



**Oil India Limited**  
**(A Govt. of India Enterprise)**  
**P.O. DULIAJAN, DIST. DIBRUGARH,**  
**ASSAM, INDIA, PIN-786 602**

**CONTRACTS DEPARTMENT**  
**TEL: (91) 374-2800548**  
**E-mail: [contracts@oilindia.in](mailto:contracts@oilindia.in)**  
**Website: [www.oil-india.com](http://www.oil-india.com)**  
**FAX: (91)374-2803549**

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**FORWARDING LETTER**

M/s \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Sub: IFB No. CDG3685P15 for Supply, Installation and Commissioning of Natural Gas Engine Based Power Plant at Kumchai in Arunachal Pradesh to be owned by Oil India Limited and subsequent Operation & Maintenance of the Plant for 10(Ten) years**

Dear Sirs,

1.0 OIL INDIA LIMITED (OIL), a “Navaratna” Category, Government of India Enterprise, is a premier oil Company engaged in exploration, production and transportation of crude oil & natural gas with its Headquarters at Duliajan, Assam. Duliajan is well connected by Air with nearest Airport being at Dibrugarh, 45 km away.

2.0 In connection with its operations, OIL invites International Competitive Bids (ICB) from competent and experienced Contractors through OIL’s e-procurement site for Supply, Installation and Commissioning of Natural Gas Engine Driven Power Plant at Kumchai in Arunachal Pradesh to be owned by Oil India Limited and subsequent Operation & Maintenance of the Plant for 10(Ten) years. One complete set of Bid Document covering OIL’s IFB for hiring of above services is uploaded in OIL’s e-procurement portal. You are invited to submit your most competitive bid on or before the scheduled bid closing date and time through OIL’s e-procurement portal. For your ready reference, few salient points of the IFB (covered in detail in the Bid Document) are highlighted below:

- |       |  |   |
|-------|--|---|
| (i)   | IFB No.:                                 | CDG3685P15  |
| (ii)  | Type of IFB :                            | Single Stage-2(two) Bid System  |
| (iii) | Last Date of receipt of Pre-Bid: Queries | 04.07.2014 upto 15:30 Hrs (IST)   |
| (iv)  | Pre-bid conference:                      | 07.07.2014 at 9-30 hrs (IST)  |
| (v)   | Venue of Pre-Bid Conference:             | Kolkata/Guwahati (Exact venue shall be communicated to the prospective bidders nearer the time) |

- (vi) Bid Closing Date & Time: 31.07.2014 at 11-00 hrs. (IST)
- (vii) Bid Opening Date & Time: 31.07.2014 at 14-00 hrs. (IST)
- (viii) Priced Bid Opening Date: Will be intimated to the eligible  
& Time bidders nearer the time
- (ix) Bid Submission Mode: Bid should be uploaded in OIL's E-Procurement portal
- (x) Bid Opening Place: Office of the Head-Contracts  
Oil India Limited  
Duliajan – 786602, Assam, India
- (xi) Bid Validity : 180 days from date of Closing of bid
- (xii) Mobilisation Time: Within 15 days from the date of issue of LOA by OIL
- (xiii) Bid Security Amount: Rs. 78,06,000.00 or US\$ 1,30,750.00
- (xiv) Bid Security Validity: 210 days from date of closing of bid
- (xv) Amount of Performance: For Project: 7.5 % of the total contract  
Security value (excluding O&M charges for 10 years)  
  
For O&M: 7.5 % of the Annual O&M contract Cost
- (xvi) Validity of Performance Security: For Project: Up to 15 months from date of completion of contract (including warranty period of 12 months)  
  
For O&M: Up to 6 months from date of completion of O&M
- (xvii) Duration of the Contract: For Completion of the Project & Commissioning of the Plant on LSTK basis: 3 months  
  
For Operation & Maintenance Of The Facilities: 10(Ten) years from the date of Commissioning of the Plant.
- (xviii) Quantum of Liquidated Damage: 0.5% of total cost of the contract  
for Default in Timely Completion for delay per week or part thereof subject to maximum of 7.5%.

(xix) Bids to be addressed to: HEAD-CONTRACTS  
OIL INDIA LIMITED  
DULIAJAN - 786 602  
ASSAM, INDIA

### **3.0 Integrity Pact :**

The Integrity Pact must be uploaded in OIL's E-procurement portal along with the Technical Bid digitally signed by the same signatory who signed the Bid i.e. who is duly authorized to sign the Bid. Any Bid not accompanied by the Integrity Pact digitally signed 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 signs the Bid.

