earthed as per IS-3043. One no., Four Pole, 415vAC, 125 A AC, AC-23A duty, Front Operated On Load Changeover Switch (Open execution Type) shall be mounted inside the enclosure. The switch shall confirm to IS-13947/ IEC 947. The operating handle shall be fixed on the front door for operation from outside. The switch assembly shall have tinned copper bus bars of rectangular section connected at all the twelve switch terminals and brought out and supported on suitable FRP/DMC supports near the bottom cable entry plate. The current rating of copper bus sections shall be 100amp (rating of unassembled sections in air). Bus bars shall be PVC insulated. Sufficient space shall be available inside the panel for bottom entry and safe termination of 3 sets of 4x16 sqmm, heavy duty, GI armoured, PVC insulated, PVC sheathed, 1100V grade, IS-1554 approved, stranded copper conductor, cable.
The COS panel shall be placed outside the acoustic enclosure.
Make of Switch- Socomec #HPL/ GEPC/ Siemens.

7.0 ACOUSTIC ENCLOSURE :

The salient features of the acoustic enclosure shall be as follows :

The generating set comprising of engine coupled with alternator, control panel etc for each set should be placed inside an acoustic enclosure having the following salient features :

i. The acoustic enclosure should be of modular construction with the provision to assemble and disassemble easily at site. There should also be adequate provision of taking out the equipment for maintenance / repairing jobs and reinstalling the same after necessary corrective action

ii. The engine generator shall be factory enclosed in not less than 14 swg / 2mm thick cold rolled steel enclosure constructed with corner posts, uprights and headers. The roof shall aid in the runoff of water and include a drip edge. The weather- proof and corrosion resistant acoustic enclosure should be duly surface treated, phosphated and finally powder coated for long lasting finish. The sheet metal components should preferably be hot dip, seven tank pretreated before powder coating with special pure polyester based powder.

iii. The sound proofing of the enclosure should be done with self extinguishing high quality rock wool / mineral wool conforming to IS 8183 . The rock wool should be further covered with fiber glass tissue and perforated sheet. The silencer must be such that sound level is 75 dbA at 1 meter from the enclosure surface.

iv. Exhaust silencer shall be provided of the size as recommended by the manufacturer and shall attenuate the sound to the level noted above. It shall be supplied with a flexible , seamless, stainless steel exhaust connection as well as with all internal pipe work. A rain cap will be supplied to terminate the exhaust pipe. These components must be properly sized to assure operation with minimum back pressure and high sound when installed. The canopy should be finished in synthetic enamel paint incorporating rust inhibitors and aluminum sprayed silencers and spark arrestors to guarantee a superior and long lasting finish.

v. There should be carefully designed inlet and outlet baffles / attenuators with corresponding weather louvers and bird mesh allowing sufficient air flow, for the set to operate even under the harshest ambient conditions whilst maintaining specified noise levels. Suitably sized blower should be incorporated to meet total air requirement.

vi. The temperature inside the enclosure should be suitable for human comfort. The temperature of exhaust line should not exceed the self ignition temperature of fuel. A high temperature trip system (to shut down the engine by cutting off fuel supply to the engine through the solenoid valve) with variable setting connected to a thermostatically controlled blower must be provided for eliminating excessive heat dissipated by the engine within the acoustic enclosure.

vii. A separate Blower of suitable size should be provided and it will be in operation even if the thermostatically controlled blower stops / fails.

viii. There should be a provision of emergency shut down of the generating set (Prime Mover) from outside the enclosure.

ix. The enclosure should be complete with power and control wiring between control panel and alternator and other components like blowers etc with proper size copper cable. The cables should be terminated using gland and tinned copper sweating sockets and run through guard pipe.

x. The enclosure should have the sufficient space in and around the generating set to facilitate maintenance and operation of the set

xi. Acoustic Enclosure#s base frame should incorporate necessary facilities for handling and inter location transfer through oil field trucks and its overall dimension should not exceed 9M x 2.5 M x 2.5M (Length x Width x Height).

xii. The control panel for the Generating set should be installed separately on the same skid inside the same acoustic enclosure. The connection from the alternator and control panel should be carried out with 3.5 core 120 sq. mm PVC insulated, PVC sheathed armored copper cable and cable should be terminated with proper size of tinned copper sweating socket and cable glands at alternator and panel end.

