Oil India Limited
(A Govt. of India Enterprise)
P.O. Udayan Vihar – 781171, Assam

Telephone No. (91-361) 2643685
Fax No: (91-361) 2643686
Email: oilmatpl@oilindia.in ; erp_mm@oilindia.in

Tender No. **:SGG8156P13/1H**

Tender Fee : INR 4,500.00 OR USD 100.00
Bid Security : Applicable

Bidding Type **: SINGLE STAGE TWO BID SYSTEM**

Bid Closing on : As mentioned in the Basic Data of the tender in OIL's e-portal.
Bid Opening on : As mentioned in the Basic Data of the tender in OIL's e-portal.

Performance Guarantee : Applicable

OIL INDIA LIMITED invites Global Tenders for items detailed below:

Item No. / Mat. Code	Material Description	QTY.	UOM
10	Supply, Installation and Commissioning of 1.0 MW Crude Oil Run Engine Generator set as per the following Annexure: a) Detailed specification- Annexure I. b) Bid Rejection Criteria (BRC) and Bid Evaluation Criteria- Annexure II. c) Technical & Commercial Check list vide Annexure- III.	2	Nos.

NOTES:

(1) A Pre-Bid Conference with the Parties will be held in Guwahati (India) on 8th & 9th January, 2013 to discuss on the technical specifications and other terms and conditions of the tender. All the Parties who purchase the Tender Document within the closing date of sale of the tender will be eligible to attend the Pre-Bid Conference. The exact venue and time of the Pre-Bid conference will be intimated to the Parties at a later date.

(2) Clarification on the technical specifications and other terms & conditions of the Crude Oil Run Engine Generator set shall be provided to the parties during the Pre-bid Conference. Parties should come fully prepared to the Pre-bid Conference and submit their queries to OIL in the Pre-bid Conference for clarification. The set of queries in 'Word format' may also be sent to OIL at least 7 (seven) days before the Pre-bid Conference for study by OIL. OIL will not be responsible for non-receipt or late receipt of any bidder's query in OIL's office.

(3) Any changes in the technical specifications and other terms & conditions of the Crude Oil Run Engine Generator set arising out of discussion in the Pre-bid Conference shall also form part of the tender document.

(4) At the most 2 (two) representatives from each prospective bidder shall be allowed to participate in the pre-bid conference. All costs for attending the pre-bid conference shall be to prospective bidders' account.

(5) Parties, immediately after the purchase of the Tender documents, shall inform OIL at the following address about their participation in the Pre-Bid Conference with details of the persons to enable OIL to make arrangement for the Pre-Bid Conference.

CHIEF MATERIALS MANAGER
OIL INDIA LIMITED (PIPELINE HEADQUARTER)
P.O UDAYAN VIHAR, PIN – 781171,GUWAHATI
ASSAM, INDIA
FAX NO. : +91 - 361 – 2643686
E-Mail : aparajita@oilindia.in /oilmatpl@oilindia.in

Special Notes :

1.0 The tender will be governed by "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders) including Amendments to "General Terms & Conditions" for e-Procurement.

2.0 Technical Check list and Commercial Check list are furnished vide Annexure – III. Please ensure that both the check lists are properly filled up and uploaded along with Technical bid.

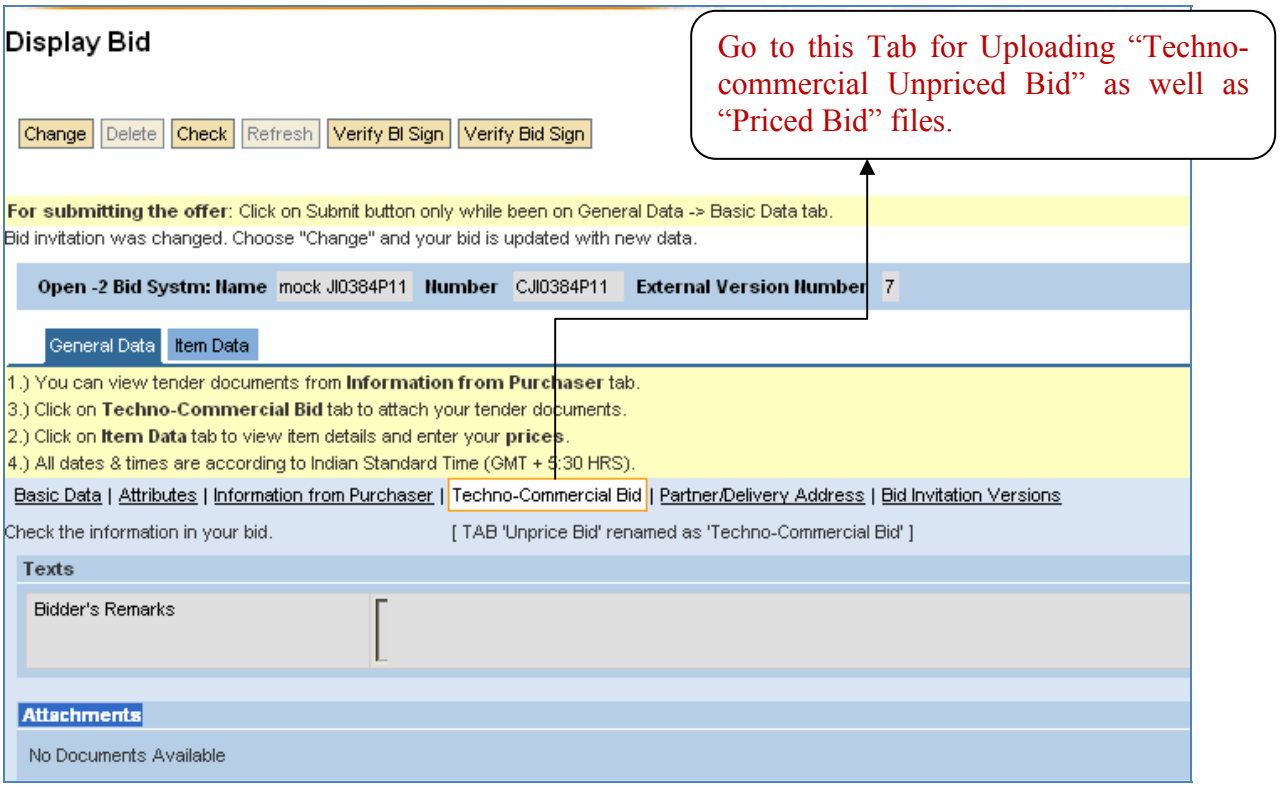
3.0 The item donot qualify for Nil duty / Deemed Export benefits.

4.0 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 The Chief **Materials Manager , Oil India Limited, PHQ Udayan Vihar- 781171, Guwahati, Assam** on or before the Bid Closing Date and Time mentioned in the Tender.

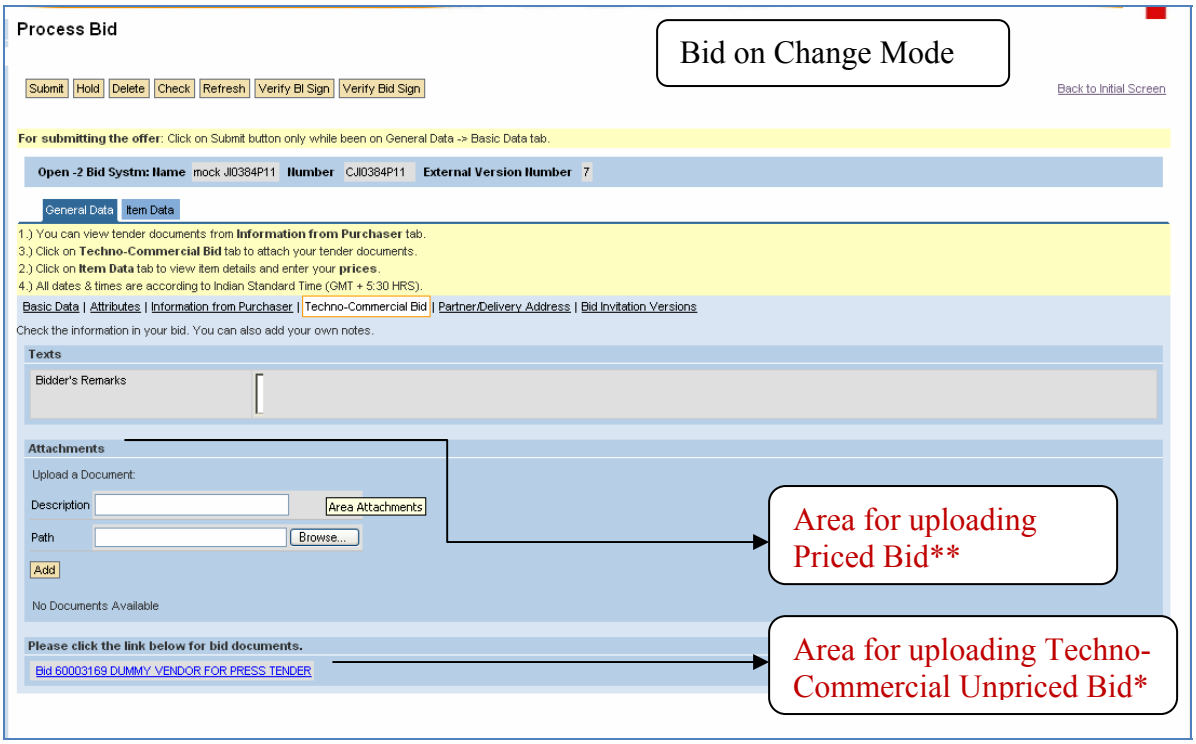
a) **Original Bid Security.**
b) **Details Catalogue and any other document which have been specified to be submitted in original.**

5.0 In case of SINGLE STAGE-TWO BID SYSTEM, bidders shall prepare the "Techno-Commercial Unpriced Bid" and "Priced Bid" separately and shall upload through electronic form in the OIL's e-Tender portal within the Bid Closing Date and Time stipulated in the e-Tender. The "Techno-Commercial Unpriced Bid" shall contain all techno-commercial details except the prices which shall be kept blank and to be uploaded in the c-Folder link (collaboration link) under "Techno-Commercial Bid" Tab. No price details should be uploaded in c-Folder link (collaboration link). Details of prices as per Bid format / Commercial bid to be uploaded as Attachment in the attachment link under "Techno-Commercial Bid". A screen shot in this regard is given below.

Any offer not complying with above submission procedure will be rejected as per Bid Rejection Criteria mentioned in the tender.


Display Bid
Go to this Tab for Uploading "Techno-commercial Unpriced Bid" as well as "Priced Bid" files.
Change
Delete
Check
Refresh
Verify BI Sign
Verify Bid Sign
For submitting the offer: Click on Submit button only while been on General Data -> Basic Data tab.
Bid invitation was changed. Choose "Change" and your bid is updated with new data.
Open -2 Bid Systm: Name mock JI0384P11 Number CJI0384P11 External Version Number 7
General Data
Item Data
1.) You can view tender documents from Information from Purchaser tab.
3.) Click on Techno-Commercial Bid tab to attach your tender documents.
2.) Click on Item Data tab to view item details and enter your prices.
4.) All dates & times are according to Indian Standard Time (GMT + 5:30 HRS).
Basic Data | Attributes | Information from Purchaser | Techno-Commercial Bid | Partner/Delivery Address | Bid Invitation Versions
Check the information in your bid.
[TAB 'Unprice Bid' renamed as 'Techno-Commercial Bid']
Texts
Bidder's Remarks
Attachments
No Documents Available

On change Mode- The following screen will appear. Bidders are advised to Upload "Techno-Commercial Unpriced Bid" and "Priced Bid" in the places as indicated below:



Note :

* The "**Techno-Commercial Unpriced Bid**" shall contain all techno-commercial details **except the prices**.

** The "**Price bid**" must contain the price schedule and the bidder's commercial terms and conditions.

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

7.0 The Integrity Pact is applicable against this tender. OIL shall be entering into an Integrity Pact with the bidders as per format enclosed vide Annexure XII of the tender document. This Integrity Pact proforma has been duly signed digitally by OIL's competent signatory. The proforma has to be returned by the bidder (along with the technical bid) duly signed (digitally) by the same signatory who signed the bid, i.e., who is duly authorized to sign the bid. Any bid not accompanied by Integrity Pact Proforma duly signed (digitally) by the bidder shall be rejected straightway. Uploading the Integrity Pact with digital signature will be construed that all pages of the Integrity Pact has been signed by the bidder's authorized signatory who sign the Bid.

OIL's Independent External Monitors at present are as under:

(I) SHRI N. GOPALASWAMI,I.A.S (Retd) ,
Former Chief Election Commissioner of India
E-mail Id : gopalaswamin@gmail.com

(II) SHRI RAMESH CHANDRA AGARWAL , IPS(Retd)
Former Director General of Police
E-mail Id : rcagarwal@rediffmail.com

Annexure – I

TECHNICAL SPECIFICATIONS FOR 1.0 MW CRUDE OIL RUN ENGINE-GENERATOR SET

1.0 INTRODUCTION

The existing captive power plant, located at OIL's Pipeline Head Quarter at Guwahati, Assam, supplies the electrical power requirement of the Crude oil Pump Station and domestic housing colony. The Power plant has 3 x 250 KW Allen crude oil driven genset, 1 x 584 KW MAN diesel genset and 1 x 600 KW CAT diesel genset for this purpose. Since there is no grid supply these gensets run continuously for meeting the required electrical load which is generally in the range of 500 KW – 635 KW. The number of gensets which run in parallel at a particular point of time depends on the load and operational availability of the gensets.

In view of ageing of the 3 x 250 KW Allen and 1 x 584 KW MAN gensets and projected increase in the electrical load it is proposed decommission these 4 sets and install 2 Nos x 1 MW crude oil driven gensets for catering to the electrical load

2.0 SCOPE OF WORK

The work shall cover Design, Engineering, Manufacturer, Supply, System integration, Full load performance test at Manufacturer's works, installation, testing/pre-commissioning, site acceptance test, commissioning and handover of 2 Nos x 1 MW (at site condition), 415V, 3-Phase, 50 Hz, Power factor 0.80 lagging, Industrial type, continuous duty, stationery, Medium speed (750 -1000 RPM), 4 stroke cycle, water cooled, Compression Ignition, turbocharged or naturally aspirated Crude Oil run Engine - Generator set for continuous base load operation in parallel with existing 600 Kw CAT Engine-Generator Set, including all auxiliaries required for running the Engine-Generator set as per specification in this NIT. The engines should comply with latest emission norms. Crude oil characteristics are listed in Annexure- A, Site condition data is listed in Annexure- B and existing 600 Kw CAT set data is given in Annexure- D.

THE GENSET PACKAGE SYSTEM SHOULD BE DESIGNED FOR BLACK START CAPABILITY i.e. IT SHALL BE POSSIBLE TO START-UP THE ENGINE – ALTERNATOR SET AND LOAD THE ALTERNATOR WITHOUT AVAILABILITY OF ANY EXTERNAL AUXILIARY ELECTRICAL POWER SUPPLY.

The offered generating set should be pre-packaged standard company product and shall be capable of providing rated power supply on a continuous duty basis at site condition.

The details of available infrastructure for running the existing crude oil and diesel driven gensets is listed in Annexure- C. Bidder shall examine the same and check feasibility of utilizing the existing infrastructure for the proposed new 1 Mw set.

3.0 BIDDER'S BROAD SCOPE OF SUPPLY

Each Generating Set Package shall be standard company product and not tailor made for the purchaser. **The Generating Sets shall comply with The Environmental (Protection) Rules, 1986** as per latest amendment. The Generating Set Package shall broadly comprise of the following main components:

3.1 Engine and Alternator set complete: The engine shall be compression ignition, vertical, 4 stroke cycle along with all accessories to make the system complete, including crankcase

ventilation and crankcase relief valve. The engine shall conform to ISO: 3046 specifications and shall be rated for continuous power with an over load power rating of 110% of the continuous power for a period of 1 hr in a cycle of 12 hrs.

3.2 **Coupling:** A suitable selected coupling should be incorporated to transfer power from the engine to the alternator. A guard should be provided to cover the same to meet OISD norms

3.3 **Engine Pneumatic starting system:** Bidder shall supply the starting air system complete with Air bottles, Air compressors, piping, pressure reducers etc. The bidder shall supply at least 2 Nos Air compressors – 1 (one) Electrical Motor driven and 1 (One) Engine driven. **The above system shall be common for both the Engine Generator sets.**

3.4 **Cooling water system complete**: The engine shall be water cooled with heat exchanger & Radiator (Forced Up Draft) installed outside the Generator House. The cooling system shall be designed to ensure that it is adequately rated for continuous full load operation of the genset at the maximum specified ambient temperature. The cooling water system shall be provided with necessary cooling water treatment system for prevention of scaling, corrosion and pH balance. Bidder's scope shall include all items required to make the system complete including heat exchanger & Radiator, cooling water pumps, cooling water treatment system, piping along with all accessories to make the system complete.

Cooling water pumps shall be common for both the Engine Generator sets and designed taking into consideration that both gensets may be run at full load simultaneously. For this purpose 2 Nos x 100% capacity electric motor driven cooling water pumps shall be provided, with one pump in operation and the other remaining on standby.

3.5 **Air Inlet system complete:** Normally aspirated or Turbo-Charged, with appropriate air filters suitable for dusty environment.

3.6 **Exhaust Air system complete:** The exhaust system should comprise of exhaust manifold, exhaust flexible connection, exhaust silencer, spark arrestor and piping connections. Piping should be installed with appropriate thermal insulation and should be supported to prevent weight or thermal growth being transferred to the engine. A rain cap will be supplied to terminate the exhaust pipe. These components must be properly sized to assure operation with minimum back pressure.

Stack height of Genset shall be as per the guidelines of **Central Pollution Control Board** and as prescribed in **Environment (Protection) Rules 1986** for release of gaseous emission, considering diesel/crude oil burning engine.

3.7 **Lube oil system complete**: The lubricating system should comprise of lubricating oil pump, lubricating oil filter, lubricating oil cooler, lubricating oil pan and crankcase breather. The lubricating oil pump shall be a positive displacement type that is integral with the engine and gear driven from the engine gear train. The system shall incorporate full flow filtration with Pressure relief valve, bypass valve and Filter changeover mechanism (with one filter running and other on standby) so as to continue lubrication in the event of filter clogging. Bidder's scope shall include all items required to make the system complete including all piping, valves, heat exchangers etc.