### **4.0 Pre-Bid Conference:**

4.1 A pre-Bid conference will be held at **Kolkata/Guwahati, India on 07.07.2014** or on the dates as indicated in the online tender for providing clarifications to prospective bidders on Bid Rejection Criteria(BRC)/Bid Evaluation Criteria(BEC), Terms of Reference/Technical Specifications, Terms and conditions of the IFB to enable them to understand the exact service requirement of the Company. The parties who purchase the bid documents are invited to the Pre-Bid conference. For details of the venue, bidders may contact **Head-Contracts**, Oil India Ltd., P.O. Duliajan-786602, **Phone:** 91-374-2808812/2800548, **Fax#**(91)374-2803549, **E-mail:** [contracts@oilindia.in](mailto:contracts@oilindia.in). Foreign bidder may also request Head-Contracts for an invitation letter, if required, for the purpose of visa for attending the conference.

4.2 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.

4.3 The prospective bidders shall submit their queries through E-mail / Fax / Courier addressed to Head-Contracts, Oil India Ltd., Duliajan-786602, Assam prior to the date of pre-bid conference and such queries must reach OIL's office at Duliajan latest by **04.07.2014** or the date as mentioned in the on-line tender. OIL shall provide clarifications to the queries in the pre-bid conference. OIL will not be responsible for non-receipt or late receipt of any bidder's query in OIL's office. A soft copy of the queries in the word file shall also be submitted by the parties.

### **5.0 GUIDELINES FOR PARTICIPATING IN OIL'S E-PROCUREMENT:**

To participate in OIL's E-procurement tender, bidders should have a legally valid digital certificate **of Class 3 with Organizations Name** as per Indian IT Act from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India (<http://www.cca.gov.in>). Bidders must have a valid User ID to access OIL e-Procurement site for submission of bid. Interested parties shall request OIL in their official letter head giving the detailed address and E-mail letter along with

the cost of bid document as indicated in the NIT for issue of the User ID and password for accessing the E-procurement tender. The User ID shall be intimated to the eligible parties through email on receipt of the requisite cost of the bid document. Parties already in possession of OIL User ID and Password shall be eligible for accessing the tender in E-portal after enabling them by OIL in the E-portal which shall be done after receipt of the requisite cost of the bid document. In case any bidder is eligible for exemption from paying the tender fee, they should request OIL with supporting documents for issue of the User ID & Password on free of charge basis. Parties, who do not have a User ID, can click on **Guest** login button in the E-portal to view the available open tenders. The detailed guidelines are available in OIL's e-procurement site (Help Documentation). For any clarification in this regard, bidders may contact Mr A. J. Sarmah, Sr. Manager (ERP-MM) at [arupsarmah@oilindia.in](mailto:arupsarmah@oilindia.in), Ph.: 09954486025(M).

#### 6.0 **IMPORTANT NOTES :**

Bidders shall take note of the following important points while participating in OIL's e-procurement tender:

- i) The bid along with all supporting documents must be submitted through OIL's E-procurement site only except the following documents which shall be submitted manually by the bidder in two copies in a sealed envelope superscribed with OIL's IFB No., Bid Closing date and marked as "Original Bid Security" and addressed to Head-Contracts, Contracts Department, Oil India Limited, Duliajan-786602, Assam(India) :
  - a) Original Bid Security
  - b) Printed catalogue and Literature, if called for in the tender.
  - c) Power of Attorney for signing the bid.
  - d) Any other document required to be submitted in original as per tender requirement.

**The above documents including the Original bid security, must be received at OIL's Head-Contract's office at Duliajan on or before 12.45 Hrs(IST) on the bid closing date failing which the bid shall be rejected.** A scanned copy of the Bid Security shall also be uploaded by the bidder along with their Technical Bid in OIL's E-procurement site.

- ii) Bid should be submitted online in OIL's E-procurement site up to 11.00 AM (IST) (Server Time) on the date as mentioned and will be opened on the same day at 2.00 PM (IST) at the office of the Head-Contracts in presence of the authorized representatives of the bidders.
- iii) The authenticity of digital signature shall be verified through authorized CA after bid opening. If the digital signature used for

signing is not of “Class -3” with Organizations name, the bid will be rejected.