NOTE :

1. Bidders should submit layout drawing of the acoustic enclosure indicating positions of engine, alternator, control panel etc along with the wiring diagram of the package and will have to be approved by OIL before execution of the order.

2. Enclosure design should be such that for any major maintenance activities the enclosures from any side can be easily dismantled and re-erected.

3. Generating set comprising of Engine, Alternator, Control Panel and other auxiliaries should be placed inside an acoustic enclosure (approved by ARAI, Pune/ NPL, New Delhi/ NSTL, Visakapatnam/ FCRI, Palghat / NAL, Bangalore) and the unit

should be mounted to a common base frame. The set should have proper arrangement for easy loading /unloading to facilitate ease in transportation.

4. A panel viewing window should be provided to facilitate visual monitoring of the equipment from outside.

8.0 ENCLOSURE ILLUMINATION AND POWER OUTLET:

Enclosure will have one no. of Bulkhead luminaire with acrylic cover with 9/10Watt CFL lamp mounted on enclosure wall and wired with heavy duty PVC insulated and PVC sheathed armoured, stranded copper cable approved by IS. Light will be switched from one MCB, 6amp, C curve, mounted on control panel cover & have back-up HRC fuse and neutral link of 6 amp rating. 1No. Industrial type exhaust fan of suitable rating with MCB for ON/OFF to be provided for ventilation. 1No. Emergency push button is to be provided out side enclosure for Genset.
Make: Philips, CG/ GE (model FXC 101/IC BH10) for luminaire& Legrand/ Merlin-Gerin for MCB.

9.0 EARTHING:

i) The earthing scheme for the unit should be as per IS-3043.

ii) Two nos. 25x6mm GI straps shall be suitably fixed inside the unit near the foor. Strap galvanisation thickness should be min. 85 micron and as per IS. Alternator earth terminals, control panel earth terminals, enclosure chassis shall each be connected with two nos. separate cables to both the straps with independent connections at separate points. The neutral of the alternator will be earthed by connecting two nos. of earthing cables, each 10.0 mtr long from neutral bus inside the panel. The other end of this cable shall be brought out of the enclosure for connection to external earth pit. Suitable provision is required in the panel base plate for safe entry of neutral earth cable. Heavy duty PVC insulated, PVC sheathed, flexible, single core, ISI approved copper cables of 16 sq mm size shall be used for all earthing jobs. The cables to be terminated with lugs and suitably protected against mechanical damage. Earth cable shall be protected to avoid any damage and to be run in ISI approved heavy duty galvanized, flexible conduit. Make: Finolex/ Havells/ L&T for earthing cable.

iii) Both the straps shall extend up to the back side of the enclosure and each strap will have one no. of zinc coated terminal stud of 10mm dia provided at end of the straps for connection to system earth. Two nos. of earthing cables of size & type as mentioned in point no. (ii) above and of individual length of 10.0 mtr shall be supplied and connected to these two straps for external earthing. The neutral earthing leads as mentioned under above point no. (ii) shall also be brought outside the enclosure for earthing of neutral separately.The free ends of these four cables shall be crimped with heavy duty, tinned copper tubular lugs and marked with ferrules. Suitable opening with rubber bush shall be provided in the rear side of the unit to facilitate the entry of outgoing power cable and earth leads.

10.0 DOCUMENTS (For Electrical part of genset):

1. The following Documents / drawings shall be submitted with the offer
GA drawing
Technical literature of alternator
Detail comments point-wise against each point of tender specifications. Any deviation from the electrical specifications of the tender will be specifically mentioned by the party with proper justification. Acceptance of deviations at discretion of OIL. Type and make of components shall be mentioned and shall be as per tender. Equivalent make shall not be mentioned in list of make.

Confirmation that the party agrees to all the points mentioned under electrical specification of genset.

2. The successful bidder shall obtain approval for the following drawings / documents prior to manufacturing of alternator & control panel within 30 days of placement of order.
GA drawing
Documentary evidence from the manufacturer of generator confirming that the alternator to be supplied will meets all specifications as mentioned in the order. Technical catalogue of generator.
Detailed power & control wiring diagram, detail enclosure drawings for control panel, earthing scheme.
Layout plan of the unit showing all parts, cable routes.
Illumination scheme with plug socket.
Details of power cables, control cable and their routes.
Bill of materials of all components.