3.8 **Fuel system complete**: The fuel system shall broadly comprise of Crude Oil transfer system, Crude Oil conditioning plant, Fuel filter with changeover mechanism, Fuel injection system and Engine governing system. The existing fuel storage & fuel transfer infrastructure system already available at site is given in Annexure- C. The bidder shall evaluate the existing Fuel oil (crude) system vis-à-vis Bidder's engine requirement and make arrangements accordingly. **Separate crude oil storage tank shall not be installed by the bidder as statutory approvals are required for storage of crude oil**.

Bidder's scope shall include all items required to make the system complete including piping, valves/ Regulating valve, Flow meter to monitor the consumption of fuel oil etc. In case of fuel leak off from Injectors etc. a full enclosed tank with return to the main service tank shall be provided.

Complicated Electronic Fuel injection system shall be avoided to the extent possible so as to ensure easy engine maintainability by the Purchaser [OIL]

The following system shall be designed as below

Equipment	**Configuration**	**Remarks**
Fuel Transfer pump	1W + 1S	Common for both the Engine Generator sets and designed taking into consideration that both gensets may be run at full load simultaneously.
Crude Oil Conditioning Plant / Processing unit	1W + 1S	

3.9 **Over-speed protection system:** Both Mechanical as well as Electronic Over-speed protection system for fail proof shutdown of the engine in case of an overspeed.

3.10 **Mechanical guard** for totally covering all rotating parts of the engine-generator set including the flywheel.

3.11 **Grouting bolts** of proper size to be provided for all equipment foundations. Anti vibration dampers, as required, shall be provided.

3.12 **Piping system**: All plant piping required for the Proposed Engine-Generator package **including interconnection piping with existing system.**

3.13 **Fire detection system and Alarm System:** Complete fire detection and Alarm system for the entire generator house internal. The work shall be as per applicable standard.

3.14 **Generator Neutral Earthing –** The Alternators shall be earthed through suitably rated neutral reactor so as to limit earth fault current to within 750 mA as per Regulation 100(i) of Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulation 2010.

Since existing LT power generation and distribution system is a solidly earthed system [Refer attached Single line drawing - SLD], the scope of work covered under this specification shall also include addition of Neutral reactors in the existing system so as to make it compatible with the new system. The revised SLD diagram showing the quantity and locations of the proposed neutral reactors **to be supplied, installed and commissioned by the bidder** is attached.

3.15 **Earthing system** for all equipment supplied by the bidder including connection of the same to OIL's existing earthing grid.

3.16 **Engine Local control panel** indicating all critical parameters like lube oil pressure, lube oil temperature, water pressure, water temperature, exhaust temperature, differential temperatures, engine speed etc., shall be separate for each Engine-Generator set.

3.17 **Engine – Alternator Control & Monitoring System –** All requisite Instrumentation and control system including Management Information System [MIS].

3.18 **Engine-Generator Remote Metering & Control panel** supplied by the Bidder shall be located inside the Control Room built for this purpose by OIL. Complete system monitoring, Synchronising and Load Sharing of the entire system shall be performed from here. **Necessary inputs/outputs from/to existing CAT genset of OIL shall also be brought by the bidder to**

this panel to facilitate parallel operation of the gensets. The distance between the existing CAT genset control room and proposed control room is approximate 90 m.

3.19 LT Switchgear Panel including Generator incomer Air circuit breakers (ACB), outgoing ACB feeders, auxiliary motor starters and outgoing auxiliary feeders for loads like Battery Charger. Lighting feeder etc. This shall be common for both the Engine-Generator sets.

3.20 Elastomer Insulation Mats as per BIS 15652, Voltage 3.3 KV, Class A , Thickness 2 mm, ISI mark embossed, shall be provided in front as well as behind all Electrical and Control panels.

3.21 All Copper Power and Control cables including generator main power cables, interconnector Power & Control cable between proposed LT Switchgear panel and OIL's existing LT Switchgear panel, to enable Paralleling, load sharing with OIL's existing CAT genset and outgoing Power & Control cable for 1 MVA transformer feeder

All the electric cables used shall be **DGMS approved**, ISI marked, 1100V grade, PVC insulated, PVC sheathed, armoured, stranded **copper cable** as per IS-1554.

3.22 Cable laying and Termination: Bidder to note that all **cable trenches in Hazardous area should be backfilled with sand.** Identification number tags are to be provided at both ends of the cable for identification of the cables.

3.23 Battery and Battery charger complete with adequately sized Alkaline Battery. The Battery should be sized to provide **4 Hr backup** at full load (i.e inclusive of Control panel load, LT switchgear loads etc). Sizing calculation shall be provided by the bidder. Battery charger shall have both Auto [Boost and Float mode] as well as complete Manual mode [Coarse & Fine control]. Charger shall be designed and functionally cable of charging new set of batteries. The Battery and Battery Charger system shall be separate for individual Engine-Generator set.

3.24 Installation and commissioning – Installation and Commissioning of the complete Engine – Generator set along with all auxiliaries and sub systems viz. control systems, Fire detection, electrical switchgears, battery, battery chargers etc. shall be carried out by the successful bidder/supplier.

Installation and Commissioning of the supplied equipment shall be started within of 2 weeks from the date of receipt of intimation from OIL regarding receipt of material at site. Bidder to confirm the same in their techno-commercial bid.

3.25 All consumables like lubricants, grease, filters, gaskets etc. **including fuel**, required during pre-commissioning, commissioning and site acceptance test of the genset.

Regarding fuel for the engine as mentioned above, the same **may be supplied by OIL on chargeable basis**, based on specific request from the bidder.

3.26 All consumables like filters, lubricants, grease, gaskets etc **(excluding fuel)** required for running the Engine Generator set for the subsequent 4000 Hrs after successful completion of the site Acceptance test. This shall be supplied separately for each engine – generator set.

3.27 All special tools, tackles and instruments required for operation & maintenance. This shall be 1 lot common for both the engine – generator set.

3.28 Mandatory spares - The Bidder shall supply all the Mandatory spares as listed in Annexure- E. Only **1 set of the Mandatory spares for both the units**, as listed in Annexure E, shall be supplied. Cost of these spares shall be considered for bid evaluation purpose.

3.29 Recommended Spare parts for 3 Years - The bidder should provide a list of recommended spares for 3 years normal operation and maintenance considering 8000 Hrs of operation per year. The spare parts list should cover all major equipment including Engine / Alternator / Coupling / Pneumatic System/ Fuel System / Lube oil System/ Exhaust System/ Metering & Control

panel/LT Switchgear Panel/ Fire detection system/Instrumentation and Control System and other accessories. The price list should indicate item description, part number, recommended quantity and price of individual items. The cost of recommended spares **will not be** considered for bid evaluation purpose. However, OIL may place a **separate Purchase Order** for the same at a latter date.

3.30 Documentation – As mentioned elsewhere in this document under the heading documentation.

3.31 Any other item required for proper operation and maintenance.

4.0 CODE & STANDARDS

The Generating set along with all its auxiliary systems shall be designed, constructed, and tested in accordance with the latest editions of the following (but not limited to) applicable International / Indian standards:

STANDARD	TITLE
IS: 1271	Classification of insulating materials for electrical machinery and apparatus in relation to their thermal stability of service.
IS:1885(Part-35)	Electro technical vocabulary-Rotating Machinery
IS:2071 IS:2071(Part-I) IS:2071(Part-II) IS:2071(Part-III)	Methods of high voltage testing. General Definition and test requirements Test Procedures Measuring Devices.
IS:3043	Code of practice of Earthing.
IS:4691	Degree of protection provided by enclosures for rotating electrical machinery
IS: 4722	Rotating electrical machines - Specification
IS-7132	Guide for testing of synchronous machines
IS: 4889	Methods of determining the efficiency of rotating machinery.
IS:10,000(Part-iv) (or) (ISO:3046)	Declaration of power, efficiency, fuel and lube oil consumption.
IS : 12075	Mechanical Vibration of Rotating Electrical Machines with Shaft Heights 56 mm and Higher - Measurement, Evaluation and Limits of Vibration Severity
IS:1554	Specification for PVC Insulated (Heavy Duty) Electric Cables Part 1 For Working Voltages Upto and Including 1100 V
IS-2189	Selection, Installation and Maintenance of Automatic Fire Detection and Alarm System - Code of Practice
IS 13947	Low-Voltage Switchgear and Controlgear - Specification - Part 5 : Control Circuit Devices and Switching Elements - Section 2 : Proximity Switches
IS 2148	Electrical Apparatus for Explosive Gas Atmospheres - Flameproof Enclosures "d"
IS 3624	Specification for Pressure and Vacuum Gauges

In case of bidder's inability to use the mentioned codes and standards, the bidder shall indicate his proposed codes and standards defining in detail the reason for using the same. OIL may review the bidder's proposed codes and standards for approval of the same.

All work related to the Engine Generator set shall comply with the following regulations & standards

Standard/Regulation	TITLE
CEA Regulation 2010	Central Electricity Authority (Measures relating to Safety & Electric Supply) Regulation 2010
OMR	Oil Mines Regulations, 1984
Mines Act	The Mines Act, 1952, (As Modified upto 1983)
OISD-STD-113	Classification of Area for electrical installations at Hydrocarbon processing and handling facilities
OISD-STD-118	Layouts for Oil and Gas Installations
OISD-STD-141	Design, Construction and Inspection Requirements for Cross Country Liquid Hydrocarbon Pipelines
OISD-RP-147	Inspection and safe practices during electrical installations
OISD-RP-149	Design aspects for safety in electrical systems

5.0 ELECTRICAL SYSTEM

5.1 GENERAL

5.1.1 All Electrical equipment shall be suitable for the Hazardous Area Zone classification in which they are installed. Bidder to note that **Electrical equipment installed in hazardous areas shall have to be DGMS approved** and the same should be marked on the body of the material.

5.2 ALTERNATOR

5.2.1 Specifications

a)	Rated Output	1250 KVA at specified ambient conditions
b)	Rated Voltage	415 Volts ± 5%
c)	Duty	**Parallel Operation, Continuous** base load duty for Industrial Loads [Motor & Lighting]
d)	Power Factor	0.8 PF lagging
e)	Rated Frequency	50 Hz ± 3%
f)	Armature Winding	3 Phase, 4 wire type
g)	Winding Connection	Y connected, with neutral earthed through **neutral reactor to limit earth fault current to within 750 mA** as per Regulation 100(i) of CEA (Measures relating to Safety & Electric Supply) Regulation'10
h)	Excitation system	Brush less, Separately excited (PMG) and with solid state AVR. **Voltage Regulation ± 0.5 % from no load to full load**

i)	Enclosure Protection	IP 23
j)	Bearing	Double bearing [DE/NDE]
k)	RTDs	6 Nos for Stator winding & 2 Nos for Bearings

5.2.2 Performance Requirement:

a) Operating Condition: Alternator shall be suitable for operating satisfactorily in very humid atmosphere, refer site condition. Service condition shall be as specified in the data sheets. The Alternator shall operate satisfactorily under sudden load application and after sudden load rejection (Up to full load). Bidder shall indicate the limits of sudden load applications as percentage of full load.

b) Voltage And Adjustment Range: The alternator voltage shall be 415 Volts and the alternator voltage shall be adjustable within the range of +/- 5.0% by means of sensitive reference point selector.

c) Voltage Regulation: Automatic voltage regulation shall be ± 0.5 % from no load to full load.

d) Transient Voltage Performance: When full load is applied at rated power factor, the voltage drop shall not exceed 10.0%. Recovery to rated voltage shall be in less than 1 sec. Alternator shall be equipped for surge currents, when large squirrel cage motors are switched on directly.

e) Wave Form: When tested on open circuit and at rated speed and voltage, the telephone harmonic factor (THF) of the line-to-line terminal voltage shall not exceed 3.0%.

f) Frequency Limit: Alternator shall be suitable for continuous operation at full load at a frequency of 50 Hz +/- 3%. Limits of short time under frequency operation shall be indicated by the bidder.

g) Over Load: Alternator unit shall withstand a 10% overload for one hour based on a Twelve hour cycle.

h) Occasional Excess Current: Alternator shall be capable of withstanding a current equal to 1.5 times the rated current for not less than 30s.

i) Overspeed: The alternator should be capable of withstanding 1.2 times the rated speed for 2 min.

j) Parallel Operation: Alternator sets shall be suitable for parallel operation amongst themselves as well as with OIL's existing CAT genset, at operating voltage and under load conditions upto rated value. While operation in parallel, the alternators shall operate satisfactorily for a simultaneous variation of +/- 3% frequency and +/- 5.0% of voltage to deliver the rated power.

5.2.3 Construction Requirement:

a) Stator Connection and Terminal Bushings: The stator winding shall be star connected with the three phase and neutral terminal brought out. The terminal bushings shall be of fiber glass or porcelain. The terminals shall be silver plated copper for connection out going cables.

Alternator Neutral shall be earthed through suitable neutral reactor to limit earth fault current to within 750 mA as per Regulation 100(i) of Central Electricity Authority (Measures relating to Safety & Electric Supply) Regulation 2010.

b) Temperature Limit: The alternator winding shall be of class 'F' insulation with temperature limitation of Class 'B' insulation OR Class 'H' insulation with temperature limitation of class

'F' insulation. The maximum temperature of different parts of the alternator shall be limited as per relevant IS Standards.

c) **System Of Cooling:** The alternator shall be designed with open circuit air circulation system.. When designing the cooling system, site ambient conditions should be kept in mind.

d) **Stator Core**: The stator core should be composed of high quality laminated silicon steel plates to reduce heat loss and improved electromagnetic efficiency. Six nos. of RTDs shall be embedded in stator windings (two nos. for each phase winding) for measurement of stator winding temp. Leads from RTDs are to be labelled and terminated in a separate terminal box.

e) **Bearings** The alternator rotor shall be supported on two bearings for direct connection to the engine. RTDs shall be provided in both the bearing housings for measurement of bearing temp. Leads from RTDs are to be labelled and terminated in separate terminal box

f) **Direction Of Rotation**: A clear indication of the direction of rotation shall be given on either end of the machine.

g) **Heaters:** Suitably rated heaters shall be installed within the enclosure Location and maximum surface temperature of the heater shall be such that no damage is caused to insulation. Heaters shall be suitable for operation on single phase, 230 V AC supply. Suitable double pole switch feeder shall be provided in the LT Switchgear panel for switching on the heaters. Electrical interlock shall be provided so that heaters are automatically switched off as soon as the alternator is synchronized.

h) **AVR Mounting:**. The Automatic voltage regulator shall preferably not be mounted on top of the Alternator. However, if the same is unavoidable the AVR should be mounted on appropriate rubber bushing to reduce transmission of vibrations.

i) **Terminal Box :** The alternator terminal box should be of suitable size and should have suitable bus bar for terminating **heavy duty stranded copper armoured cables of 1100V grade** as per IS-1554. Separate cable box shall be provided for supporting the power cables. Suitable size of heavy duty single compression cable gland should be fitted in the cable box.

j) **Earthing Points:** 2 Nos earth points are to be provided on both sides of the alternator

k) **Rating Plate**: The rating plate of non corrosive metal shall be fixed on the alternator frame and shall give the following:

- Manufacturer's name
- Serial No. type & frame reference
- Rated output in KVA and KW
- Rated Voltage
- Rated Current
- Rated power factor
- Rated frequency
- Rated Exciter Voltage and Current
- Class of insulation
- Sub-transient and transient reactance in %
- Phase rotation (CW or CCW)
- Rated Speed in RPM
- Customer Order No.
- Year of manufacture
- Weight in Kg

5.2.4 Exciter And Accessories:

a) The excitation System for alternator shall be brushless and shall mainly consist of an Automatic Voltage Regulator (AVR), Permanent Magnet Generator (PMG), Main A.C exciter, Current transformer, rotating diode and surge suppressor assembly.

b) Automatic voltage regulator (AVR) shall be provided with the following features as a minimum requirement:

- Short circuit Protection
- Over voltage protection
- Under frequency protection
- Excitation limiter.
- Parallel operation facility
- External Voltage Adjustment – Voltage bias and External potentiometer.

5.2.5 Alternator Protective Relays:

- Under voltage protection
- Over voltage protection with timer (59)
- Under frequency protection (81)
- Reverse power (32)
- Restricted Earth Fault (64R)
- Voltage controlled overcurrent (51V)
- Over load with inverse time delay
- Loss of Excitation (40)
- Dead Bus Charging Relay (98)
- Rotor earth fault (61)
- Unbalanced loading protection (46) (Negative sequence current protection)
- Trip Circuit supervision relay (95)
- Tripping Relay (86)
- Generator Differential (87G)

5.3 ELECTRICAL POWER DISTRIBUTION SYSTEM

5.3.1 INTRODUCTION

The existing power generation and load distribution system is shown in the Single Line Drg No. OIL/PL/SLD/01. Presently, the entire load distributions are from these LT switchgear panels, including the outgoing feeder for the 1 MVA stepup transformer. The neutral of the existing system is solidly grounded and is shown in Drg No. OIL/PL/SLD/02.

With the proposed installation of 2 x 1 MW gensets, the existing power generation and distribution system shall be modified by the Bidder to a system where the neutral shall be grounded through suitably designed Neutral reactor to limit earth fault current to within 750 mA as per Regulation 100(i) of Central Electricity Authority (Measures relating to Safety & Electric Supply) Regulation 2010 refer Drg No. OIL/PL/SLD/03.

Also, the 1 MVA stepup transformer shall now be connected to the new LT switchgear panel [refer Drg No. OIL/PL/SLD/04] in place of the existing scheme where it is connected to the existing LT switchgear panels [refer Drg No. OIL/PL/SLD/01].

The new and existing LT switchgear panels shall be interconnected through the Tie Breaker Panel # 2 and # 3 in the existing and new LT switchgear panels respectively [refer Drg No. OIL/PL/SLD/04].

The scope of work and supply for the bidder with respect to the above conversion work shall be as follows

a) Supply, Erection and commissioning of a New LT switchgear panel as shown by dotted lines in Drg No. OIL/PL/SLD/04 and as further described in para 5.3.2 below.

b) Supply, installation and termination of adequately sized DGMS approved, stranded copper armoured cable interconnecting the New LT switchgear panel [1 MVA Transformer Outgoing breaker] to the primary side of the 1 MVA step up transformer, as shown by dotted lines in Drg No. OIL/PL/SLD/04. Scope of work shall also include Control cable for transformer protection.