- iv) The tender is invited under SINGLE STAGE-TWO BID SYSTEM. The bidders shall submit both the “TECHNICAL” and “PRICED” bids through electronic form in the OIL’s e-Procurement portal within the Bid Closing Date and Time stipulated in the e-Tender. The Technical Bid should be submitted as per Scope of Work & Technical Specifications along with all technical documents related to the tender and uploaded **“Technical RFX Response” Tab only. Bidders to note that no price details should be uploaded in “Technical RFX Response” Tab Page. Details of prices as per Price Bid format/ Priced bid can be uploaded as Attachment just below the “Tendering Text” in the attachment option under “Notes & Attachments” tab. A screen shot in this regard is shown below. Offer not complying with above submission procedure will be rejected as per Bid Rejection Criteria mentioned in Part-2 (Refer Clause 1.0 of (B) Commercial).**

**Display RFX Response:**

Edit | Print Preview | **Technical RFX Response** | Close | Withdraw | Verify signature

RFX Response Number 60006452    RFX Number TEST2    Status Submitted  
RFX Owner WIPRO\_TEST1    Total Value 0.00 INR    RFX Response Version

**RFX Information** | Items | Notes and Attachments | Conditions | Summary

Basic Data | Questions

Event Parameters

Currency: Indian Rupee

Detailed Price Information: Price with Conditions

Terms of Payment: 9010    90% against despatch+10% after receipt

Created E  
Last Processed C  
Last Processed E

▼ Partners and Delivery Information

Details    Send E-Mail    Call    Clear

Function	Number	Name	Valid fr
The table does not contain any data			

**On “EDIT” Mode- The following screen will appear. Bidders are advised to upload “Technical Bid” and “Priced Bid” in the places as indicated above:**

**Note:**

\* The “Technical Bid” shall contain all techno-commercial details **except the prices.**

\*\* The “Priced bid” must contain the price schedule and the bidder’s commercial terms and conditions, if any. For uploading Price Bid, first click on Sign Attachment, a browser window will open, select the file from the PC and click on “Sign” to sign the file. On Signing a new file with extension .SSIG will be created. Close that window. Next click on Add Attachment, a browser window will open, select the .SSIG signed file from the PC and name the file under Description, Assigned to General Data and click on OK to save the File.

7.0 OIL now looks forward to your active participation in the IFB.

Thanking you,

Yours faithfully,  
OIL INDIA LIMITED

**(M Ali)**  
**HEAD-CONTRACTS**  
**For RESIDENT CHIEF EXECUTIVE**

## **PART - 1**

### **INSTRUCTIONS TO BIDDERS**

1.0 Bidder shall bear all costs associated with the preparation and submission of bid. Oil India Limited, hereinafter referred to as Company, will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

#### **A. BID DOCUMENTS**

2.0 The services required, bidding procedures and contract terms are prescribed in the Bid Document. This Bid Document includes the following:

- (a) A Forwarding Letter highlighting the following points:
  - (i) Company's IFB No.
  - (ii) Bid closing date and time
  - (iii) Bid opening date and time
  - (iv) Bid submission Mode
  - (v) Bid opening place
  - (vi) Bid validity, Mobilisation time & Duration of contract
  - (vii) The amount of Bid Security with validity
  - (viii) The amount of Performance Guarantee with validity
  - (ix) Quantum of liquidated damages for default in timely completion
- (b) Instructions to Bidders, (Part-1)
- (c) Bid Evaluation Criteria/Bid Rejection Criteria, (Part-2)
- (d) General Conditions of Contract, (Section-I)
- (e) Terms of Reference/Technical Specification, (Section-II)
- (f) Special Conditions of Contract, (Section-III)
- (g) Schedule of Rates, (Section-IV)
- (h) Integrity Pact Proforma, (Annexure-A)
- (i) Price Schedule Format, (Proforma-B)
- (j) Bid Form, (Proforma-C)
- (k) Statement of Non-Compliance, (Proforma-D)
- (l) Bid Security Form, (Proforma-E)
- (m) Performance Security Form, (Proforma-F)
- (n) Agreement Form, (Proforma-G)
- (o) Proforma of Letter of Authority, (Proforma-H)
- (p) Authorisation for Attending Bid Opening, (Proforma-I)

2.1 The bidder is expected to examine all instructions, forms, terms and specifications in the Bid Documents. Failure to furnish all information required in the Bid Documents or submission of a bid not substantially responsive to the Bid Documents in every respect will be at the Bidder's risk & responsibility and may result in the rejection of its bid.