3. Six sets of following documents shall be submitted in bound form after commissioning of the genset
GA drawing
Detailed power & control wiring diagram, detailed enclosure drawings for control panel, earthing
scheme, layout plan of the unit showing all parts.
Details of power cables, control cable and their routes.
Bill of materials of all components.
Technical literature of alternator.
O&M manual.
Catalogues of various components.
All test certificates for tests done at manufacturer#s works for alternator, control panel and complete unit.
Tests done during commissioning.
Guarantee certificate for alternator and control panel. Guarantee shall be for 12 months after commissioning of genset or 18 months after supply, whichever is earlier.

List of recommended spares for two years.

11.0 GENERAL NOTES FOR ELECTRICAL ITEMS AND WORKS:

1. In case of an order the complete electrical specification of the tender shall be mentioned in the order. However, deviations from tender specifications, as mentioned by bidder in their offer and subject to acceptance by OIL shall only be mentioned in the order.

2. In the event of an order the bidder will submit all documents as per Para 10.0.2 under Documents for OIL#s approval.
3. The manufacture of the unit shall start only after written approval of the drawings/ documents (as per Para 10.0.2 for Documents) by OIL.

4. In case the documents furnished vide Para 10.0.2 for Documents do not comply with any of the points mentioned in the order then the order will be cancelled without any obligation on part of OIL. IN CASE OF SUCH CANCELLATION OIL MAY RECOVER FROM THE BIDDER THE COST INCURRED BY OIL IN PROCESSING THE TENDER TILL THE TIME OF CANCELLATION.

5. The genset will be installed and commissioned successfully from electrical side after successful load test of the unit at OIL#s field site with available load within the rated loading limits of the genset for 72 hrs, submission of all documents as per Para 10.0.3 for documents of electrical specifications and supply of all spares as mentioned under para 12.0 of electrical specifications.

12.0 SPARES:

Following spares shall be supplied by the party along with the genset. Cost of spares shall be included in the genset cost.

I) MCCB mounted in control panel- One no.
II) AVR Unit for Alternator- One no.
III)Spare diodes. Quantity and type Same as fitted in the Rotating rectifier assembly of the generator.(ONE SET)

13.0 SKID :

The skid should be of oilfield type and fabricated from sufficiently strong steel section for carrying the generating set from one place to another from time to time. The engine and alternator should be unitized and mounted on the skid before dispatch. The generator housing shall be one piece and mount directly to the engine flywheel housing without bolted adopter.

14.0 PAINTING :

All metal surface shall be thoroughly cleaned and degreased. The under surface shall be prepared by applying a coat of phosphate paint and a coat of yellow zinc chromate primer. After preparation of under surface, the panel shall be spray painted with two coats of epoxy based final paint. Panel finish shall be free from imperfections like pin holes orange peels, run off paint etc.

15.0 SPARE PARTS :

Spares for two years normal operation of the generating set should be included in the offer. Item wise breakdown price of spares should also be provided but which will not be considered for evaluation.

16.0 PARTS LIST, INSTRUCTION MANUAL & DRAWING :

A. The supplier should provide 2(Two) sets each of the manuals and books for Engine, Alternator, Control Panel, Instruments & Switches for each unit as listed below:

1.OPERATING INSTRUCTIONS- with description and illustration of all switchgear controls and indicators and engine
and generator controls.

2. PARTS BOOKS- that illustrate and list all assemblies, subassemblies and components, except standard fastening hardware (nuts, bolt, washers etc.).

3. PREVENTIVE MAINTENANCE INSTRUCTIONS- on the complete system that cover daily, weekly, monthly, biannual, and annual maintenance requirements and include a complete lubrication chart.

4. ROUTINE TEST PROCEDURES- for all electronic and electrical circuits and for the main AC generator.

5. TROUBLESHOOTING CHART- covering the complete generator set showing description of trouble, probable cause and suggested remedy.