Note: Disconnection of the connection between existing LT switchgear panel [1 MVA Transformer breaker] and the primary side of the 1 MVA step up transformer, as shown by firm lines in Drg No. OIL/PL/SLD/01 shall be carried out by OIL.

c) Supply, installation, termination of adequately sized DGMS approved, stranded copper armoured cable interconnecting the New LT switchgear panel [Tie Breaker # 3] with existing LT switchgear panel [Tie Breaker # 2] as shown by dotted lines in Drg No. OIL/PL/SLD/04.

d) Removal of the existing solid neutral earthing system and in its place supply, install and commission Neutral Grounding Reactors as per requirement shown in Drg No. OIL/PL/SLD/03.

5.3.2 LT SWITCHGEAR PANEL

5.3.2.1 The purpose of the LT Switchgear panel shall be for connecting the incoming power from the 1 MW Gensets and subsequent distribution of the same through outgoing feeders and motor starter panels. All outgoing feeders and motor starters required for operation of the genset [viz radiator motor, cooling water motor, Air compressor motor, fuel conditioning plant motor, Battery charger feeder, outgoing supply to panels, Alternator space heaters etc.] shall also be accommodated in this panel. The number of such outgoing panels shall be as required by the bidder for operation of the genset.

The proposed LT switchgear panel shall be interconnected with OIL's existing LT switchgear panel through Tie Breaker # 2 and Tie Breaker # 3 [refer Drg No. OIL/PL/SLD/04]. The proposed LT switchgear panel shall comprise of the following minimum panels. For details please refer Drg No OIL/PL/SLD/04.

- Generator Incomer Breaker panel : 2 Nos
- Bus Coupler Breaker panel : 1 No
- Tie Breaker panel # 3 : 1 No
- Outgoing Breaker Panel : 2 Nos
- 1 MVA Transformer outgoing Breaker panel : 1 No
- Outgoing feeders [OIL's requirement] : 8 Nos [See below]
  125 A TPN MCCB – 5 Nos
  250 A TPN MCCB – 2 Nos
  400 A TPN MCCB – 1 No
- Motor starters [Bidder's requirement] : As required[#]
- Outgoing feeders [Bidder's requirement] : As required[#]

[#] Add 20% extra subject to a minimum 1 No. as spare

5.3.2.2 General Specifications

Panel should have one set of TP & N electrolytic grade, high conductivity, heavy duty, electro tinned copper bus-bars, as per IS-191 & IS 1897 with electrical conductivity of minimum 99.25

% IACS, of rectangular cross section, conforming to BIS, rated **4000 amps** (Free air rating of bus sections) and supported at required intervals to withstand **short circuit fault levels of 50 KA for 1 Sec**. Rating of neutral bus shall be minimum 50% of phase bus rating. Bus-bar support shall be non- hygroscope non-deteriorating, and non-inflammable SMC / FRP, having adequate mechanical strength and a high tracking resistance. The bus-bar shall be insulated with heat shrinkable PVC sleeves. The panel manufacturer must have **CPRI test certificate for bus bar fault level of 50kA.**

To suit the stringent site conditions, the bus bar system shall be designed with generous clearance between phases than specified in the standards. Adequate non-hygroscopic insulating sheet barriers between the bus chambers and feeders shall be provided.

5.3.2.3 Constructional Requirements

- Self supporting, floor mounting, built on rigid framework, treated with antirust treatment as per IS and powder coated
- Dust and vermin proof as per IP54
- Internal wiring with stranded copper wires of suitable conductor area, lugs and ferrules as per drawing
- Internal earthing of all CFS units, other equipment having earthing terminal and panel doors with suitably rated, PVC insulated, flexible copper earth wires/ copper braids of suitable rating as per IS and with Earthing bus at bottom of the panel
- Suitable for operation from front side with provision of inspection from the back
- Internal barriers between cubicles to provide separation as per IEC to prevent transmission of flashover in one panel to other panels
- Danger plates fitted on front and back
- Ventilation louvers guarded with wire mesh
- Bottom detachable gland plates for all cable entries

5.3.2.4 Wiring Scheme

- All Control system wiring shall be done with 2.5 sq mm, flexible copper, 1100v grade PVC insulated wires approved by ISI, TAC, FIA. All wiring will have copper lugs & terminal blocks as required.
- All control cable terminal ends will have suitable heavy duty crimping lugs of tinned copper. Ferrules shall be provided for identification of cables. All components shall be labelled for identification.
- All auxiliary and main contactors shall be mounted on DIN channel. Plug in relays shall not be used.
- All auxiliary contactors, timers, terminal blocks should have at least 20% spare contacts.
- Metering CTs shall be min 15 VA, class-1 and conforming to IS 2705.
- Protection CTs shall be min 15 VA, class-5P10 and conforming to IS 2705
- All indication Meters should have an accuracy class 1.
- **Indication lamps** : All indication lamps shall be of LED type, having long life and low energy consumption.

5.3.2.5 Protective, Metering Devices and Indication system for circuit breaker panels

Protective relays for protection of circuit breakers, shall be Numeric Relays or equivalent. High sensitive microprocessor based relays shall not be used. Individual Alarm annunciation facia shall be provided in each circuit breaker panel so as to indicate the reason for trip viz. Earth fault, Over current, reverse power, overload etc. All protective relays for circuit breaker protection shall be

mounted separately in the panel. **Air circuit Breakers with Built-in protective relays shall not be used**.

a) **Air Circuit Breaker specifications**: 415V, 3 pole, Drawout type ACB, 50 KA breaking capacity, with Under voltage release coil, shunt trip coil and closing coil. ACB shall have motorized and manual spring charging mechanism and OFF push button. ON push button for manual switching on the breaker shall be provided but this button shall be covered/lockable to prevent inadvertent operation.

b) **Generator Incomer Breaker panel**
- **Air Circuit Breaker** : Capacity 2500 Amps and trip circuit based on **24 V DC, backed up by Battery Bank.**
- **Power & Energy monitor** : Showing Voltage, Current, Power (KW), Power factor, KWH & Maximum demand
- **Digital frequency meter** : 96 X 96 mm , scaled 0-100 Hz
- **Generator Protection Relay** : Refer Alternator protection relay requirement as specified elsewhere in this document.
- **Digital temp scanner and controller** : 6 channels for winding RTDs and 2 channels for bearing RTDs. Temp scanner to be suitable for RTDs fitted in alternator. In case of any over temp. controller shall give annunciation through LED type indicating lamp mounted on panel front cover and provide annunciation/trip through potential free contacts.
- **Hour meter** : For recording running hours of the genset.

c) **Bus-Coupler Breaker Panel**
- **Air Circuit Breaker** : Capacity 2500 Amps and trip circuit based on **24 V DC, backed up by Battery Bank.**
- **Dual Digital frequency meter** : 96 X 96 mm , scaled 0-100 Hz
- **Dual Voltmeter** : 96 X 96 mm , scaled 0-500 V
- **Protection Relay** : Synchronizing check relay.

d) **Tie Breaker panel #3**
- **Air Circuit Breaker** : Capacity 2500 Amps and trip circuit based on **24 V DC, backed up by Battery Bank.**
- **Dual Digital frequency meter** : 96 X 96 mm , scaled 0-100 Hz
- **Dual Voltmeter** : 96 X 96 mm , scaled 0-500 V
- **Protection Relay** : Over current, Earth fault , Synchronizing check relay.

The purpose of this Tie breaker # 3 is to interconnect the proposed new LT switchgear panel with OIL's existing LT switchgear panel. Scope of work shall also include supply & laying of adequately sized DGMS approved stranded copper armoured cable, including termination at both ends. The copper armoured cable shall be sized for a minimum of **1.30 times the full load current** of the 1 MW alternator with due consideration given for cable Voltage drop. The approximate cable length per phase which shall be required for this purpose is 150m. However this is only an approximation and bidder shall supply as per actual site requirement.

e) **Outgoing Breaker Panel**
- **Air Circuit Breaker** : Capacity 2500 Amps and trip circuit based on **24 V DC, backed up by Battery Bank.**
- **Power & Energy monitor** : Showing Voltage, Current, Power (KW), Power factor, KWH & Maximum demand
- **Protection Relay** : Over current, Earth fault, Overload

f) **<u>1 MVA Transformer Outgoing breaker Panel</u>**

- **Air Circuit Breaker** : Capacity 2500 Amps and trip circuit based on **24 V DC, backed up by Battery Bank.**
- **Power & Energy monitor** : Showing Voltage, Current, Power (KW), Power factor, KWH & Maximum demand
- **Protection Relay** : Over current, Earth fault, Overload
- **External Input** : RTD Scanner potential free contacts for High winding temperature Alarm and Trip.

Scope of work shall also include supply & laying of adequately sized DGMS approved stranded copper armoured cable, including termination at the New LT switchgear panel end and at the 1 MVA Transformer primary end. The copper armoured cable shall be sized for a minimum of **1.30 times the full load LV primary current** of the 1 MVA Transformer [which is 1444 Amps] with due consideration given for cable Voltage drop. The approximate cable length per phase which shall be required for this purpose is 100m. However this is only an approximation and bidder shall supply as per actual site requirement. Scope of work shall also include Control cable for transformer protection.

g) **<u>Outgoing Feeders</u>**

- Switch Fuse units shall be mechanically interlocked with the panel door

5.3.2.6 Cable arrangement inside panel

All cables to the panel will enter through a detachable gland plate at the bottom of the panel. All cables will enter the enclosure through suitably sized heavy duty, single compression glands and connections will be made through properly rated tinned copper terminal strips. Cable alleys will be provided as necessary for running the cables in the panel. Detachable gland plates of adequate size and number of cables shall be provided at the bottom of the panel for incoming and outgoing cables. Space inside panel shall be sufficient for armoured, copper cables.

All Incoming and outgoing power cables shall terminate on electrolytic grade, high conductivity electro tinned copper links liberally sized for termination of power cables.

5.3.2.7 Make of Electrical Items

All Electrical items used in the LT switchgear panel shall be of reputed make. Bidder shall in his detailed bill of material indicate the different makes offered, for necessary selection by OIL. In the event that the offered make, in the opinion of OIL, is not of good quality the bidder shall arrange to offer alternative makes.

5.3.3 INSPECTION AND TESTING OF SWITCHGEAR & CONTROL PANEL:

5.3.3.1 All routine tests, for LT Switchgear Panel, and Generator Metering & Control panel, as per standard shall be witnessed by OIL at the manufacturer's works. The routine test of the panels will include the following minimum tests/measurements: -

a) Physical checks & Operation check of all components
b) High Voltage Test
c) Insulation tests (before and after HV tests).

5.3.3.2 Any modification suggested during inspection, to comply with order specifications, shall be carried out by supplier at no additional cost. Supplier shall dispatch the material to site only on receipt of dispatch clearance from OIL.

5.4 SPECIFICATIONS FOR AUX MOTORS:

All Motors shall have the following specifications.

a) Type Motor : 1 or 3 phase, squirrel cage, AC Induction type.
b) Voltage : 240 V AC / 415V AC ± 5% volts, 3 Phase, 50 Hz ± 2.5%
c) Duty : Continuous (S1)
d) Standards : IS-325.
e) Insulation : Class F
f) Degree of protection : IP55
g) Approval : DGMS approval for all motors installed in Hazardous area
h) Earthing : Two nos of earthing studs on both sides of the motor

5.5 INSTALLATION AND COMMISSIONING OF ELECTRICAL UNITS:

5.5.1 All **electrical equipment installed in hazardous areas shall have DGMS approval** and the same should be marked on the body of the material.

5.5.2 All electrical work shall be carried out by licensed electricians under the supervision of a competent supervisor having a valid Electrical Supervisory license issued by State Licensing Board.

5.5.3 All cabling and earthing jobs for genset, control panel, LT switchgear panel, auxiliaries motors, PBS etc shall be done by the Bidder as per BIS, IE Rules and as advised by OIL.

6.0 ENGINE – ALTERNATOR CONTROL AND MONITORING SYSTEM

6.1 Local Control Panel

6.1.1 Local Control panel shall be provided for monitoring Pressure, Temperature and other vital parameters of the engine locally, and should be located near the engine. Starting, stopping and speed control functions of the engine should be possible from the Local Control Panel.

6.1.2 Major Components installed in the local control panel shall be

a) Pressure Gauges
- Lube oil filter inlet pressure
- Lube oil filter outlet pressure
- Lube oil cylinder head inlet pressure
- Fuel inlet pressure
- Starting air pressure
- Inlet manifold pressure
- Water inlet pressure

b) Switches
- Lube oil pressure
- Lube oil Level
- Fuel oil Pressure
- Cooling water No-Flow

c) Temperature Indicators / scanner
- Engine RPM indicator
- Engine Lube oil inlet temperature

- Engine Lube oil outlet temperature
- Engine Water outlet temperature
- Engine Water inlet temperature
- Exhaust gas temperature for each cylinder
- Exhaust gas temperature for turbocharger
- Water temperature for each cylinder

d) Controls
- Local / remote mode
- Emergency stop
- Engine start / stop
- Engine speed raise / low
- Alarm flasher/buzzer off

e) Miscellaneous Indications
- Common engine alarm
- Engine start permission

6.2 Instrumentation and control system

6.2.1 The Engine – Alternator set shall be provided with all requisite Instrumentation and control system to make the system complete.

6.2.2 Control system should be designed in a manner so as to allow **both local as well as remote shutdown of the engine – generator set in case of any emergency.**

6.2.3 Programming/configuration kit for engine troubleshooting complete with necessary licensed software for the Programming/configuration kit shall be supplied.

6.3 Instrument Design and construction

6.3.1 Each instrument shall have an over-range protection of at least 30% of specified range.

6.3.2 The instrument enclosure shall be suitable for the area classification in which they are installed. The enclosure shall be to the following standards:

a) Weather proof housing IP55 to IEC-529/IS-2147.
b) Flameproof housing Flameproof/Ex(d) as per IEC-60079-1/IS- 2148
Flameproof housing shall also be made weather proof.

6.3.3 Diaphragm seal instruments shall have its diaphragm seal integral with the instrument and shall be supplied with an adaptor flange. The sealant shall be an inert liquid, compatible with the process fluid temperature.

6.3.4 End connection details shall be as below:

a) Thread end connections shall be to NPT as per ANSI/ASME B 1.20.1
b) Flanged end connection shall be as per ANSI/ASME B 16.5

6.3.5 All electronic instruments shall be state-of- the-art electronics and shall be in compliance with the electromagnetic compatibility requirements as per IEC-801.

6.3.6 Plug in circuit boards shall be constructed such that reverse insertion or insertion of the wrong card is prevented.

6.3.7 Electrical conduit entries shall have internal threads.

6.3.8 Terminals for electrical connections shall be clearly numbered, and polarity where applicable, permanently marked.

6.3.9 Power supply, signal isolation, ripple and noise requirements shall generally be as per ISA-S 50.1

6.3.10 All bought out instruments and connection accessories must be from reputed ISO certified vendor for quality control purpose.

6.3.11 All piping/tubing connections (pipes and manifolds) for instrumentation must be of SS316 material.

6.3.12 Each flush panel mounted instrument shall have the following information identified in the front:
a) Identification Tag number
b) Measuring point nomenclature
c) Range of measurement

6.4 Management Information System [MIS]

6.4.1 The Engine – Alternator set shall be provided with a Management Information System [MIS] for monitoring all vital engine and generator parameters from the control room. The MIS system shall collect, process, display and store live as well as historical data. Requisite user friendly MIS software should be provided for this purpose.

6.4.2 The Bidder shall provided all necessary hardware and software for information sharing between this MIS and OIL's existing SCADA system, for monitoring of all critical parameters centrally. The approximate distance between the proposed control room (where this MIS system shall be installed) and OIL's existing SCADA system is approx 120m.

6.4.3 All software preloaded in the Programming/configuration kit and the Management Information System [MIS] shall also be provided in separate CDs to enable OIL reinstall the same in case of a system hardware or software crash.

7.0 FIRE DETECTION AND ALARM SYSTEM

7.1 **Automatic fire detection and alarm system**: Applicable areas are Generator House, Control Room and Battery Room

General Specifications

a) Bidder shall provide the detailed design basis of the Automatic fire detection and alarm system, which shall comply with:
- OISD – STD – 173: Fire Prevention and Protection System for Electrical Installations
- OISD – STD – 163: Safety for Control Room in Hydrocarbon Industry

b) The automatic Fire Detection and alarm system should comprise of addressable Automatic Detectors, addressable Manual Call Points (Break Glass type with Hammer), Response Indicators, Abort Switches, Wall mounted addressable Control Panel, addressable indicating equipment, Signaling appliances (Alarm/ Hooters with flashing light), maintenance free Stand-by Batteries, Conduits for cables, Electric Output, zone cards, Monitor Cards, etc.

c) The alarm system shall be activated by addressable automatic detection devices OR by addressable manual operation of Manual Call Point OR manually from main Control Panel in case of failure of automatic system.

d) Suitable isolator shall be provided in such a way that short in the loop wire will not affect the entire loop.

e) Loop wire return back to Panel wiring method shall be employed so that function of any of the Detector /devices should not affect in case of open in the loop wire.

f) Major components of the system, shall be UL listed, particularly Detection Devices, Control Panel, Signaling appliances, etc. Detection of product of combustion and fire shall be considered as per UL.

g) The fire detection and alarm system should reliably transmit the detection signal and translate this signal into a clear alarm indication. The alarm should also sound in case of power failure condition.

h) The system should not get inoperative partially or totally by the fire or the phenomenon for which it is designed to detect.

i) The component used in the system should be compatible with each other.

j) Design shall incorporate facilities to check the operational efficiency of the complete system at regular intervals.

k) All the components shall be new and of current manufacture and shall be installed in accordance with relevant codes.

l) Requirement of documentation is listed elsewhere in this document.

m) Piping/conduits, cards, relay, Hooter, Detector, etc shall be of reputed make with UL/ISI approvals. Wherever the Codes OR certificates for equipments are available, it should be supplied along with the offer.

Power Supply

a) The control Panel shall have a solid state, high speed switching power supply with 24 V DC output capable of responding instantly to voltage and current surges on the input and output sides to protect the system from malfunction and damage. A supervised battery charging circuit (with battery charging facility) and ground fault sensing circuitry shall be an integral part of the Power supply. Battery Power Supply shall be "On-line" such that Batteries will supply power to the system in the event of AC power loss without a power transfer relay.

b) The control panel shall house its own sealed gel type maintenance free stand-by Battery. Batteries shall be sized to provide a minimum 24 hours stand-by power plus five minutes of alarm operation, but in no case shall be less than 8 AH capacity. Batteries shall be supervised and provide a trouble signal upon disconnect, open or shorted cell. A separate battery enclosure shall be provided if battery calculations indicate the need for battery capacity in excess of that stored in the control panel, a separate battery enclosure shall be manufactured by the control panel manufacturer and shall be of similar in appearance to that of Control Panel Enclosure.