**3.0 TRANSFERABILITY OF BID DOCUMENTS:**

3.1 Bid Documents are non-transferable. Bid can be submitted only in the name of the bidder in whose name the Bid Document has been issued.

3.2 Unsolicited bids will not be considered and will be rejected straightway.

**4.0 AMENDMENT OF BID DOCUMENTS:**

4.1 At any time prior to the deadline for submission of bids, the Company may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bid Documents through issuance of an Addendum.

4.2 The Addendum will be uploaded in OIL's E-Tender Portal in the "Technical RFX Response" under the tab "Amendments to Tender Documents". All prospective bidders to whom Company has issued the Bidding Documents shall also be intimated about the amendments through post/courier or by Fax or e-mail. The Company may, at its discretion, extend the deadline for bid submission, if the Bidders are expected to require additional time in which to take the Addendum into account in preparation of their bid or for any other reason. Bidders shall also check from time to time the E-Tender portal ["Technical RFX Response" under the tab "Amendments to Tender Documents"] for any amendments to the bid documents before submission of their bids.

**B. PREPARATION OF BIDS**

**5.0 LANGUAGE OF BIDS:** The bid as well as all correspondence and documents relating to the bid exchanged between the Bidder and the Company shall be in English language, except that any printed literature may be in another language provided it is accompanied by an official and notarised English translated version, which shall govern for the purpose of bid interpretation.

5.1 **BIDDER'S/AGENT'S NAME & ADDRESS:** Bidders should indicate in their bids their detailed postal address including the Fax/Telephone / Cell Phone Nos. and E-mail address. Similar information should also be provided in respect of their authorised Agents in India, if any.

**6.0 DOCUMENTS COMPRISING THE BID:** Bids are invited under Single Stage Two Bid System. The bid to be uploaded by the Bidder in OIL's E-Tender portal shall comprise of the following components:

**(A) TECHNICAL BID**

- (i) Complete technical details of the services and equipment specifications with catalogue, etc.
- (ii) Documentary evidence established in accordance with Clause 10.0.
- (iii) Bid Security (scanned) in accordance with Clause 11.0 hereunder. Original Bid Security should be sent as per Clause No. 11.10 below.
- (iv) Copy of Bid-Form without indicating prices in Proforma-C

- (v) Statement of Non-compliance as per Proforma-D
- (vi) Copy of Priced Bid ***without indicating prices*** (Proforma-B)
- (vii) Integrity Pact digitally signed by OIL's competent personnel as Annexure-A attached with the bid document to be digitally signed by the bidder.

**(B) PRICED BID**

Bidder shall quote their prices in the following Proforma available in OIL's E-procurement portal in the **"Notes & Attachments" Tab:**

- (i) Price-Bid Format as per Proforma-B
- (ii) Bid Form as per Proforma-C

The Priced Bid shall contain the prices along with the currency quoted and any other commercial information pertaining to the service offered.

**7.0 BID FORM:** The bidder shall complete the Bid Form and the appropriate Price Schedule furnished in their Bid.

**8.0 BID PRICE:**

8.1 Prices must be quoted by the Bidders online as per the price bid format available in OIL's E- Tender Portal in "Notes & Attachment" Tab. Unit prices must be quoted by the bidders, both in words and in figures.

8.2 Prices quoted by the successful bidder must remain firm during its performance of the Contract and is not subject to variation on any account.

8.3 All duties and taxes (excluding Service Tax) including Corporate Income Tax, Personal Tax, Assam Entry Tax< Arunachal Pradesh entry Tax, octroi etc. and other Cess/levies payable by the successful bidder under the Contract for which this Bid Document is being issued, shall be included in the rates, prices and total Bid Price submitted by the bidder, and the evaluation and comparison of bids shall be made accordingly. For example, personal taxes and/or any corporate taxes arising out of the profits on the contract as per rules of the country shall be borne by the bidder.

8.4 The Bidder shall quote their all-inclusive price for the entire Scope of Work in accordance with the Schedule of Rates (Section - IV) of this tender document.