6. RECOMMENDED SPARE PARTS LIST- showing all consumables anticipated to be required during routine maintenance and test.

7. WIRING DIAGRAM AND SCHEMATICS- showing function of all electrical components.

8. One set of drawing showing installation details of the generating set, oilfield type skid, wiring diagram for the control panel (inclusive of float charger) and wiring drawing between the alternator and control panel should be provided with each generating set. All control panel diagram and schematic diagram are to be sent to us before supply of order materials.

9. The bidders should provide installation diagram of the set and performance data sheet along with the quotation.

10.The supplier should provide along with the set

i) Dynamic load
ii) Static load
iii) Any unbalanced load

B. All manuals and books described above shall be contained in rigid plastic pouches and in digital form along with the genset.

I7.0 INSPECTION AND TESTING

The complete unit of alternator along with control panel shall be inspected and tested at manufacturer#s works / factory by a team of OIL#s Engineers prior to dispatch. Amongst others, all routine tests of the alternator and control panel shall be witnessed during the inspection. Intimation for inspection of complete unit must be sent to OIL at least 30 days in advance.
All routine tests of the alternator and control panel shall be witness during the inspection at respective manufacturer#s works. Prior information to be given to OIL. Any modification suggested during inspection 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.
Inspection/testing charges, if any, shall be quoted separately which shall be considered for evaluation of the offers. To and fro fares, boarding/ lodging and other en-route expenses of OIL#s Inspection team for carrying our inspection shall be borne by OIL.

18.0 TEST CERTIFICATES :

The supplier shall submit detailed records and certificates of the foregoing tests to the purchaser. The certificates/records shall be supplied in quadruplicate and those for electrical equipment shall be endorsed suitable for use in the climatic conditions specified . Supplier should also certify that spark plug cables are protected and possibility of spark is completely eliminated.

19.0 PACKING :
The packing shall be sufficiently robust to withstand rough handling. Boxes/packing cases containing electrical equipment shall be water proof lined. All the matters on the control panel should be packed separately for mounting at site or mounted in such a manner to prevent transit damage.

20.0 INSTALLATION AND COMMISSIONING OF UNIT

Installation and Commissioning of the generating sets, control panels mounted on skid shall be carried out by the bidder in the presence of OIL representatives at its fields at Duliajan, Assam (India). Services of qualified and competent personnel from equipment manufacturer are essential during installation and commissioning of the generating sets. Persons engaged for installation, testing and commissioning of alternator and control panel should have valid electrical license. A person who is authorised for supervision of all electrical works should have supervisory license. External power cable from control panel of the unit to the load center shall be provided by OIL and the party will connect the same to the genset control panel. Party

shall connect the earthing loops (Four nos) of the unit to OIL#s earth system using the10.0 M long earth loops provided inside the unit.
The genset will be treated as successfully commissioned from electrical side after successful load test of the unit at OIL#s field site with available load for 72 hrs and submission of all documents as per Para 10.0.3 of Documents and all spares as per para 12.0 of electrical specifications.

21.0 RESPONSIBILITY:

The responsibility for performance to the specifications shall not be divided among individual component manufacturers, but must be assumed solely by the primary manufacturer. This includes generating system design, manufacture, test, and having a local supplier responsible for service, parts and warranty for the total system.

22.0 AFTER SALES SERVICE :

The nature of after sales service, which can be provided by the supplier, during initial erection and commissioning as also subsequent operation should be clearly stated in the quotation.

23.0 BID REJECTION CRITERIA(BRC) / BID EVALUATION CRITERIA (BEC)
BID REJECTION CRITERIA(BRC) (TECHANICAL):
The bid must conform to the specifications and terms and conditions given in the enquiry. Bid will be rejected in case the items offered do not conform to all the required technical parameters stipulated in the technical specifications and to the respective international / national standards wherever stipulated. Notwithstanding the general conformity of the bids to the stipulated specifications and terms and conditions, the following requirements shall have to be particularly met by the bidders, without which the offer will be considered as non-responsive and rejected.