Control Panel

a) A wall mounted addressable Fire Alarm Control Panel shall be located at easily visible place, preferably inside generator house near entrance. The control panels are housed in steel enclosures and are finished in hardwearing epoxy paint and to be designed to a high degree of standard. The provision for front door locking of the Control Panel with transparent window to see functions from outside should be incorporated.

b) The Fire Alarm Control Panel should be painted in fire red colour.

c) The addressable Fire Alarm control Panel shall have LCD display to indicate the proper message of the system.

d) The system should immediately and clearly supervise any fault that might jeopardize the correct performance of the system and fulfil its function without errors or omissions. The

Control Panel in addition to its yellow system trouble (Automatic fault identification with distinct signal) LED shall further break down a trouble condition with use of diagnostic LEDs. These LEDs shall indicate the following trouble in the system:

- A.C. Power loss
- Battery fault Open or shorted cell, disconnect.
- Component failure
- Wiring problem
- Microprocessor failure-flashing indicator
- Ground fault
- Detection Circuit-open circuit (Separate LED for each detection circuit)
- Audible signalling circuit- reverse polarity, open or short circuit (Separate LEDs for each audible circuit), etc.

e) To de-energize the automatic features of the system, provision should be incorporated to inhibit the whole system during maintenance/servicing of the system.

Signaling equipment

a) Audio & Visual Alarm at the Panel shall be incorporated.

b) Dual tone Electronic Hooter with flashing lamp, single tone alarm signal to generate, with output of 86-90 dBA to 10 feet at 24 VDC, when detection of fire occurs on cross zoning principle. The circuit shall be energized in the affected area and the word "FIRE" on the control panel shall blink. The sounder shall be provided with a red finish.

c) A parallel small sounder, loud enough to alert control room personnel, should be provided well within audible range of the Control Room, as the room is closed due to Air conditioner.

d) Flame proof type addressable detectors/devices/Manual Call Points (Break Glass Type with Hammer) to be considered for hazardous area and non-Flame proof type for non-hazardous area. MCP and response indicator to be installed inside generator house and one out side the generator house.

e) A connection to be made to operate the main fire siren of pump station simultaneously with the system alarm in case of fire. To facilitate the same, an audio visual alarm need to be installed at Pump Station Control room situated at a distance about 150 Meters.

Detectors

a) The addressable detector should have an explosion proof body engineered to withstand temperature and humidity extreme for hazardous area and non-Flame proof type for non-hazardous area to identify the origin of Fire individually, quickly and reliably.

b) Detector should have address/identification to identify which Detector is giving signal of detection.

c) Bidder should mention the logic of selection of the Detector with coverage area, type, nos. of Detectors, calculations, etc.

Piping

a) Piping/conduit of reputed make to house different cards/cables so that it's integrity under fire condition can be predicted with reliability. All the piping/conduit shall be painted in fire red colour.

7.2 Fire Extinguishers

The no. of fire extinguishers to be placed in the installation shall be as follows:

Sl. Nos.	Facility	Type and Capacity of Extinguishers
1	Generator House	2 Nos. 10 Kg DCP Type Fire Extinguisher 2 Nos. 6.5 Kg CO_2 Type Fire Extinguisher
2	Crude Oil Filtration Plant	1. No. 50 L Foam Type Fire Extinguisher 1 Nos. 10 Kg DCP Type Fire Extinguisher 2 Nos. 4.5 Kg CO_2 Type Fire Extinguisher
3	Control Room	2 Nos. 4.5 Kg CO_2 Type Fire Extinguisher
4	Battery Room	1 Nos. 4.5 Kg CO_2 Type Fire Extinguisher

7.3 Fire Hydrant

The Fire water ring main with sufficient nos. of hydrant points with hose box, delivery hose and jet/spray nozzles shall have to be installed by the bidder as per OISD-STD-116. Necessary Hookup with existing ring main shall also be within the scope of work of the bidder. The existing ring main is approximately 50 m away.

7.4 Inspection and Testing

a) OIL **may at its discretion** witness the routine factory test of the material. Factory acceptance test shall not relieve the supplier of the responsibility to demonstrate the performance of the installed system at site.

b) Any modification suggested during inspection, to comply with order specifications, shall be carried out by supplier at no additional cost. Supplier shall dispatch the material to site only on receipt of dispatch clearance from OIL.

c) After completion of the installation, the Supplier shall familiarize OIL's personnel with system components, system functions and recommended procedures. At this time, a functional test of the system shall be demonstrated.

7.5 Vendor list for fire fighting equipment

The list of OIL's preferred vendors for fire extinguishers and other equipment are as follows:

Sl. No	Equipment	Vendor
1	Fire Extinguishers	1. M/s Zenith Fire Services (India) Pvt. Ltd., Mumbai 2. M/s Nitin Fire Protection Industries Ltd., Mumbai. 3.M/s Gunnebo India Private Limited, Kolkata
2	Double Headed Hydrant, Fire Fighting Hose (Type B), Jet/ Spray Nozzle, Hose Box.	1.M/s Newage Industries, Surendranagar, Gujrat. 2.M/s Zenith Fire Services (India) Pvt. Ltd., Mumbai 3.M/s Nitin Fire Protection Industries Ltd., Mumbai.

8.0 CIVIL ENGINEERING WORKS

8.1 Construction of all major Civil engineering jobs shall be done by OIL.

8.2 However, for this purpose the successful bidder shall furnish the foundation design along with detailed working drawing for the Engine-Generator set along with other foundation requirements for all other related accessories like Heat Exchangers, Fuel conditioning plant, Air Compressors, Cooling water pumps, Radiators etc.

8.3 Testing of soil and other parameters, as required, prior to design of foundation shall be undertaken by the bidder at his own cost.

8.4 The successful Bidder shall provide detailed drawings for requirements related with other civil items like Grouting, bolting, mounting arrangements, cable trenches, Pipe trenches, etc. for all Electrical and Instrumentation panels and Battery charger.

8.5 The Bidder shall also provide the **proposed layout plan** for the entire generator house indicating therein location and dimensions of all equipment.

8.6 The Foundation Design, data and all other related drawings should be complete in all respects so that civil work by OIL is not hampered due to inadequate information.

8.7 Successful bidder's representative shall visit site regularly, during the civil construction work of the power plant, in order to check the suitability of the ongoing civil construction work. The number of such visits shall be based on requirement and shall be subject to mutual agreement.

NOTE: All minor civil works including cable tray works shall be in Bidder's scope of work

9.0 EXCLUSIONS FROM BIDDER'S SCOPE OF WORK

9.1 The following are specifically excluded from the scope of work of the bidder

a) All major civil works including construction of Generator House, Genset foundations, equipment foundation, RCC cable and pipe trenches etc..

Bidder should however note that wherever RCC cable and pipe trenches are not available, the bidder shall arrange to lay the cables and pipes by direct burial method at his own cost.

b) Lighting inside and outside the Generator House.

c) Air conditioning system

d) Telephone communication system

e) Loading / Unloading and storage of Bulk Crude oil.

9.2 Following facilities shall be provided by OIL to the Bidder, without any charges, during the period of installation and commissioning.

a) General open space and limited covered space for temporary storage of Bidder's materials inside the Industrial Area.

b) Construction power, area lighting and water supply.

c) Unguarded open space outside OIL's Industrial area for use by the Bidder for temporary installation of tents / bunkers etc. for their work persons during the erection and Installation work.

d) A maximum of 2 (two) unfurnished quarters [subject to availability at that time] for housing Bidder's supervisory staff.

10.0 INSPECTION OF ENGINE-ALTERNATOR SET

10.1 OIL's Engineers shall carry out a inspection of the Engine and Alternator during the manufacturing/Assembly stage, to verify compliance with the NIT specifications.

10.2 Inspection shall however not relieve the supplier of his responsibility to ensure that the equipment supplied is free from all manufacturing and other defects and conforms to specifications.

10.3 OIL shall be kept informed of the manufacturing/Assembly process, of the Engine and Alternator, in advance. Bidder shall communicate at least 75 days in advance of the scheduled inspection date to enable OIL depute their representatives.

10.4 To and fro fares, boarding/ lodging and other en-route expenses of OIL's Inspection team for carrying out the inspection shall be borne by OIL.

11.0 PERFORMANCE TEST OF ENGINE-ALTERNATOR SET

11.1 Full load Performance test of the genset shall be witnessed by OIL's Engineers at Manufacturer's works to verify compliance with OIL's Purchase Order. Apart from the various tests as mentioned in the following paragraphs, **bidder's guarantee with regards to Fuel consumption and Lube oil consumption shall also be verified** during the performance test. The performance test of the Genset package shall be carried out using **crude oil as the fuel**.

11.2 OIL shall be communicated at least 75 days in advance of the scheduled test to enable OIL depute their representatives.

11.3 To and fro fares, boarding/ lodging and other en-route expenses of OIL's Inspection team for carrying out the inspection shall be borne by OIL.

11.4 Detailed test procedures shall be submitted along with the bid.

11.5 Inspection shall however not relieve the supplier of his responsibility to ensure that the equipment supplied is free from all manufacturing and other defects and conforms to specifications. Bidder to note that the Site Acceptance test [as detailed elsewhere in this NIT] shall be in addition to the Full load Performance test carried out at the Manufacturer's works

11.6 The Bidder shall submit the data, graphs and certificates of the full load performance tests for OIL's record.

11.7 Following tests as a minimum shall be carried out on the Alternator.

Routine Tests (Will be witnessed by OIL)

a) Resistance of
- Alternator Stator
- Exciter stator
- Exciter Rotor
- Main field

b) Insulation resistance [both before and after HV test]
- Alternator Stator
- Exciter stator
- Exciter Rotor
- Main field
- Accessories like RTDs, heaters CTs etc.

c) High Voltage test

- Alternator Stator
- Exciter stator
- Exciter Rotor
- Main field
- Accessories like RTDs, heaters CTs etc.

d) Short circuit characteristic.

e) Phase sequence test

f) Open Circuit characteristic

Special Tests (Will be witnessed by OIL)

a) Voltage Regulation Test

b) Transient Voltage Dip & Transient Voltage Rise [TVD/TVR] test

c) Temperature rise test at rated voltage and current, power factor and frequency. The measurements shall be taken only after the parameters have stabilised, which in no case be less than 60 min at a particular load.

Type Tests (<u>Will not be</u> witnessed by OIL)

a) Test certificates of all types of Type tests carried out shall be provided by the Alternator manufacturer to OIL.

b) Waveform test and harmonic analysis

c) Any other tests as per Applicable Standard

11.8 Following tests as a minimum shall be carried out on the Engine-Alternator set

a) Measurement of all important Engine parameters like fuel consumption, lube oil consumption, lube oil pressure, lube oil temperature, cooling water inlet temperature, cooling water outlet temperature, exhaust air temperature, etc at 25%, 50%, 75% and 100% of rated load respectively. **Measurements shall be taken only after the parameters have stabilised, which shall in no case be less than 30 min at a particular load.**

b) Response of Speed, Voltage and Frequency with sudden application of 25%, 50%, 60% of rated load respectively.

c) Response of Speed, Voltage and Frequency with sudden shedding of 25%, 50%, 60% and 100% of rated load.

d) The Governing system shall be tested during full load performance test to establish conformance to Type 1, Class A of ISO3046/IV [Reciprocating internal combustion Engines: Performance : Speed Governing]

e) Vibration measurements at 100% of synchronous speed and at 110% during over speed test.

f) Noise measurement test.

g) Over speed test

12.0 <u>Rejection on account of excessive fuel/Lube oil consumption</u>

12.1 <u>Rejection on account of excessive fuel consumption</u> – The Bidder's claim of fuel consumption at rated load (**Guaranteed value**) shall be verified by OIL, for each unit,

during inspection & full load performance testing of the Engine-Generator set at Manufacturer's works. In case the measured fuel consumption at rated load is found to be more than 3% of the Guaranteed fuel consumption data declared by the bidder the **genset package shall stand automatically rejected**.

12.2 **Rejection on account of excessive lube oil consumption -** The Bidder's claim of lube oil consumption at rated load (**Guaranteed value**) shall be verified by OIL, for each unit, during inspection & full load performance testing of the Engine-Generator set at Manufacturer's works. In case the measured lube oil consumption at rated load is found to be more than 3% of the Guaranteed lube oil consumption data declared by the bidder the **genset package shall stand automatically rejected**.

13.0 SITE ACCEPTANCE TEST

13.1 After successful completion of the full load performance test at Manufacturer's works and installation of all equipment and auxiliaries at site, the generating set will be subjected to SITE ACCEPTANCE TEST [as detailed in the following paragraphs] at full load or 100% of the available load before handing over to OIL.

13.2 The Engine-Generator set would be loaded to full load [or 100% of the available load] and run continuously for a period of 72 Hrs. During this period of 72 Hrs a total cumulative outage of 3.5 Hrs, with each outage of not more than 0.5 Hrs duration, shall be allowed. Failing the above condition the test shall be repeated.

13.3 The Genset's synchronizing and load sharing capabilities, **amongst each other as well as with existing CAT genset of OIL,** shall also be tested. In addition, the bidder shall demonstrate the dynamic stability of the system under various abnormal/outage/tripping conditions of individual generator's loads. Vibration of the complete Genset package shall also be checked.

13.4 On successful completion of the above tests, the reliability of the units shall be assessed by running the units at full load [or 100% of the available load]. The duration of each reliability run shall be 10 days. During this reliability run, no outage shall be allowable. Failing the above condition the test shall be repeated.

13.5 During the process of this Site Acceptance test, all the operating parameters shall be recorded hourly in the log sheets provided by the bidder for this purpose. The bidder shall make necessary checks, adjustments, repairs, required for normal operation of the system/equipment. All the safety devices shall be tested for their proper operation.

13.6 Upon completion of this Site Acceptance test, the log sheets along with all observations shall be jointly signed by the bidder and OIL. The performance of the system shall be evaluated based on the data and operations made during the Site Acceptance test. In case of any dispute, the decision of OIL shall be final.

14.0 COMMISSIONING DATE

THE DATE OF SUCCESSFUL COMPLETION OF THE SITE ACCEPTANCE TEST SHALL BE CONSIDERED AS THE DATE OF COMMISSIONING OF THE GENSET.

15.0 HANDING OVER

15.1 On satisfactory completion of the Acceptance Test, the genset shall be handed over to OIL for operation of the genset by OIL under the supervision of the bidder's technically competent Engineer.

15.2 Handing over shall also include submission of all documents, data sheets, test results, drawings and spares as per purchase order of OIL.

15.3 The Warranty Period shall be for 12 months and shall commence immediately after Handing over of the genset to OIL. The warranty shall cover the complete genset including all auxiliaries and sub systems supplied by the Bidder

16.0 DEPUTATION OF BIDDER'S ENGINEER

16.1 The Bidder shall depute technically **competent Engineer for a period of 90 days [i.e 90 Man Days]** immediately following the handing over of the genset to OIL. The deputation of Bidder's Engineer(s) should in no case be later than 7 days from the date of Handing over.

16.2 It is preferred that the bidder depute separate engineers, each specialized in his respective field. The bidder may however at his discretion depute a single engineer competent in all aspects of Mechanical, Electrical and Control system **However at any given point of time not more than 1 (one) Engineer shall be deputed by the Bidder**

16.3 The primary responsibility of the Bidder's Engineer(s) shall be to **impart both In-depth Theoretical knowledge as well as Hands-On training to OIL's Engineers in all aspects of Operation, Maintenance and Trouble shooting of Mechanical, Electrical and Control system**.

16.4 The basic objective of deputing Bidder's Engineer(s) is for training OIL's Engineers. As such, if the Engineer deputed by the Bidder is in OIL's opinion not adequately competent to do justice to his responsibilities or in any manner not performing his rightful duties towards the purchaser [i.e. OIL] then the bidder based on OIL's written request shall forthwith replace the Engineer with a suitably competent Engineer.

16.5 The period of 90 days shall be inclusive of Sundays and Purchaser's [i.e OIL] notified Holidays. The standard working time shall be from 0700 Hrs to 1530 Hrs with a 1 Hr Lunch Break, from Monday to Friday, and 0700 Hrs to 1100 Hrs on Saturday. However, OIL reserves the right to modify the training timing based on mutually convenient timing.

17.0 ANNUAL MAINTENANCE

17.1 The Annual Maintenance period of **3 Years shall start immediately following the completion of the Warranty Period** and shall cover Schedule, preventive and Condition monitoring of all Mechanical, Electrical, Instrumentation and Fire Detection system supplied by the bidder.

17.2 Except for the routine day-to-day maintenances all other maintenances as per OEMs maintenance schedule shall be carried out by the bidder during the tenure of the AMC.

17.3 All spare parts and consumables required for carrying out the maintenance shall be provided by OIL. However all Manpower, Tools and Tackles shall be arranged by the Bidder. The workforce deployed for the work shall be competent in the respective field of work.

17.4 For the above work, at least two visits per year by supplier's maintenance engineer shall be mandatory.

17.5 Apart from the routine maintenances as highlighted above the bidder shall arrange to attend to any Break down Maintenance call issued by OIL within a maximum of **5 working days**. Services

of the OEM, as may be required for fault diagnosis, trouble shooting and rectification, shall be arranged by the bidder.

17.6 Since the Bidder may source equipment from diverse Sub – Vendors, it is of importance to OIL that there exists an obligation by the Sub – Vendors to provide maintenance/support service for the equipment supplied. The Bidder shall therefore demonstrate by way of copies of MOUs/Agreements entered by the Bidder with their Sub – Vendors regarding maintenance / support services. The validity of such MOUs/Agreements should cover the AMC obligation of the Bidder [i.e 3 Years following the completion of the Warranty Period].

18.0 AFTER SALES SERVICE

18.1 Bidder should indicate the availability of nearest after sales service centre along with the details of infrastructural capabilities. The nature of after sales service, which can be provided by the supplier should be clearly stated in the Bidder's offer.

19.0 IMPORTANT NOTES TO THE BIDDER:

19.1 The layout Plan of the site showing proposed locations of the various facilities is shown in the attached drawing Drg No. OIL/PL/GA/04. The Design and Engineering of the Bidder's system shall be such that all the equipment as required to make the system complete shall be accommodated within the allocated area. Bidder to strictly note that re-location or resizing of the layout plan is **NOT POSSIBLE** due to mandatory/statutory clearance requirements.