**8.5 Site Work**

Cost of all site work as per Technical - Scope of Work (Section-II of this tender document) and in accordance with General & Special Conditions of Contract (i.e. Section-I & Section-III respectively of this tender document) related to (but not limited to) site transportation, safe storage/

security of all materials at site, erection / construction / creation / installation, testing, acceptance tests and trial run up to successful commissioning of the Plant including rectification of defects / malfunctioning during the specified commissioning period.

#### 8.6 **Operation & Maintenance**

Cost of Operation & Maintenance of the plants as per Technical- Scope of Work (Section-II of this document) and in accordance with General & Special Conditions of Contract (i.e. Section-I & Section-III respectively of this document), inclusive of all taxes and duties but excluding Service tax, which shall be to OIL's account during the currency of the Contract for a period of **10(Ten) years after successful commissioning and Acceptance of the Plant by OIL.**

#### 8.7 **General**

- a) The bidder's quoted price against all items as per Schedule of Rates (Section-IV) of this tender document shall be inclusive of, amongst others, basic & detailed design.
- b) The Bidder's quoted total price shall be inclusive of installation & commissioning charges; all taxes, duties and levies as applicable on the Works/offered goods and services under the Contract. The Service Tax as applicable shall be extra to OIL's account.
- c) All demurrage, wharfage and other expenses incurred due to delayed clearance of goods, or for any other reasons, either at Indian port of entry, or at any clearing point, shall be to the successful bidder's account. The successful bidder shall be responsible for making all necessary arrangements for complying with all necessary formalities at the Indian port of entry.
- d) It is for the bidder to assess and ascertain applicability of taxes, duties, levies etc. applicable under the Contract. It is clearly understood that except for the specific provision covered in these conditions, the Company will not have any liability, whatsoever, on account of taxes, duties, levies etc., till the complete execution of the Contract. The Company will also not have any liability, whatsoever, on account of taxes, duties, levies etc. which are based on the bidder's wrong assessment/ interpretation of applicability of such taxes, duties, levies etc.
- e) If any tax is deductible at source as per Govt. laws, rules and regulations, the same will be so deducted by the Company from the Contractor's bills before releasing payments, and necessary certificate to that effect will be issued.
- f) Inspection/ certification of all goods/ services & works at all stages shall be done by Company or its authorised representative for which no extra charges shall be borne by the Company.

- g) **Nil Custom Duty shall not be applicable against this tender. Indigeneous bidders are requested to quote their Non-Deemed Export prices.**

**9.0 CURRENCIES OF BID AND PAYMENT:**

- 9.1 A bidder expecting to incur its expenditures in the performance of the Contract in more than one currency, and wishing to be paid accordingly, shall so indicate in the bid. In such a case, the bid shall be expressed in different currencies and the respective amounts in each currency shall together make up the total price.
- 9.2 Indian bidders too can submit their bids in any currency (including Indian Rupees) and receive payment in such currencies on par with foreign bidders. However, currency once quoted will not be allowed to be changed.

**10.0 DOCUMENTS ESTABLISHING BIDDER'S ELIGIBILITY AND QUALIFICATIONS:**

- 10.1 These are listed in BID REJECTION CRITERIA (BRC) / BID EVALUATION CRITERIA (BEC), PART-2 of the Bid document.

**11.0 BID SECURITY:**

- 11.1 The Bid Security is required to protect the Company against the risk of Bidder's conduct, which would warrant forfeiture of the Bid Security, pursuant to sub-clause 11.8.
- 11.2 All the bids must be accompanied by Bid Security in Original for the amount as mentioned in the "Forwarding Letter" or an equivalent amount in other freely convertible currency and shall be in any one of the following forms:
- (a) A Bank Guarantee or irrevocable Letter of Credit in the prescribed format vide **Proforma-E** or in another form acceptable to the Company: Bank Guarantee/LC issued from any of the following Banks only will be accepted:
- i) Any Nationalised / scheduled Bank in India or
  - ii) Any Indian branch of a Foreign Bank or
  - iii) Any reputed foreign Bank having correspondent Bank in India

The Bank Guarantee / LC shall be valid for 30 days beyond the validity of the bids asked for in the Bid Document.

Bank Guarantees issued by Banks in India should be on non-judicial stamp paper of requisite value, as per Indian Stamp Act, purchased in the name of the Banker.