1.0 The Diesel engine should be a four stroke, Multi cylinder, naturally aspirated , air cooled, inline engine , conforming to ISO 3046 / BS 5514 / IS 10000 standards and capable of developing a net Horse Power in the range of 40 to 45 BHP at 1500 rpm
2.0 The Alternator must be brushless type.
3.0 Bidder#s Qualification :
3.1 Bidder may be an Original Equipment Manufacturer (OEM) of Generating set.
OR
Bidder may be an authorized dealer of OEM for the Engine or Alternator or the complete Generating set.
OR
Bidder may be an OEM approved assembler of Generating set or their authorized representative.
3.2 In case the bidder is an OEM of Engine or their authorized dealer, Alternator must be purchased from the OEM of Alternator or their authorized dealer and vice versa.
OR
In case the bidder is an OEM approved assembler of Generating sets, Engine and Alternator must be purchased from OEM or their authorized dealers.
Note: But whatever may be their status in para 3.1 & 3.2 above, bidder will have to enclose Documentary evidence along with the offer failing which offer will be rejected.

4.0 Bidders should have the experience of successfully completing at least 3(Three) orders in the last 10(Ten) years before the bid closing date of this enquiry against supply, installation, commissioning and testing of Diesel Engine driven Generating sets of capacity 15 kva or above for offered Genset along with the Control Panels and accessories in PSUs, Central Govt. or any other Public Limited Company. Documentary evidence in this regard must be provided along with the quotation failing which offer will be rejected.

5.0 The bidder must undertake and confirm from OEM#s that the equipment to be supplied are not going to become obsolete for the next 10 years and provisioning of spares will be continued.

24.0 SERVICE AND WARRANTY :

(i) The manufacturer shall have a local authorized dealer who can provide factory trained servicemen, the required stock of replacement parts, technical assistance, and warranty administration.
(ii) The manufacturer#s authorized dealer shall have a parts and service facility within 300 km of the jobsite.
(iii) The generator set supplier shall have factory trained service representatives and tooling necessary to install and commission all provided equipment.

The warranty period for the Gen set and ancillary equipment should be a minimum of 18 months from the date of dispatch/ shipment or 12 months from the date of commissioning of the equipment whichever is earlier. Any defects in the Engine or Alternator during warranty period shall be replaced by the supplier at his cost without any extra charge to OIL

25.0 DATA SHEET FOR ENGINE :

MAKE
MODEL
NUMBER OF CYLINDER
ASPIRATION
COMPRESSION RATIO
SIZE (BORE & STROKE)
DISPLACEMENT
DUTY
GROSS HP AT 1500 RPM
DEDUCTION FOR FAN, ALD & TEMP.
NETT HP AVAILABLE AT 1500 RPM
SPECIFIC FUEL CONSUMPTION
100% LOAD
75% LOAD
50% LOAD
LUB OIL CONSUMPTION(LT/HR)
ENGINE SUMP CAPACITY
MAKE & TYPE OF GOVERNOR
LENGTHX WIDTH X HEIGHT

26.0 TECHANICAL CHECK LIST :

1. Whether quoted as OEM of Engine and whether documentary evidence submitted ? YES/NO
2. Whether quoted as OEM of Alternator & whether documentary evidence submitted? YES/NO
3. Whether quoted as Authorized Dealer of OEM(Engine/Alternator) and whether documentary evidences submitted ? YES/NO
4. Whether quoted as Assembler , OEM of Gen Set manufacturer or authorized dealer of OEM (Gen Set Manufacturer) YES/NO
5. Whether separately highlighted any deviation from the technical specification? YES/NO
6. Whether detail specification of Alternator with manufacturer#s technical literature/catalogue enclosed? YES/NO
7. Whether test certificate of Alternator and Control Panel will be submitted? YES/NO
8. Whether two sets of installation/ commission, Maintenance Manual shall be submitted? YES/NO
9. Whether spare parts for 10 years shall be supplied? YES/NO
10. Whether power and Wiring diagram of Alternator Control Panel submitted? YES/NO
11. Whether bill of Materials of Control Panel submitted? YES/NO
12. Whether confirmed that control panel drawing shall be approved by OIL before manufacturing in the event of placement of order? YES/NO
13. Whether offered engine is as per NIT ? YES/NO
14. Whether quoted for supply, installation, commissioning & handing over of genset? YES/NO

Order Ref ---------- Dated-----

OIL#s Tender No.---------- Signed-------

For & behalf of ----------

Designation----------