19.2 Lube oil consumption by the Engine – Generator set is one of the evaluation criteria of the bid. Since different engines use different grade of lube oils, the landed price of lube oil at site shall be calculated as mentioned in the Bid Evaluation Criteria of this tender.

19.3 BIDDER TO NOTE THAT THE TECHNICAL BID SHOULD NOT CONTAIN ANY PRICE INFORMATION WHATSOEVER.

19.4 Installation and Testing of the generating set along with all auxiliaries and systems shall be carried out by the bidder in the presence of OIL representatives. Services of qualified and competent personnel from original equipment manufacturer (OEM) are essential during installation and Testing. OIL will provide necessary statutory permits for all Hot works like welding, grinding, cutting etc. in classified areas as and when required.

19.5 All tools, instruments, hand tools required for complete installation and commissioning of the Engine – Generator set along with all auxiliaries shall be arranged by the Bidder.

19.6 The bidder will be responsible for safety of its personnel and safety of all the equipment. All the safety gadgets required for safely carrying out the job shall be provided by the bidder.

19.7 Bidder will be responsible for safe custody of all the items till handing over to OIL.

19.8 The bidder to strictly ensure that all the cut ends of cables, packing materials, leftover items are removed from site after completion of work.

20.0 DOCUMENTATION & APPROVALS

The following are the list of documents and drawings to be submitted by the bidder. These are in **addition to any requirement of documentation mentioned elsewhere in this tender document**

20.1 **<u>Along with the bid</u> - 3 (Three) Sets**.

a) Technical write-up on the Engine-generator set explaining therein the design concept and key features of the set.

b) Synchronizing, Paralleling and Load sharing methodology between the new gensets as well as with existing CAT genset of Oil India Ltd.

c) Details of Alarm, Trip and Protective devices for the Engine-Generator sets

d) Details of Fire detection and Alarm system.

e) GA drawings of Engine and Alternator

f) Proposed layout drawings of all equipment, Electrical & Instrumentation panels

g) Tentative dimensional foundation drawings of all equipment including main Engine-Generator set

h) Detailed Full Load Performance test procedure for Engine-Generator set.

i) Technical Specifications, Data sheets and Type Test certificates of all major equipment.

j) Electrical Single line diagrams

k) Control schematics and Bills of material for LT switchgear panel

l) Copy of Agreements/MOUs between Bidder and his Sub-Vendors regarding service support.

20.2 **<u>Within 30 days of placement of purchase order</u> - 2 (Two) Sets for approval by OIL prior to starting manufacture/ procurement**:

a) GA layout drawings of all equipment, panels and cable trenches.

b) Detailed Foundation design and working drawings of all equipment including main Engine-Generator set

c) Detailed drawings for other civil items like Grouting, bolting, mounting arrangements, cable trenches, Pipe trenches, etc. for all Electrical panels, Instrumentation panels, Battery charger, Battery etc.

d) Synchronizing, Paralleling and Load sharing methodology.

e) Alarm, Trip and Protective devices for the Engine-Generator sets

f) Design, data and technical details of Fire detection and Alarm system.

g) Electrical Single line diagrams

h) Cable sizing calculation for Alternator main cables, Interconnector cable between the proposed LT Switchgear panel and OIL's existing LT Switchgear/Distribution panel and 1 MVA transformer feeder.

i) Detailed Power & Control wiring diagrams, bus bar sizing, Bills of material, panel enclosure and equipment specifications for the LT switchgear panel, Generator Metering & Control panel and Engine Local Control panel

j) Motor specifications and enclosure classifications.

k) Earthing scheme for both Body and Neutral earthing

l) Sizing calculation for Battery Bank & Battery Charger

20.3 **<u>4 months before pre-commissioning activities</u> - 2 (Two) Sets** of Pre-commissioning and Commissioning activity list for each equipment/system **for approval by OIL**. These check lists in addition to indicating the checks/test to be carried out on each equipment/system shall also indicate the sequence and schedule of the activities.

20.4 **<u>3 months before pre-commissioning activities</u> - 2 (Two) Sets** of draft start up and operating manuals for the plant. In particular the following information shall be covered :

a) General description of the plant.
b) Pre-starting checks.
c) Start up procedures.
d) Normal operation procedures.
e) Shutdown procedure (normal/emergency).
f) Vendor instructions for all equipment for normal operation and trouble shooting
g) Detailed write-up on Control & Safety Instrumentation system along with set points of different alarms and trip devices.
h) Summary of utilities consumption.
i) Lubrication schedule.
j) Fire detection and Alarm system.
k) Equipment specifications.
l) Equipment and instrument data sheets.
m) Electrical single line and schematic diagrams.
n) Wiring diagrams of various panels.
o) Details about various electronic cards & modules.
p) Piping and instrumentation drawings (P & I).
q) Safety logic diagrams.
r) Recommended Performa of log sheets.

Review of Start up and Operation Manual shall be done by OIL and all changes, additions, deletions required by OIL shall be discussed with the bidder and shall be incorporated in the final Start up and Operation Manual. Vendors operating manuals shall form a part of final operating manual.

20.5 <u>After commissioning</u> - 6 (Six) Sets in bound form and **3 (Three) sets in soft copy**

a) GA drawings layout plan showing all equipment. Drawings should be provided in full size and not in A4 size. Reproducibles of the drawings shall also be provided.
b) Preventive maintenance instructions- on the complete system that cover daily, weekly, monthly, biannual, and annual maintenance requirements and include a complete lubrication chart.
c) Routine test procedures- for all electronic and electrical circuits and for the Alternator.
d) Troubleshooting chart- covering the complete Engine-Generator set including all Auxiliaries, showing description of trouble, probable cause and suggested remedy.
e) AS-BUILT Power & Control schematic and wiring diagram for:
   - Engine Local control panel
   - Engine-Generator Metering & Remote Control panel
   - LT Switchgear Panel
   - Battery Charger Panel
   - Fuel oil conditioning plant
   - Fire detection and Alarm system
f) Technical literature, Data sheets, Service Manual, Operational manual and Parts Manual of all major equipment and Auxiliaries, including Engine, Alternator, AVR, Circuit breakers, Generator Protective relays, Instrumentation system (incl all sub systems), MIS system, Fire detection and Alarm system etc.
g) Calibration certificates for all instrumentation and electrical items

h) All test certificates for Routine and Special tests done at manufacturer's works (including Type tests) for Engine, Alternator, control panel, Switchgear panel, Aux Motors, Fire detection & Alarm system etc.

i) Plans showing piping, detector location, type & quantity, system components, control panel, zone, detector indicator, alarm system, etc. for Fire detection and Alarm system.

j) Details of power cables, control cable and their routes.

k) Bill of materials of all components.

l) Catalogues of various components.

m) Detailed data, graphs etc of all Tests carried out during commissioning

n) Recommended Spare parts list for 3 Years

o) Training brochures/schedules for all major equipment for enabling OIL to depute their personnel for training in their own workshop.

DATA SHEET

21.0 DATA SHEET FOR GENSET PACKAGE

- Manufacturer
- Type
- Duty
- Design Code
- Power Output in KW & BHP
  - ISO Power
  - Service Power at site condition
- Specific fuel consumption at ISO conditions [g/KWH]
- **Guaranteed fuel consumption in g/KWH at 100% load [at alternator terminal]**
- Fuel consumption (g/KWH)
  - At 75% load at alternator terminal
  - At 50% load at alternator terminal
- **Guaranteed lube oil consumption in L/KWH at 100% load [at alternator terminal]**
- Lube oil consumption [L/KWH]
  - At 75% load at alternator terminal
  - At 50% load at alternator terminal
- Engine Thermal efficiency
- Type & grade of lube oil recommended
- Engine sump capacity [Ltr]
- Method of starting
- Minimum Air pressure required for starting

- Engine Speed Governing
  - Governor Make
  - Type of Governing [ISO 3046/4]
  - Governing accuracy class
  - Upward range of speed setting
  - Downward range of speed setting
  - Steady state speed band [%]
- Operation & Maintenance Schedule
  - Maximum permissible continuous running Hours of the genset [Hrs]
  - Engine Top overhaul [Hrs]
  - Engine Major overhaul [Hrs]
- Life expectancy of engine [Hrs]
- Idle Speed
- Rated Speed
- Emission details [NOX, SOX etc]
- Compliance with emission norms [Provide details]
- Direction of rotation [ISO 1204]
- Number and arrangement of cylinder
- Compression ratio
- Size (bore, stroke & displacement) in mm
- Engine radiator/ heat exchanger capacity(Ltr/Hr and KW) / (Kcal/Hr)
- Maximum Nox emission[mg/m3]
- Maximum Black smoke emission [mg/m3]
- Max Noise level at 1 m from genset
- Length x width x height
- Weight in Kg:

22.0 DATA SHEET FOR ALTERNATOR

- Manufacturer's name
- Rated output in KVA and KW
- Rated Voltage
- Rated Stator Current
- Rated power factor
- Rated frequency
- Rated Speed in RPM
- Efficiency at rated p.f

- At 100% load
- At 75% load
- At 50% load

- Class of Insulation
  - Stator winding
  - Rotor winding
- Maximum Temperature rise over ambient temperature
  - Stator core
  - Stator winding
  - Rotor winding
- No. of terminals brought out
- Type of excitation [**with / without PMG**]
- Excitation Voltage and Current
- Voltage Regulation band
- Transient Voltage response to step application of load [50 %, 75 % 100%]
- Transient Voltage response to 100% unloading of load
- Maximum rating of Motor which can be started [DOL starter]
- Maximum unbalanced current carrying capability
- Length x width x height
- Weight in Kg

23.0 DATA SHEET FOR FIRE DETECTION AND ALARM SYSTEM

- Details of Fire detection and alarm system
  - Make
  - Model
  - Battery Details
  - Sensors Types
  - Sensors Qty [against each type]

24.0 DATA SHEET FOR SWITCHGEAR PANEL

- Manufacturer's name
- Rated Voltage
- Rated Bus Bar Current
- Short Circuit withstand capacity in KA / s
- CPRI approval for Short Circuit withstand capacity available ?
- Bus Bar Configuration

- Details of Bus Bar material
- Busbar sleeving material
- Bus Bar insulator material
- Control Voltage
- Panel configuration [Front only / Front & Rear both]
- Details of panel mounted Relays for Circuit Breaker Protection [Separately for each breaker panel]
  - Make of Protective relays
  - Details of Protective relays along with model Nos and ANSI/IEEE nomenclature
  - Type of Protective relay [Numeric, solid state, microprocessor based etc]
- Details of Air Circuit Breaker [Separately for each breaker panel]
  - Make
  - Model
  - Draw out / Non draw out type
  - Current rating
  - Short circuit breaking capacity
  - Number of poles
  - Control Voltage
  - Under voltage release [Yes/No]

Special Notes for the item(s):

1.0 Delivery being the essence of the tender, bidder should indicate their best delivery schedule (preferably within six (6) months from the date of placement of order/LC opening).

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

3.0 **Spares**

3.1 Commissioning spares: It is the responsibility of the bidder to provide adequate commissioning spares and consumables required during commissioning. The bidder shall furnish detailed list of such commissioning spares and consumables with OEM part numbers, quantity, unit rate, total value etc. Commissioning spares will be considered for bid evaluation purpose. Commissioning spares shall be handed over to OIL if unused.

3.2 Mandatory spares: The bidder shall supply all Mandatory spares as per Annexure – E which will be considered for bid evaluation purpose. However, OIL reserves the right to decide whether to purchase these spare parts along with the Supply or not.

3.3 Critical spares

The bidder shall furnish a list of operationally critical spares including bought out items that will be required for maintenance, overhauling etc. throughout the life of the equipment complete with price of each item. Annual consumption of each spare should be furnished. The spare parts list should include OEM part numbers, make & model of the equipment and contact postal address of OEM.

The price quoted for recommended spares will not be considered for bid evaluation purpose.

4.0 The Generating Set & its Auxiliaries should be design, constructed & tested as per latest International / Indian Standards mentioned in the Technical Specification (Para 4.0 above). However, as mentioned in the Technical Specification in case of bidder's inability to use the mentioned standards, the bidder shall indicate his proposed standards & codes defining in details the reason for using the same. OIL may review the bidder's proposed codes & standards & for approval of the same.

General Notes for Bidders :

(Bidders should confirm each & every point clearly. Deviations, if any, should be highlighted in the quotation.)

1.0 Bidders other than the Original Equipment Manufacturer (OEM), must enclose proper authorization certificate (in original) with a back up Warranty and Guarantee from the OEM to quote against this tender failing which the offer will be liable for rejection.

2.0 The bidders must submit a written undertaking that they would be able to supply all the requisite spares and consumables (including bought out items) for a minimum period of 15 (fifteen) years from the Certified date of completion / successful field commissioning of the unit. Original Equipment Manufacturer's undertaking must be forwarded for the items not manufactured by the bidder.

3.0 The items covered by this tender shall be used by Oil India Limited for providing electrical power to Industrial & domestic load and hence applicable Customs Duty during import will be applicable. Indigenous bidder shall not be eligible for Deemed Export Benefit against this purchase.

4.0 After Sales Service

The bidder should ensure and clearly stated after sales service during initial commissioning and also subsequently. Confirmation that all spares related to the equipment supplied both regular consumable ones as well as vital/ insurance spares, for the supplied unit quoted shall be available for a period of at least 15 (fifteen) years after delivery should be provided. Bidders should also indicate their nearest authorized service center.

5.0 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.

6.0 Warranty / Guarantee :

The complete package / unit shall be under guarantee / warranty by the supplier (or the bidder) for a minimum period of 1 (one) year from the date of successful commissioning of the complete unit at site.

OIL reserves the right to inspect, test & if necessary reject any parts / parts after delivery at site (including incomplete manuals, catalogues, etc.) in case of any fault on the part of the supplier. It shall in no way be waived by the reason that the unit / item was previously inspected & passed by OIL as per Inspection Clause detailed elsewhere in the NIT. To keep the unit fully operational, in case of failure of any item during the warranty period, it is the supplier's responsibility to arrange replacement / repairing at site at their own cost including custom duty, freight, etc. within a period of maximum 3 (three) weeks from the date of notification of such failure. The warranty for the repaired item shall be correspondently extended by a period equal to that from the date of failure to the date of re-commissioning. In case of replacements, the warranty shall be for 1 (one) year from the date of commissioning of the replaced item.

Defective goods / materials or parts notified by OIL to the Seller shall be replaced immediately by the Seller on F.O.R destination basis including payment of all taxes and duties at Seller's expense. This guarantee shall survive and hold good not-withstanding inspection, payment for and acceptance of the goods.

7.0 Predespatch Inspection and Testing Charges:

The Generating Sets shall be inspected by OIL's deputed engineer at manufacturers' works / factory prior to dispatch and as per the scope/clauses mentioned in the NIT. However, such inspection will not relieve the supplier of his responsibility to ensure that the equipment supplied conforms to the correct specifications and is free from manufacturing and all other defects.

N.B. Charges for carrying out the above tests at the manufacture's facility should be included in the purview of the offer.

Intimation must be sent to OIL at least 75 days in advance for inspecting the equipment at manufacturer's premises.

All to & fro air fares boarding & lodging etc. of OIL's Inspection personnel shall be to OIL's account. However, all facilities required for inspection / testing shall be provided by the successful bidder to OIL's Inspection personnel. Inspection / testing charges if any, should be quoted separately which shall be **considered for evaluation** of the offer.

8.0 Installation & Commissioning:

i) The Generating Sets shall have to be installed and commissioned at Narangi, Guwahati by competent personnel, from the respective OEM's of the Engine & Alternator, deputed by the bidder for the same. OIL may provide necessary local transportation for the commissioning personnel to and from site.

ii) Installation and Commissioning of both the Generating Sets units shall be started within a maximum of 2 weeks from the date of receipt of intimation from OIL regarding receipt of material at site and to be completed in next three (3) months period.

iii) Installation & Commissioning charges must be quoted separately on lumpsum basis which shall be considered for evaluation of the offers. While quoting Installation & commissioning charges, bidders should take into account all charges including to & fro fare, boarding / lodging, local transport at Guwahati and other daily expenses of the commissioning

personnel. OIL may provide accommodation on Chargeable basis subject to availability. Bidder should confirm about providing all these services in the Technical Bid.

iv) In the event of the Seller's default in maintaining the agreed Installation and Commissioning schedule set out in the order, the Seller shall be liable to pay consequence (liquidated damage) @ 0.5% per week or part thereof of the value of the goods as well as Installation & Commissioning charges in respect of which default in Installation and Commissioning schedule takes place subject to a maximum of 7.5 %.

The value of the goods shall be based on the Landed Cost of the materials at Guwahati inclusive of all cost and taxes.

Note - Failure on the part of the bidder to confirm the above will be treated as non-responsive and liable for rejection.

9.0 **Tax & Duties:**

(i) All taxes, stamp duties and other levies imposed outside India shall be the responsibility of the Bidder/Seller and charges thereof shall be included in the offered rates.

(ii) All Taxes & levies imposed in India, for the services including installation & commissioning, shall be to the Bidder/Seller's account.

(iii) Income Tax on the value of the Services rendered by the Bidder /Seller in connection with installation, commissioning, training etc. shall be deducted at source from the invoices at the appropriate rate under the I.T. Act & Rules from time to time.

10.0 Vendor shall supply the equipment with the nameplate carrying the following information.

i. OEM name
ii. Country of origin
iii. Year of manufacture

11.0 **Payment :** Payment shall be released as follows:

i) 70 % of the Generating Set value shall be released on supply of Generating Set against proof of despatch/shipment of the goods.

ii) Remaining 30 % of Generating Set value along with installation & commissioning charges shall be paid after successful commissioning and acceptance of the Generating Set by OIL at site.

iii) Training charges shall be payable on successful completion of training and submission of bill.

iv) Payment against AMC chargers shall be payable on quarterly basis against the invoice(s) to be submitted by the bidder at the end of each quarter.

OIL may consider making 100 % payment of the Generating Set value towards supply of the Generating Set against proof of dispatch/shipment provided bidders agree to pay interest @ 1% above prevailing Bank Rate (CC rate) of State Bank of India for 30 % of the Generating Set value and also submit Bank Guarantee for the equivalent amount plus interest valid till successful commissioning of Generating Set at site. This is in addition to the 10 % of the order value towards Performance Security as per the NIT requirement.

Any offer not complying with the above shall be loaded at one percent above the prevailing Bank Rate (CC rate) of State Bank of India for evaluation purpose.

12.0 Oil India Purchase Order No. must be engraved on the body of the item. Bidder must confirm the same categorically in their quotation.