- (b) A Cashier's cheque or Demand Draft drawn on 'Oil India Limited' and payable at Duliajan, Assam.
- 11.3 Any bid not secured in accordance with sub-clause 11.2 above shall be rejected by the Company as non-responsive.
- 11.4 The bidders shall extend the validity of the Bid Security suitably, if and when specifically advised by OIL, at the bidder's cost.
- 11.5 Unsuccessful Bidder's Bid Security will be discharged and/or returned within 30 days after finalization of IFB.
- 11.6 Successful Bidder's Bid Security will be discharged and/or returned upon Bidder's furnishing the Performance Security and signing of the contract. Successful bidder will however ensure validity of the Bid Security till such time the Performance Security in conformity with Clause 29.0 below is furnished.
- 11.7 Bid Security shall not accrue any interest during its period of validity or extended validity.
- 11.8 The Bid Security may be forfeited:
- i) If any bidder withdraws their Bid during the period of bid validity
  - ii) If any bidder alters their Bid during the period of bid validity or if the bidder increases the price during the period of bid validity.
  - iii) If the bidder does not accept the LOA issued by Company within the validity of the bid
  - iv) If the bid is accepted by OIL, and work is awarded but the contractor does not furnish the Performance Security.
- 11.9 In case any bidder withdraws their bid during the period of bid validity, Bid Security will be forfeited and the party shall be debarred for a period of 2(two) years.
- 11.10 The scanned copy of the original Bid Security in the form of either Bank Guarantee or LC or Cashier Cheque or Bank Draft must be uploaded by bidder along with the Technical bid in the "Technical RFX Response" of OIL's E-portal. The original Bid Security shall be submitted by bidder to the office of Head-Contracts, Oil India Ltd., Duliajan-786602(Assam), India in a sealed envelope which must reach Head-Contract's office on or before 12.45 Hrs (IST) on the Bid Closing date failing which the bid shall be rejected.

**12.0 EXEMPTION FROM SUBMISSION OF BID SECURITY:**

- 12.1 Central Govt. offices, Central Public Sector undertakings and firms registered with NSIC /Directorate of Industries are exempted from submitting Bid Security. However the firms registered with NSIC

/Directorate of Industries shall have to submit evidence that they have a current and valid registration for the service they intend to bid including the prescribed monetary limit.

**13.0 PERIOD OF VALIDITY OF BIDS:**

- 13.1 Bids shall remain **valid for 180** days from the date of closing of bid prescribed by the Company. Bids of shorter validity will be rejected as being non-responsive. If nothing is mentioned by the bidder in their bid about the bid validity, it will be presumed that the bid is valid for 180 days from Bid Closing Date.
- 13.2 In exceptional circumstances, the Company may solicit the Bidder's consent to an extension of the period of validity. The request and the response thereto shall be made in writing through Fax or e-mail. The Bid Security provided under Para 11.0 above shall also be suitably extended. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request will neither be required nor permitted to modify their Bid.

**14.0 SIGNING OF BID:**

- 14.1 Bids are to be submitted online through OIL's E-procurement portal with digital signature. The bid and all attached documents should be digitally signed by the bidder using "Class 3" digital certificates with Organizations Name [e-commerce application (Certificate with personal verification and Organisation Name)] as per Indian IT Act 2000 obtained from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India before bid is uploaded.

The bid including all uploaded documents shall be digitally signed by duly authorized representative of the bidder holding a Power of Attorney to bind the Bidder to the contract.

If any modifications are made to a document after attaching digital signature, the digital signature shall again be attached to such documents before uploading the same. The Power of Attorney in original shall be submitted by bidder as mentioned in Para 15.1 below.

The authenticity of above digital signature shall be verified through authorized CA after bid opening and in case the digital signature is not of "Class-3" with organization name, the bid will be rejected.

Bidder is responsible for ensuring the validity of digital signature and its proper usage by their employees.

- 14.2 The original and all copies of the bid shall be typed or written in indelible inks. Since bids are to be submitted ONLINE with digital signature, manual signature is NOT relevant. The letter of authorisation (as per

**Proforma-H)** shall be indicated by written Power of Attorney accompanying the Bid.

- 14.3 Any person signing the Bid or any other document in respect of this Bidding Document or other relevant documents on behalf of the Bidder without disclosing his authority to do so shall be deemed to have the authority to bind the Bidder. If it is discovered at any time that the person so signing has no authority to do so, the Company (OIL) may, without prejudice to any other right or remedy, cancel his Bid or Contract and hold the Bidder liable to the Company (OIL) for all costs and damages arising from the cancellation of the Bid or Contract including any loss which the Company (OIL) may sustain on account thereof.
- 14.4 Any physical documents submitted by bidders shall contain no interlineations, white fluid erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such correction shall be initialled by the person or persons who has/have digitally signed the Bid.
- 14.5 Any Bid, which is incomplete, ambiguous, or not in compliance with the Bidding process will be rejected.