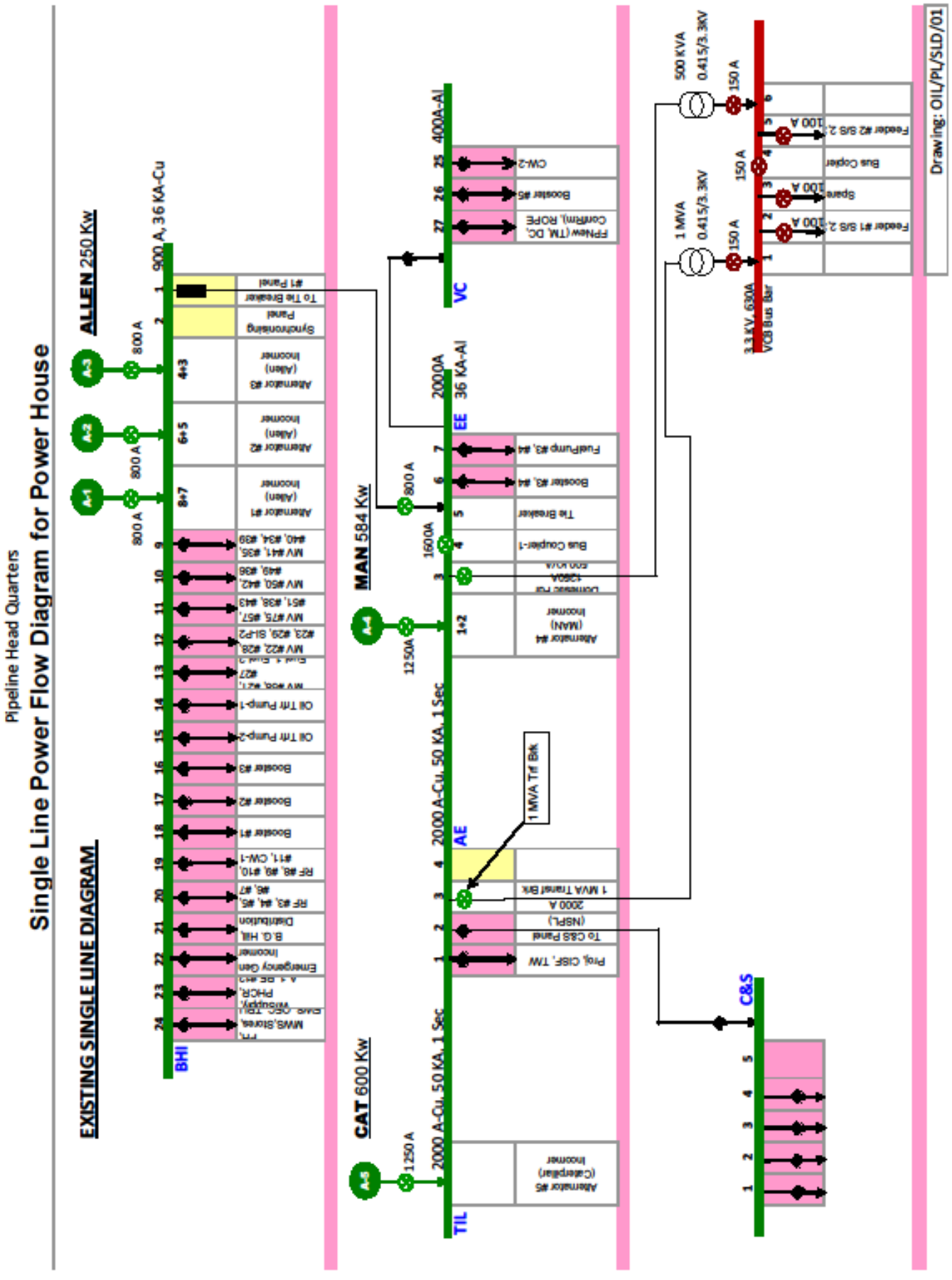
12.1 Other terms and conditions of the tender shall be as per "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders). However, if any of the Clauses of the Bid Rejection Criteria (BRC) / Bid Evaluation Criteria (BEC) mentioned here contradict the Clauses in the "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders) of the tender and/or elsewhere, those mentioned in this BEC / BRC shall prevail.

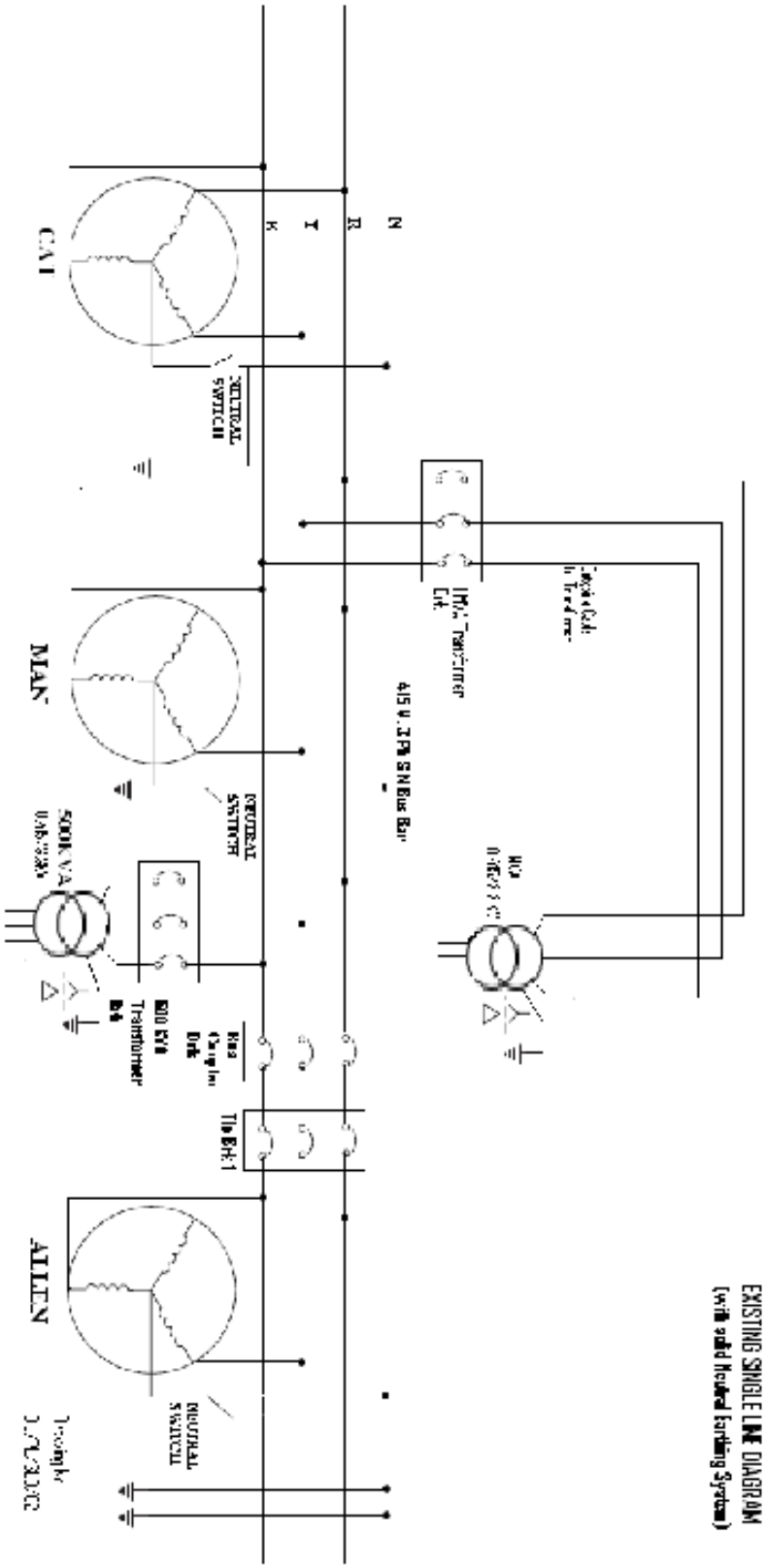
13.0 The Integrity Pact is applicable against this tender .OIL shall be entering into an Integrity Pact with the bidders as per format enclosed vide Annexure XII of the tender document. This Integrity Pact proforma has been duly signed digitally by OIL's competent signatory. The proforma has to be returned by the bidder (along with the technical bid) duly signed (digitally) by the same signatory who signed the bid, i.e., who is duly authorized to sign the bid. Any bid not accompanied by Integrity Pact Proforma duly signed (digitally) by the bidder shall be rejected straightway. Uploading the Integrity Pact with digital signature will be construed that all pages of the Integrity Pact has been signed by the bidder's authorized signatory who sign the Bid.

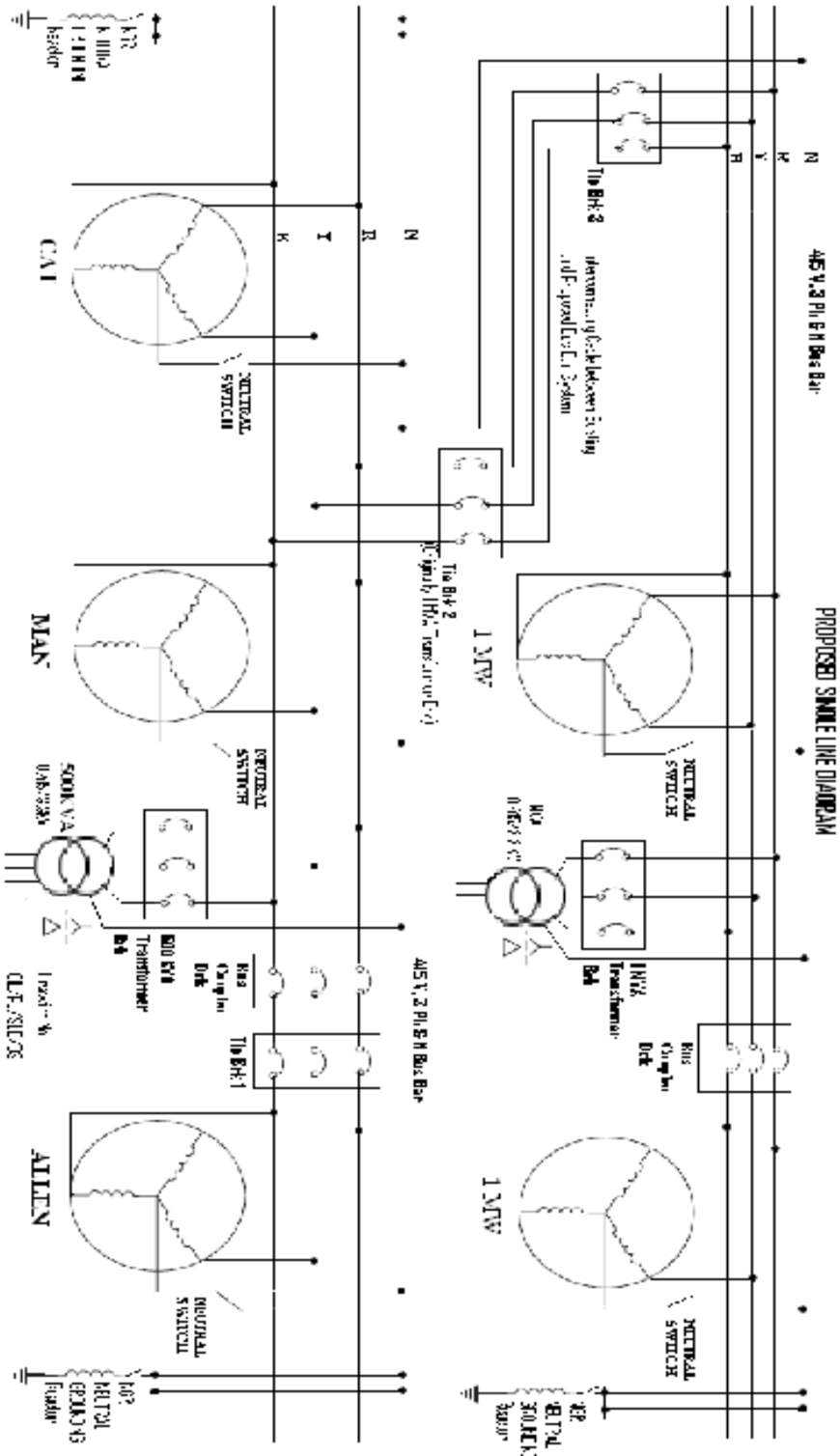
OIL's Independent External Monitors at present are as under:

(I) SHRI N. GOPALASWAMI,I.A.S (Retd) ,
Former Chief Election Commissioner of India
E-mail Id : gopalaswamin@gmail.com

(II) SHRI RAMESH CHANDRA AGARWAL , IPS(Retd)
Former Director General of Police
E-mail Id : rcagarwal@rediffmail.com

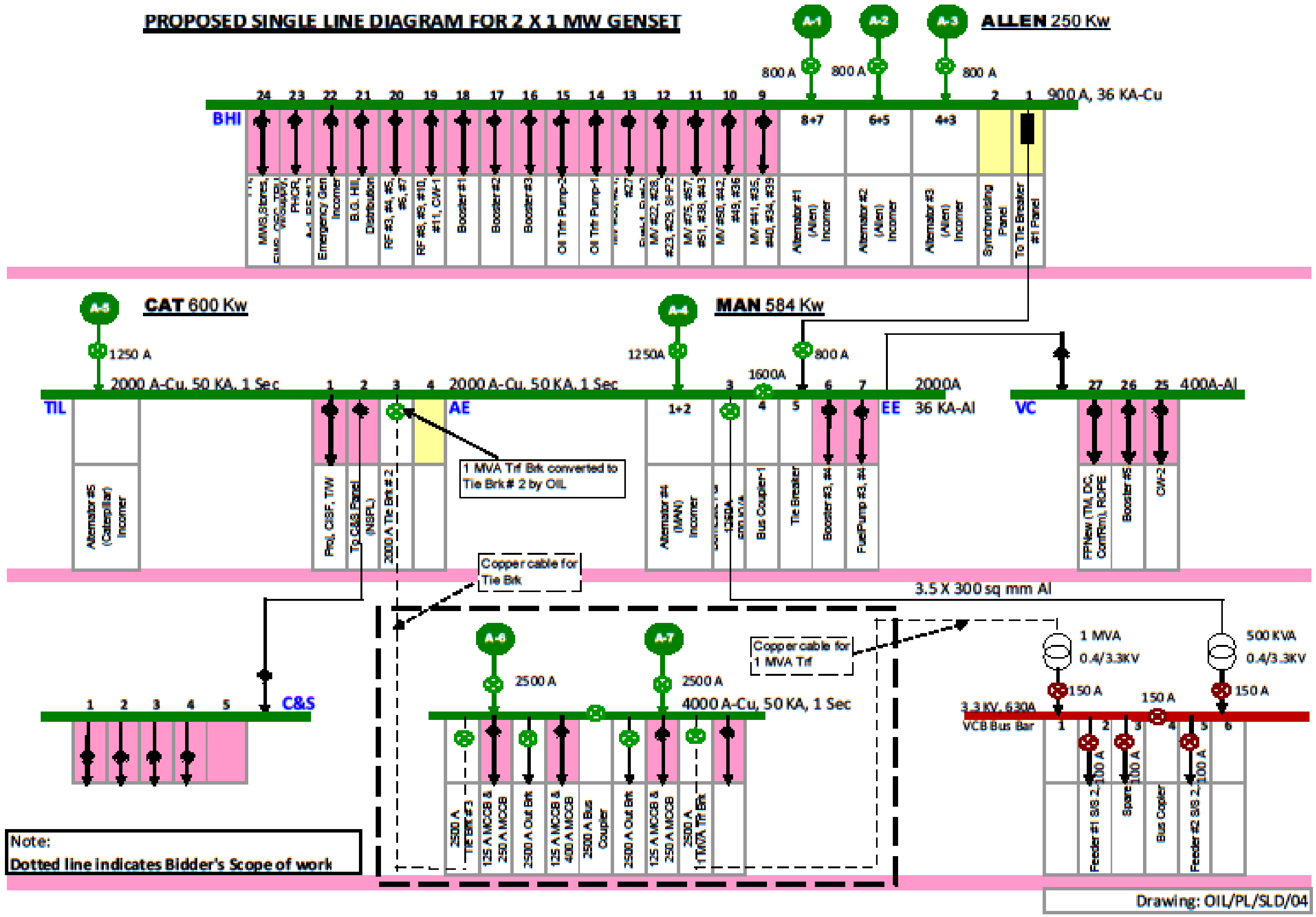

Pipeline Head Quarters
Single Line Power Flow Diagram for Power House
EXISTING SINGLE LINE DIAGRAM
ALLEN 250 Kw
900 A, 36 KA-Cu
BHI
800 A
CAT 600 Kw
2000 A-Cu, 50 KA, 1 Sec
TIL
1250 A
MAN 584 Kw
2000A
36 KA-Al
EE
1600A
1250A
VC
400A-Al
AE
1 MVA Trf Bkr
500 KVA
0.415/3.3KV
1 MVA
33 KV, 630A
VCB Bus Bar
C&S
Drawing: OIL/PL/SLD/01

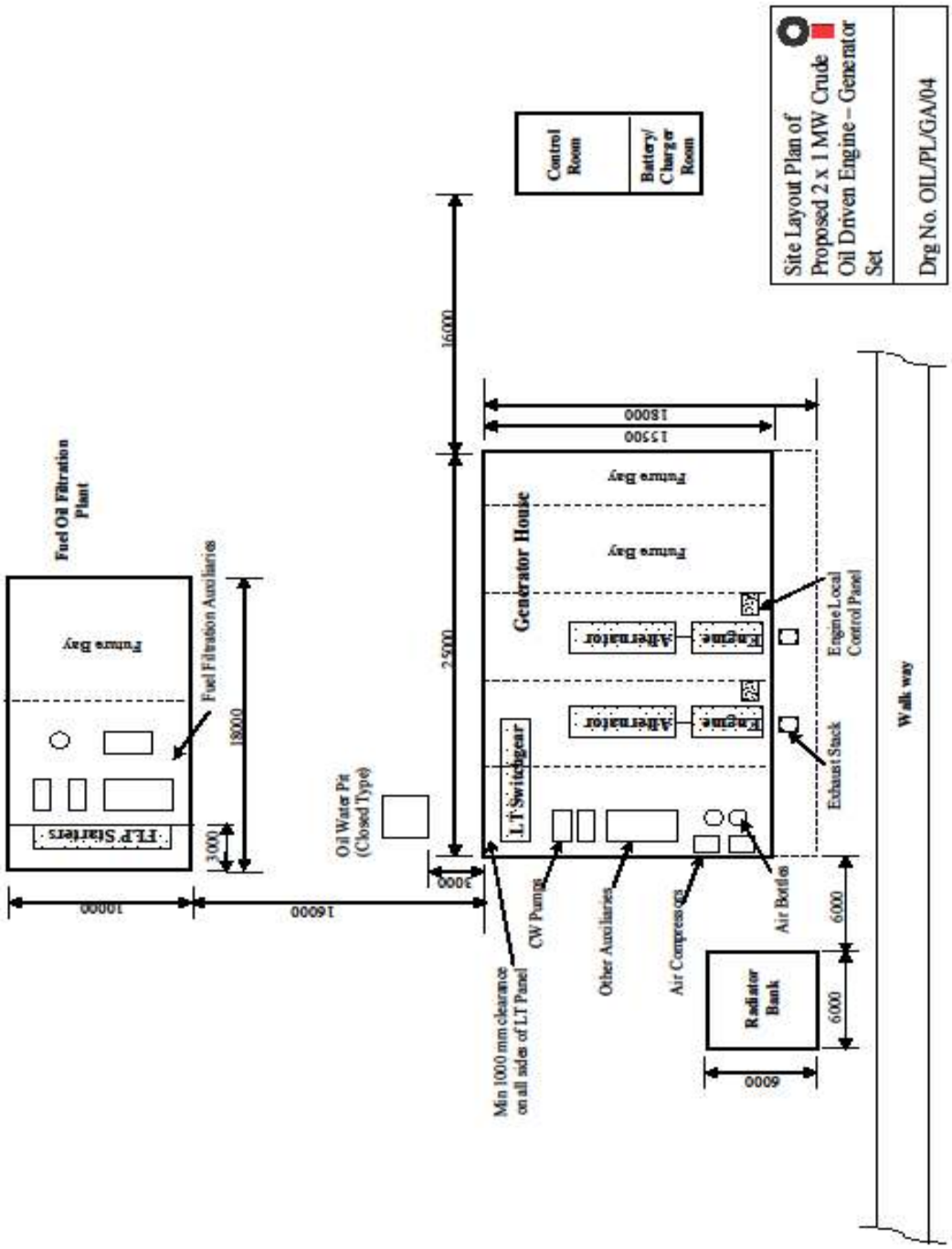

CAI
MAN
ALLEN
EXISTING SINGLE LINE DIAGRAM


PROPOSED SINGLE LINE DIAGRAM
NEUTRAL SWITCH
MAN
ALLEN

Pipeline Head Quarters

Single Line Power Flow Diagram for Power House




Site Layout Plan of Proposed 2 x 1 MW Crude Oil Driven Engine – Generator Set
Drg No. OIL/PL/GA/04
Control Room
Battery/ Charger Room
Fuel Oil Filtration Plant
Future Bay
F.F.P. Starters
Fuel Filtration Auxiliaries
Oil Water Pit (Closed Type)
Generator House
Future Bay
Future Bay
Engine
Alternator
Engine
Alternator
LT Switchgear
Engine Local Control Panel
Exhaust Stack
Walk way
CW Pumps
Other Auxiliaries
Air Compressors
Air Bottles
Radiator Bank
Min 1000 mm clearance on all sides of LT Panel
16000
15500
18000
2500
3000
3000
10000
16000
18000
6000
6000
6000

Annexure - A

CRUDE OIL CHARACTERISTICS

Density	: 0.8792 [at 15.5 Deg C]
API	: 29.400 [at 15.5 Deg C]
Pour point	: 15 Deg C
Water content	: 0.65 % (v/v)
Wax	: 16.7 % (w/w)
Sulphur content	: 0.15 % (w/w)
Viscosity	: 8.9 cst at 40 degC
RVP	: 0.05 kg/cm2 at 40 degC
Calorific value	: 10167 Kcal/Kg to 10833 Kcal/Kg

Annexure - B

SITE CONDITION

The generating sets should be suitable for operation at the following site condition :

Location	: GUWAHATI
District	: KAMRUP
State	: ASSAM
Country	: INDIA
Maximum Temperature	: 38.5 DEG C
Minimum Temperature	: 07.0 DEG C
Average Humidity	: 75 %
Maximum Humidity	: 100 %
Maximum Altitude above MSL	: 55.50 Meter
Maximum Total rainfall	: 353.6 mm [July]
Earthquake Zone	: Zone V [IS1893]

Annexure - C

INFRASTRUCTURE AVAILABLE AT SITE

SL.NO.	DESCRIPTION	CAPACITY
1	Over ground open static water tank [Source of Raw Water supply]	**Capacity** – 1200 KL **Dimension** (L x B x D) – 35 m x 20.6 m x 2.2 m **Temperature**: 5^{o} C above ambient temperature
2	Crude Oil service Tank	(20 x 2) KL Temp = Ambient Temperature
3	Crude Oil Circulating Pump	Capacity 9.0 m3 / hr Pressure 12 kg/cm2 (Max.)

Note:

Bidder to assess regarding suitability of using the existing infrastructure for the proposed 1 MW Generating sets and make requisite arrangements accordingly.

DETAILS OF EXISTING 600 KW CAT DIESEL GENERATOR

[Proposed new 2 x 1 MW Generators will have to synchronize and run in parallel with this genset]

Engine details

a) Make : CATERPILLAR
b) Type : 3508B DITA
c) Fuel : Diesel
d) Power : 664 BKW/890 BHP
e) RPM : 1500
f) Others : 4 Stroke, V-8, turbo-charged, Air start, Integral Radiator
g) Governor : ECM, Governing Class A1 as per ISO-3046/4, Governing accuracy class within A1, Steady state speed band +/- 0.25%

Alternator

a) Make : Leroy Somer
b) Frame : DSG-62L
c) Rating : 1000 KVA, Volts-400, Amps-1443, PF-0.8 lagging, Hz-50
d) RPM : 1500
e) Insulation. : Class-H
f) Excitation : Volts-41V DC, Amps-4.5A DC
h) AVR : AVK- COSIMAT N+ [No load to full load recovery within 300 ms]
g) Terminals : 4terminals [U,V,W & 1N]
h) Duty : S1

Annexure - E

LIST OF MANDATORY SPARES TO BE SUPPLIED BY THE BIDDER ALONG WITH THE OF ENGINE-GENERATOR SET (Quantity as mentioned below is for Both the units)

DESCRIPTION	Qty	Unit
PISTON RING	6	Set
SEAL	24	Set
INJECTOR	1	Set
CYLINDER LINER	2	Set
CYLINDER HEAD	1	Set
PISTON	1	Set
MAIN JOURNAL BEARING	1	Set
BEZ-END BEARING	1	Set
FUEL INJECTION PUMP	1	Set
FILTER CARTRIDGE [ALL TYPES]	2	Set
SEAL O RING (All types)	6	Set
HEAD GASKET	6	Set
GASKET (All types)	6	Set
INSTRUMENT SENSORS (All types)	1	Set
ENGINE – GENERATOR CONTROL PANEL - RELAYS / CONTACTORS [Assorted] – 24 Nos - MCBs [Assorted] – 06 Nos - FUSES [All types] – 06 Nos for each type - INDICATION LAMP FITTING [Assorted] – 12 Nos - INDICATION BULBS [Assorted] – 100 Nos - ROTARY SELECTOR SWITCH [Assorted] – 03 Nos	1	Set
AVR UNIT FOR ALTERNATOR	1	No
ROTATING DIODE ASSEMBLY	2	Set
GENERATOR AIR CIRCUIT BREAKER [Complete]	1	No
ELECTRICAL LT SWITCHGEAR PANEL - CONTACTORS [Assorted] – 12 Nos - MCBs [Assorted] – 08 Nos - FUSES [All types] – 06 Nos for each type - INDICATION LAMP FITTING [Assorted] – 12 Nos - INDICATION BULBS [Assorted] – 200 Nos - ROTARY SELECTOR SWITCH [Assorted] – 06 Nos - AIR CIRCUIT BREAKER AUX CONTACT – 06 SET - AIR CIRCUIT BREAKER CLOSING COIL – 02 Nos - AIR CIRCUIT BREAKER TRIP COIL – 02 Nos - AIR CIRCUIT BREAKER UV COIL – 02 Nos	1	Set
BATTERY CHARGER - POWER DIODES – 1 SET - THYRISTORs/SCRs – 1 SET - CONTROL CARD (All Types) – 1 No. each - AUTO/MANUAL ROTARY SWITCH – 1 No.	1	Set
Any other material which the supplier may feel necessary	As reqd	

Annexure - F

DEVIATION

Sl. No.	Page No. of tender document	Section	Clause No.	Description of clause	Deviation proposed by Bidder

We herby certify that the offered equipment fully conforms to the tender specifications and we agree to all the technical and commercial specifications/terms & conditions, except for the deviation(s) / exception(s) mentioned in this Annexure.

Offer reference	
Name of the Bidder	

Annexure - G

CHECK LIST

THE CHECK LIST MUST BE COMPLETED AND RETURNED WITH YOUR OFFER. PLEASE ENSURE THAT ALL THESE POINTS ARE COVERED IN YOUR OFFER. THIS WILL ENSURE THAT YOUR OFFER IS PROPERLY EVALUATED.

CONFORMITY CHECK LIST

1.	Bidder Quoting as (Tick Appropriate box)	Engine Procured from	Alternator Procured from
OEM of Genset	☐		
Authorised dealer of OEM of Genset	☐		
OEM of Engine	☐		
Authorised dealer of OEM of Engine	☐		
OEM of Alternator	☐		
Authorised dealer of OEM of Alternator	☐		
OEM approved assembler of Generating set	☐		

Documentary evidence in respect of above has been provided ? **YES/NO**

Bidder's Signature_____

Bidder's Name_____

Annexure – II

Bid Rejection Criteria (BRC) and Bid Evaluation Criteria (BEC)

(I) BID REJECTION CRITERIA (BRC)

The bids must conform to the specifications, terms, and conditions given in the NIT. Bids shall be rejected in case the items offered do not conform to the required technical 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:

A. Technical

1.0 Each genset should conform to the following

a) Minimum net power output of **1 MW on continuous rating basis at 415V, 3 Phase, 50 Hz, Power factor 0.8 lagging** at the Generator terminal. This shall be under the specified site conditions mentioned in the NIT.

b) Alternator must be brushless type.

c) Designed, Rated and Capable of **continuous unattended operation** for a minimum of **1500 Hrs** without any human intervention, inspection or schedule maintenance.

d) Suitable for **operating on crude oil** conforming to the crude oil specification as mentioned in the NIT

e) Medium speed with engine RPM in the range of **750 to 1000** RPM.

f) The emission of the genset should conform to the latest edition of National and International Standards

g) Suitable for operating in **parallel amongst each other as well as with existing Caterpillar [CAT] genset,** with both KW and KVAR sharing.

2.0 **Bidder's Qualification** :

2.1 Bidder shall be an Original Equipment Manufacturer (OEM) of complete Generating set or Engine or Alternator.

OR

Bidder shall be an authorized dealer of OEM for the Engine or Alternator or the complete Generating set.

OR

Bidder shall be an OEM approved assembler of Generating set .

2.2 In case the Bidder is an OEM of Engine or their authorized dealer, the Alternator must be purchased from the OEM of Alternator or their authorized dealer. Alternatively, if the Bidder is an OEM of Alternator or their authorized dealer, the Engine must be purchased from OEM of Engine or their authorized dealer.

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 2.1 & 2.2 above, Bidder will have to enclose documentary evidence along with the offer failing which offer will be rejected.

3.0 **Bidder's Experience:**

3.1 **In case, the bidder is an Original Equipment Manufacturer (OEM) of the complete Generating set or Engine or Alternator**

3.1.1 The bidder shall be a Manufacturer of complete Generating set or Engine or Alternator.

3.1.2 Bidders should have the experience of successfully completing at least 3(Three) orders in the last 10 (ten) years preceding from the date of Original Bid closing of this tender against supply, installation, commissioning and testing of **Crude oil / Heavy Fuel oil (HFO) Engine driven Generating sets of capacity 600 KW** or above along with the Control Panels and accessories in State/Central PSUs, State/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. Bidder shall also submit details of the previous supply of such supply in a tabular format as shown below :

Sl. No.	Client / Customer Name and Address with contact e-mail id	Order No / Contract No.	Date of order	Genset specification (Engine – Alternator Make, Model, Rating, Fuel used) & Quantity supplied	Completion date	Supporting document enclosed

3.2 **In case the Bidder is an authorized dealer of OEM for the Engine or Alternator or the complete Generating set or is an OEM approved assembler of Generating set - The following criteria shall be met by the Bidder:**

3.2.1 Bidder shall enclose a Certificate in original in support of authorization of dealership with back up Warranty & Guarantee from the Original Equipment Manufacturer (OEM) to quote for this tender.

3.2.2 The bid shall be rejected in case of any change of the proposed OEM after submission of the bid.

3.2.3 Bidders should have the experience of successfully completing at least 2 (Two) orders in the last 10 (ten) years preceding from the date of Original Bid closing of this tender against supply, installation, commissioning and testing of **Crude oil / Heavy Fuel oil (HFO) Engine driven Generating sets of capacity 600 KW** or above along with the Control Panels and

accessories in State/Central PSUs, State/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. Bidder shall also submit details of the previous supply of such supply in a tabular format as shown below :

Sl. No.	Client / Customer Name and Address with contact e-mail id	Order No / Contract No.	Date of order	Genset specification (Engine – Alternator Make, Model, Rating, Fuel used) & Quantity supplied	Completion date	Supporting document enclosed

3.2.4 Bidder shall offer only those makes of Engines and Alternators whose experience he has shown in the above table in compliance of requirements mentioned in para 3.2.3 above. Any other make apart from those will not be accepted.

4.0 **Supporting Documents**

a) Possession of a supply order without complete execution or partially completed order will not be considered as previous experience of the bidder with respect to the Bidder's Experience criteria.

b) In support of the experience as noted in Para 3.1.2 and 3.2.3 above, the bidder shall submit the following documents duly notarized:
   i) Copy of the Purchase Order showing equipment details, Date of order, Delivery Date etc.
   ii) Commissioning report from the clients
   iii) Performance report from the clients

c) In support of clause nos. 3.2.1 authorization certificate (in original) from the OEM shall be enclosed.

Note: All The above mentioned documents shall be in the name of the bidder.

5.0 The Bidder must furnish an undertaking/confirmation from OEMs that the Engine and Alternator are not going to become obsolete for **at least the next 15 years** and availability of spares is guaranteed for **15 years** or more**.**

6.0 The Bidder must furnish an undertaking that they agree to make available spare parts, carry out Preventive & Breakdown maintenance, provide Technical support & updates for **at least the next 15 Years**. The bidder shall also submit a declaration from OEM of Engine and Alternator regarding availability of their service centers in India.

7.0 Bidder shall offer **full load performance test of the Engine-Generator set at manufacturer's works** in the presence of OIL's representatives.

8.0 Bidder shall offer **site acceptance test** of the complete system including synchronizing and load sharing capabilities **amongst each other as well as with existing Caterpillar [CAT] genset of OIL**. The acceptance test shall be carried out on full load or 100% of the available

load at that time.

9.0 The space requirement of the genset package along with all its Auxiliaries should be such that it can be **accommodated in the proposed new Generator House area being built for this purpose** (Dimension and layout drawing provided in the NIT).

10.0 Bidder shall offer to **depute 1 (One) Competent Engineer for a period of 90 days** from the date of successful commissioning and handover of the genset to OIL. This is to enable OIL's engineer to be adequately trained in the Operation and Maintenance of the entire system.

11.0 The Bidder shall offer their rates for **Annual Maintenance** of the supplied equipment as per schedule in NIT

12.0 The Bidder shall submit a price list of all Critical Spares along with their offer. The cost of Critical Spares **will not be** considered for bid evaluation purpose

13.0 The Bidder shall confirm that Circuit diagrams of critical electronic circuits shall be provided to OIL during commissioning.

14.0 **GENERAL :**

14.1 **Any exceptions/deviations to the Bid Document must be spelt out by Bidder** in their 'Techno-Commercial' bid only.

14.2 In case, any of the clauses in the BRC contradict with other clauses of Bid Document elsewhere, then the clauses in the BRC shall prevail.

14.3 **All documentary proof shall be submitted along with the Bid.** The Original documents shall have to be produce by the Bidder, if asked for by OIL.

(B) <u>COMMERCIAL</u> :

Commercial Bid Rejection Criteria will be as per Section D of General Terms & Conditions of Global Tender (MM/GLOBAL/E-01/2005) with following Special Bid Rejection Criteria.

1.0 Bids are invited under Single Stage Two Bid System. Bidders shall quote accordingly under Single Stage Two Bid System. **Please note that no price details should be furnished in the Technical (i.e. Unpriced) bid.** The "Unpriced Bid" shall contain all techno-commercial details except the prices which shall be kept blank. The "Priced Bid" must contain the price schedule and the bidder's commercial terms and conditions.
Bidder not complying with above submission procedure will be rejected.

2.0 Bid security of **US $ 1,19,110.00 or ₹ 53,60,000.00** shall be furnished as a part of the TECHNICAL BID (refer Clause Nos.9.0 & 12.0 (Section A) of "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders)). **<u>Any bid not accompanied by a proper bid security in ORIGINAL will be rejected without any further consideration.</u>** For exemption for submission of Bid Security, please refer Clause No. 9.8 (Section A) of "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders). The Bid Security shall remain valid till 6th February 2014

3.0 Validity of the bid shall be minimum 6 months (180 days) from Bid closing date. Bids with lesser validity will be rejected.

4.0 Bidders must confirm that Goods, materials or plant(s) to be supplied shall be new of recent make and of the best quality and workmanship and shall be guaranteed for a period of twelve months from the date of commissioning of the complete package at site against any defects arising from faulty materials, workmanship or design. Defective goods/materials or parts rejected by OIL shall be replaced immediately by the supplier at the supplier's expenses at no extra cost to OIL.

5.0 Successful bidder will be required to furnish a Performance Bank Guarantee @10% of the order value. The Performance Bank Guarantee must be valid for one year from the date of receipt/acceptance of goods or 18 months from the date of shipment whichever is earlier. Bidder must confirm the same in their Technical Bid. Offers not complying with this clause will be rejected.