#### **15.0 SUBMISSION OF BIDS**

- 15.1 The tender is processed under single stage - Two bid system. Bidder shall submit the Technical bid and Priced bid along with all the Annexures and Proforma (wherever applicable) and copies of documents in electronic form through OIL's e-procurement portal within the Bid Closing Date & Time stipulated in the e-tender. For submission of Bids online at OIL's E-Tender Portal, detailed instructions is available in "**HELP DOCUMENTATION**" available in OIL's E-Tender Portal. Guidelines for bid submission are also provided in the "Forwarding Letter". The Technical Bid is to be submitted as per Terms of Reference/Technical Specifications of the bid document and Priced Bid as per the Price Schedule. The Technical Bid should be uploaded in the "Technical RFX Response" Tab only. Prices to be quoted as per Proforma-B should be uploaded as Attachment just below the "Tendering Text" in the attachment option under "Notes & Attachments" Tab in the e-portal. **No price should be given in the "Technical RFX Response", otherwise bid shall be rejected.** The priced bid should not be submitted in physical form which shall not be considered.

However, the following documents in two sets should necessarily be submitted in physical form in sealed envelope superscribing the "IFB No., Brief Description of services and Bid Closing/Opening date & Time along with the bidder's name and should be submitted to Head-Contracts, Oil India Ltd., Duliajan-786602(Assam) on or before 12.45 Hrs (IST) on the bid closing date indicated in the IFB :

- i) The Original Bid Security along with 2(two) copies

- ii) Power of Attorney for signing of the bid digitally
- iii) Any other document required to be submitted in original as per bid document requirement.
- iv) Printed catalogue and literature if called for in the bid document.

Documents sent through E-mail/Fax/Telex/Telegraphic/Telephonic will not be considered.

- 15.2 All the conditions of the contract to be made with the successful bidder are given in various Sections of the Bid Document. Bidders are requested to state their non-compliance to each clause as per Proforma-D of the bid document and the same should be uploaded along with the Technical Bid.
- 15.3 Timely delivery of the documents in physical form as stated in Para 15.1 above is the responsibility of the bidder. Bidders should send the same through Registered Post or by Courier Services or by hand delivery to the Officer in Charge of the particular tender before the Bid Closing Date and Time. Company shall not be responsible for any postal delay/transit loss.
- 15.4 Bids received through the e-procurement portal shall only be accepted. Bids received in any other form shall not be accepted.

**16.0 INDIAN AGENTS:** Foreign Bidders are requested to clearly indicate in their bid whether they have any agent in India. If so, the bidders should furnish the name and address of their agents and state clearly whether these agents are authorized to receive any commission. The rate of the commission included in the rates quoted by bidder should be indicated which would be payable to Agent in non-convertible Indian currency according to Import Trade Regulation of India. Unless otherwise specified, it will be assumed that an agency commission is not involved in the particular Bid. Further, Bidders are requested to submit their bid directly and not through their agents in India. Against this tender, either the Indian agent on behalf of the Principal/OEM or Principal/ OEM itself can bid but both cannot bid simultaneously for the same item/product. If an agent submits bid on behalf of the Principal/OEM, the same agent shall not submit a bid on behalf of another Principal/OEM in the same tender for the same item/product.

**17.0 DEADLINE FOR SUBMISSION OF BIDS:**

- 17.1 Bids should be submitted on-line as per the online tender submission deadline. Bidders will not be permitted by System to make any changes in their bid/quote after the bid has been submitted by the bidder. Bidder may however request Head-Contracts, Oil India Ltd., Duliajan for returning their bids/quote before the original bid closing date and time for resubmission. But no such request would be entertained once the submission deadline has reached or bids are opened.
- 17.2 No bid can be submitted after the submission dead line is reached. The

system time displayed on the e-procurement web page shall decide the submission dead line.