6.0 Bidders are required to submit the summary of the prices in their "Priced Bids as per bid format (Summary), given below:

(i) Priced Bid Format (SUMMARY) for Foreign Bidders :

(A) Total material value of the 2 Nos. Generating Sets (other than Sl. No. B & C below)
(B) Total cost mandatory spares as per Annexure- E
(C) Total cost of commissioning spares, if any
(D) Grand total material cost (A + B + C)
(E) Pre-shipment inspection and full load performance test charges by OIL personnel, if any
(F) Packing & FOB Charges
(G) Total FOB Port of Shipment value
(H) Ocean Freight Charges upto Kolkata, India
(I) Insurance Charges
(J) Total CIF Kolkata value
(K) Installation & Commissioning charges
(L) Total cost of Deputation charges for training for a period of 90 days (refer Para 16.0)
(M) Total AMC charges for 3 years
(N) Total Value, (J + K + L + M) above
(O) Total value in words :
(P) Gross Weight :
(Q) Gross Volume

(ii) Priced Bid Format (SUMMARY) for Indigenous Bidders :

(A) Total material value of the 2 Nos. Generating Sets (other than Sl. No. B & C below)
(B) Total cost mandatory spares as per Annexure- E
(C) Total cost of commissioning spares, if any
(D) Grand total material cost (A + B + C)
(E) Pre-shipment inspection and full load performance test charges by OIL personnel, if any
(F) Packing and Forwarding Charges
(G) Total Ex-works value

(H) Excise Duty including Cess, (Please indicate applicable rate of Duty)
(I) Total Ex-works value including Excise Duty & Cess
(J) Sales Tax, (Please indicate applicable rate of Tax)
(K) Total FOR Despatching station value
(L) Road Transportation charges to Guwahati
(M) Insurance Charges
(N) Assam Entry tax
(O) Total FOR Guwahati value
(P) Installation & Commissioning charges
(Q) Total cost of Deputation charges for training for a period of 90 days (refer Para 16.0)
(R) Total AMC charges for 3 years
(S) Total Value, (O + P + Q + R) above
(T) Total value in words :
(U) Gross Weight :
(V) Gross Volume :

NOTE :

1. The Commissioning Spares and mandatory spares should be quoted separately indicating the unit price and quantity quoted.
2. Total AMC charges for 3 years shall also be indicated per year basis separately.
3. **Summary of the prices,** as per the bid format (Summary) mentioned above, to be up-loaded in "Priced Bid" separately.
4. Installation/Commissioning charges & Training charges must be quoted separately (not to include in materials cost) on lumpsum basis which shall be considered for evaluation of the offers. These charges should include amongst others to and fro fares, boarding/lodging, local transport and other expenses of supplier's commissioning personnel during their stay at the commissioning sites. All Income, Service, Corporate Taxes etc. towards the services provided under installation / commissioning shall be borne by the supplier and will be deducted at source at the time of releasing the payment.

Bidders must categorically indicate the Installation / Commissioning, Pre-despatch/Shipment Inspection, Training charges and AMC charges in their offers and must confirm about providing the same in their Technical bids.

7.0 **Offers received without Integrity Pact duly signed by the authorised signatory of the bidder will be rejected.**

(II) BID EVALUATION CRITERIA (BEC):

The Bids conforming to the specifications, terms and conditions stipulated in the tender and considered to be responsive after subjecting to the Bid Rejection Criteria will be considered for further evaluation as per the Bid Evaluation Criteria given below:

A. Technical

1.0 CALCULATION FOR LOADING FOR FUEL CONSUMPTION

Offers will be loaded considering 8000 Hrs of operation/year and equipment life of 15 years. The calculation for loading shall accordingly be as follows:

Loading for Fuel

$L_f = P_e \times F_e \times 8000 \times t \times C_f / 1{,}000{,}000$

Where

L_f = Loading in ₹

P_e = Rated load in KW [i.e 1000 Kw]

F_e = Fuel consumption of the genset package under evaluation, in g/KWH

t = Time in years [i.e. 15 years]

C_f = Crude oil price in ₹/MT.

The crude oil price shall be determined based on the billing amount of our company (we are an E&P company) for the month immediately preceding the Original Bid Closing date.

2.0 CALCULATION FOR LOADING FOR LUBE OIL CONSUMPTION

Offers will be loaded considering 8000 Hrs of operation/year and equipment life of 15 years. The calculation for loading shall accordingly be as follows:

Loading for Lube oil

$L_l = P_e \times F_l \times 8000 \times t \times C_l$

Where

L_l = Loading in ₹

P_e = Rated load in KW [i.e 1000 Kw]

F_l = Lube oil consumption of the genset package under evaluation, in L/KWH

t = Time in years [i.e. 15 years]

C_l = Landed price of Lube oil at site in ₹/L.

Cost of Lube oil shall be determine from the cost of Indian equivalent (e.g. IOCL's SERVO brand) of the Bidder's recommended Lube oil, for the month immediately preceding the Original Bid Closing date.

(B) COMMERCIAL :

1.0 The evaluation of bids will be done as per the Price Schedule (SUMMARY) detailed vide Para 6.0 of BRC.

2.0 If there is any discrepancy between the unit price and the total price, the unit price will prevail and the total price shall be corrected. Similarly, if there is any discrepancy between words and figure, the amounts in words shall prevail and will be adopted for evaluation.

3.0 For conversion of foreign currency into Indian currency, B.C. selling (Market) rate declared by State Bank of India, one day prior to the date of price bid opening shall be considered. However, if the time lag between the opening of the bids and final decision exceed 3(three) months, then B.C. Selling(Market) rate of exchange declared by SBI on the date prior to the date of final decision shall be adopted for conversion and evaluation.

4.0 Offers not complying with the payment terms indicated in the enquiry shall be loaded with one percent above the prevailing Bank rate (CC rate) of State Bank of India for duration of commissioning time indicated in the tender plus transit time (3 months) for evaluation purpose.

5.0 To ascertain the inter-se-ranking, the comparison of the responsive bids will be made as under, subject to corrections / adjustments given herein.

5.1 **When only foreign bidders are involved:**

Comparison of bids will be done on the basis of "Grand Total Value" which is estimated as under:

(A) Total material value of the 2 Nos. Generating Sets (other than Sl. No. B & C below)
(B) Total cost mandatory spares as per Annexure- E
(C) Total cost of commissioning spares, if any
(D) Grand total material cost (A + B + C)
(E) Pre-shipment inspection and full load performance test charges by OIL personnel
(F) Packing & FOB Charges
(G) Total FOB Port of Shipment value
(H) Ocean Freight Charges upto Kolkata, India
(I) Insurance Charges @1% of Total FOB Port of Shipment value vide (G) above
(J) Banking Charges @ 0.5% of Total FOB Value (G) above in case of payment through Letter of Credit (If confirmed L/C at buyer's account is required, 1.5% of Total FOB Value will be loaded)
(K) Total CIF Kolkata value
(L) Installation & Commissioning charges
(M) Total cost of Deputation charges for training for a period of 90 days (refer Para 16.0)
(N) Total AMC charges for 3 years
(O) Loading for fuel consumption [as per the calculation mentioned in BEC Technical above]
(P) Loading for lube oil consumption [as per the calculation mentioned in BEC Technical above]
(Q) Grand Total Value, (K + L + M + N + O + P) above

5.2 **When only domestic bidders are involved or when more than one domestic bidders are in contention in case of mixed response :**

Comparison of bids will be done on the basis of "Grand Total Value" which is estimated as under :

(iii) **<u>Commercial Bid Format (SUMMARY) for Indigenous Bidders</u> :**

(A) Total material value of the 2 Nos. Generating Sets (other than Sl. No. B & C below)
(B) Total cost mandatory spares as per Annexure- E
(C) Total cost of commissioning spares, if any
(D) Grand total material cost (A + B + C)
(E) Pre-shipment inspection and full load performance test charges by OIL personnel
(F) Packing and Forwarding Charges
(G) Total Ex-works value
(H) Excise Duty including Cess
(I) Total Ex-works value including Excise Duty & Cess

(J) Sales Tax
(K) Total FOR Despatching station value
(L) Road Transportation charges to Guwahati
(M) Insurance Charges @0.5% of Total FOR Despatching station value (J) above
(N) Assam Entry tax
(O) Total FOR Guwahati value
(P) Installation & Commissioning charges
(Q) Total cost of Deputation charges for training for a period of 90 days (refer Para 16.0)
(R) Total AMC charges for 3 years
(S) Loading for fuel consumption [as per the calculation mentioned BEC Technical above]
(T) Loading for lube oil consumption [as per the calculation mentioned BEC Technical above]
(U) Grand Total Value, (O + P + Q + R + S + T) above

5.3 **When both foreign and domestic bidders are involved :**

The Grand Total Value of domestic bidder (inclusive of customs duty on imported raw material and components etc, and applicable terminal excise duty on the finished products and Sales Tax) excluding inland transportation to destination and Insurance charges worked out as per Para 5.2 above and Grand Total Value of the foreign bidder worked out as per Para 5.1 above (with customs duty as applicable on the bid closing date) excluding inland transportation to destination will be compared. No price preference will be allowed to indigenous bidders except that for capital goods, the domestic manufacturers would be accorded a price preference to offset CST to the extent of 4 % or actuals, which ever is less subject to 30 % local content norms as stipulated for World Bank Funded project to the satisfaction of OIL. When more than one domestic bidders fall within price preference range, inter-se-ranking will be done on Grand Total Value basis.

Note: If the Government of India revises these evaluation criteria the same as applicable on the bid closing date will be adopted for evaluation of the offers.

6.0 Other terms and conditions of the enquiry shall be as per General Terms and Conditions for Global Tender. However, if any of the Clauses of the Bid Rejection Criteria / Bid Evaluation Criteria (BEC / BRC) mentioned here contradict the Clauses in the General Terms & Conditions of Global Tender of the tender and/or elsewhere, those mentioned in this BEC / BRC shall prevail.

Annexure – III

CHECK LIST

(A) TECHNICAL CHECK LIST

THE CHECK LIST MUST BE COMPLETED AND RETURNED WITH YOUR OFFER. PLEASE ENSURE THAT ALL THESE POINTS ARE COVERED IN YOUR OFFER. THESE WILL ENSURE THAT YOUR OFFER IS PROPERLY EVALUATED. PLEASE SELECT "Yes" OR "No" TO THE FOLLOWING QUESTIONS, IN THE RIGHT HAND COLUMN.

1.	Whether offered Engine-Generator set is a **crude oil burning genset** as per specifications of NIT?	YES/NO
2.	Whether **any deviation** from the NIT specifications has been separately **highlighted** as required by the NIT?	YES/NO
3.	Whether **documentary evidence of experience** as specifically mentioned in the NIT has been enclosed ?	YES/NO
4.	Whether Bidder agrees to inspection of Engine and Alternator during the manufacturing/assembling stage by OIL's representative?	YES/NO
5.	Whether **full load performance testing at manufacturer's works** will be carried out in the presence of OIL's representative? If yes then - In totally assembled state [Engine & Alternator] - Separately for Engine and Alternator at their respective works	YES/NO ☐ ☐
6.	Whether **Acceptance test at Site** for the complete System shall be carried out in the presence of OIL's representative as per NIT?	YES/NO
7.	Whether offered to **depute 1 (One) Competent Engineer for a period of 90 days,** for training of OIL's engineer in O&M of the system as per NIT.?	YES/NO
8.	Whether detailed specifications of Engine with manufacturer's technical literature/catalogue enclosed?	YES/NO
9.	Whether detailed specifications of Alternator, Excitation System, **Synchronising & Load sharing system** along with manufacturer's technical literature/catalogue enclosed?	YES/NO
10.	Whether data and documentation as required to be submitted along with the bid has been enclosed?	YES/NO
11.	Whether undertaking from Engine and Alternator OEMs regarding Non-obsolence of equipment and availability of spares for **15 years** or more is attached?	YES/NO
12.	Whether Bidder's undertaking regarding support in the form of **carrying out maintenances** supply of **spare parts, technical support, updates and** for the equipment for **next 15 years** is attached**?**	YES/NO
13.	Whether declaration from Engine and Alternator OEMs attached regarding availability of their service centres in India?	YES/NO
14.	Whether **details of facilities available** at **service centres** of Engine and Alternator has been provided ?	YES/NO
15.	Whether layout of the complete Engine-Generator Package including all auxiliaries has been arranged such that it will fit within the allocated Generator House area shown in OIL's drawing?	YES/NO
16.	Whether offer includes **deputing an Engineer for a period of 90 days** for training OIL's engineers in O&M of the entire system.	YES/NO

17.	Whether offer includes Annual Maintenance for 3 years ?	YES/NO
18.	Whether DATA sheet filled up completely including **Fuel consumption and Lube oil consumption**?	YES/NO
19.	Whether Bidder confirms that those documents and specifications which have been specifically mentioned in this NIT shall be put-up for OIL's approval prior to manufacturing/ procurement of the same by the bidder?	YES/NO
20.	Whether **unit Cost of Lube oil** has been mentioned and the same has been **sealed inside a separate envelop placed inside the price bid**? If yes, then whether the same has been supported by a quotation from either the manufacturer or the authorized dealer of the lube oil?	YES/NO YES/NO
21.	Whether in the price bid following items have been **quoted separately**? a) Supply of Main equipment including all Accessories b) Pre-despatch stage Inspection & Full load Performance Test at manufacturer's works c) Cost of all consumables required for - Pre-commissioning, commissioning and site acceptance test - Running the Engine Generator set for the subsequent 4000 Hrs after successful completion of the site Acceptance test d) Supply of Mandatory Spares e) Installation & Commissioning charges f) Cost of deputing Engineer [90 Days] for training g) Annual Maintenance of the supplied equipment for 3 Years	YES/NO
22.	Whether detailed list of **3 Years Recommended Spare parts**, along with individual prices of each item, has been submitted **along with the price bid**?	YES/NO

Offer reference	
Name of the Bidder	

Annexure – III

(B) COMMERCIAL CHECK LIST

THE CHECK LIST MUST BE COMPLETED AND RETURNED WITH YOUR OFFER. PLEASE ENSURE THAT ALL THESE POINTS ARE COVERED IN YOUR OFFER. THESE WILL ENSURE THAT YOUR OFFER IS PROPERLY EVALUATED. PLEASE SELECT "Yes" OR "No" TO THE FOLLOWING QUESTIONS, IN THE RIGHT HAND COLUMN.

Sl. No.	REQUIREMENT	COMPLIANCE
1.0	Whether bid submitted under Single Stage Two Bid System?	Yes / No
2.0	Whether quoted as manufacturer?	Yes / No
2.1	Whether quoted as Supply House / Distributor. To Specify-	Yes / No
2.2	If quoted as Supply House / Distributor,	Yes / No
	(a) Whether submitted valid and proper authorization letter from manufacturer confirming that bidder is their authorized Supply House for the product offered ?	
3.0	(b) Whether manufacturer's back-up Warranty/Guarantee certificate submitted?	
	Whether ORIGINAL Bid Bond (not copy of Bid Bond) Sent separately? If Yes, provide details	
	(a) Amount :	
	(b) Name of issuing Bank :	
	(c) Validity of Bid Bond :	
3.1	Whether offered firm prices?	Yes / No
3.2	Whether quoted offer validity of Six months from the date of closing of tender?	Yes / No
3.3	Whether quoted a firm delivery period?	Yes / No
3.4	Whether agreed to the NIT Warranty clause?	Yes / No
3.5	Whether confirmed acceptance of tender Payment Terms of 70% against shipment/dispatch documents and balance 30% after successful commissioning along with commissioning charges?	Yes / No
3.6	Whether confirmed to submit PBG as asked for in NIT?	Yes / No
3.61	Whether agreed to submit PBG within 30 days of placement of order?	Yes / No
3.7	Whether Price submitted as per Price Schedule (refer Para 6.0 of BRC vide Annexure – II)?	Yes / No
3.71	Whether confirmed that all spares & consumables will be supplied for a minimum period of 15 years?	Yes / No
6.72	Whether cost of Recommended Spares for 2 years of operations quoted?	Yes / No
3.8	Whether quoted as per NIT (without any deviations)?	Yes / No
3.81	Whether quoted any deviation?	Yes / No
3.82	Whether deviation separately highlighted?	Yes / No
3.9	Whether indicated the country of origin for the items quoted?	Yes / No
3.91	Whether technical literature / catalogue enclosed?	Yes / No
3.92	Whether weight & volume of items offered indicated?	Yes / No
4.0	For Foreign Bidders - Whether offered FOB / FCA port of despatch including sea / air worthy packing & forwarding?	Yes / No
4.1	For Foreign Bidders – Whether port of shipment indicated. To specify:	Yes / No
4.2	For Foreign Bidders only - Whether indicated ocean freight up to Kolkata port (Excluding marine insurance) ?	Yes / No
4.3	Whether Indian Agent applicable ?	Yes / No
	If YES, whether following details of Indian Agent provided?	

	(a) Name & address of the agent in India – To indicate	
	(b) Amount of agency commission – To indicate	
	(c) Whether agency commission included in quoted material value?	
5.0	For Indian Bidders – Whether indicated the place from where the goods will be dispatched. To specify :	Yes / No
5.1	For Indian Bidders – Whether road transportation charges up to Guwahati quoted?	Yes / No
5.2	For Indian Bidders only - Whether offered Ex-works price including packing/forwarding charges?	Yes / No
5.3	For Indian Bidders only - Whether indicated import content in the offer?	Yes / No
5.4	For Indian Bidders only - Whether offered Deemed Export prices?	Yes / No
5.5	For Indian Bidders only – Whether all applicable Taxes & Duties have been quoted?	Yes / No
6.0	Whether all BRC/BEC clauses accepted ?	Yes / No
7.0	Whether confirmed to offer the equipment for Pre-despatch/shipment Inspection & testing?	Yes / No
7.1	Whether Pre-despatch/shipment inspection & testing charges applicable?	Yes / No
7.2	If Pre-despatch/shipment inspection & testing charges applicable, whether quoted separately on lumpsum basis?	Yes / No
7.3.	Whether confirmed to carry out Installation & Commissioning of the equipment at Guwahati (Assam)?	Yes / No
7.4	Whether Installation & Commissioning charge applicable?	Yes / No
7.5	If Installation/ Commissioning and Training charges applicable, whether separately quoted on lumpsum basis?	Yes / No
7.6	Whether to & fro air fares, boarding/lodging of the commissioning personnel at Guwahati , Assam(India) included in the quoted charges ?	Yes / No
7.7	Whether confirmed that all Service, Income, Corporate tax etc. applicable under Installation/ Commissioning are included in the prices quoted ?	Yes / No
8.0	**Whether Integrity Pact with digital signature uploaded?**	Yes / No

Offer reference	
Name of the Bidder	

****