17.3 The documents in physical form as stated in Para 15.1 must be received by Company at the address specified in the "Forwarding Letter" on or before 12.45 Hrs(IST) on the Bid Closing Date mentioned in the "Forwarding Letter". Timely delivery of the same at the address mentioned in the Forwarding Letter is the responsibility of the Bidders.

**18.0 LATE BIDS:** Bidders are advised in their own interest to ensure that their bids are uploaded in system before the closing date and time of the bid. The documents in physical form if received by the Company after the deadline for submission prescribed by the Company shall be rejected and shall be returned to the Bidders in unopened condition immediately.

**19.0 MODIFICATION AND WITHDRAWAL OF BIDS:**

19.1 The Bidder after submission of Bid may modify or withdraw its Bid by written notice prior to Bid Closing Date & Time.

19.2 The Bidder's modification or withdrawal notice may also be sent by fax/e-mail but followed by a signed confirmation copy, postmarked not later than the deadline for submission of Bids.

19.3 No Bid can be modified or withdrawn subsequent to the deadline for submission of Bids.

19.4 Once a withdrawal letter is received from any bidder, the offer will be treated as withdrawn and no further claim/correspondences will be entertained in this regard.

19.5 No Bid can be withdrawn in the interval between the deadline for submission of Bids and the expiry of the period of Bid Validity specified by the Bidder on the Bid Form. Withdrawal of a Bid during this interval shall result in the Bidder's forfeiture of its Bid Security and bidder shall also be debarred from participation in future tenders of OIL.

**20.0 EXTENSION OF BID SUBMISSION DATE:**

Normally no request for extension of Bid Closing Date & Time will be entertained. However, OIL at its discretion, may extend the Bid Closing Date and/or Time due to any reasons. In case of receipt of only one Bid on the Bid Closing Date and Time, OIL may extend the Bid Closing /Opening Date by 2(two) weeks. However, the bidder whose bid has been received within the bid closing date and time, will not be allowed to revise their Bid/prices. Withdrawal of such Bid is also not permitted.

**21.0 BID OPENING AND EVALUATION:**

21.1 Company will open the Technical Bids, including submission made pursuant to clause 19.0, in presence of Bidder's representatives who

choose to attend at the date, time and place mentioned in the Forwarding Letter. However, an authorisation letter (as per **Proforma-I**) from the Bidder must be produced by the Bidder's representative at the time of Bid Opening. Unless this Letter is presented, the representative will not be allowed to attend the Bid Opening. The Bidder's representatives who are allowed to attend the Bid Opening shall sign a register evidencing their attendance. Only one representative against each Bid will be allowed to attend. In technical bid opening, only "Technical RFX Response" will be opened. Bidders therefore should ensure that technical bid is uploaded in the "Technical RFX Response" Tab Page only in the E-portal.

- 21.2 In case of any unscheduled holiday or Bandh on the Bid Opening Date, the Bids will be opened on the next full working day. Accordingly, Bid Closing Date / time will get extended up to the next working day and time.
- 21.3 Bid for which an acceptable notice of withdrawal has been received pursuant to clause 19.0 shall not be opened. Company will examine bids to determine whether they are complete, whether requisite Bid Securities have been furnished, whether documents have been digitally signed and whether the bids are generally in order.
- 21.4 At bid opening, Company will announce the Bidder's names, written notifications of bid modifications or withdrawal, if any, the presence of requisite Bid Security, and such other details as the Company may consider appropriate.
- 21.5 Company shall prepare, for its own records, minutes of bid opening including the information disclosed to those present in accordance with the sub-clause 21.3.
- 21.6 Normally no clarifications shall be sought from the Bidders. However, for assisting in the evaluation of the bids especially on the issues where the Bidder confirms compliance in the evaluation and contradiction exists on the same issues due to lack of required supporting documents in the Bid(i.e. document is deficient or missing), or due to some statement at other place of the Bid(i.e. reconfirmation of confirmation) or vice versa, clarifications may be sought by OIL. In all the above situations, the Bidder will not be allowed to change the basic structure of the Bid already submitted by them and no change in the price or substance of the Bid shall be sought, offered or permitted.
- 21.7 Prior to the detailed evaluation, Company will determine the substantial responsiveness of each bid to the requirement of the Bid Documents. For purpose of these paragraphs, a substantially responsive bid is one, which conforms to all the terms and conditions of the Bid Document without material deviations or reservation. A material deviation or reservation is one which affects in any substantial way the scope, quality, or performance of work, or which limits in any substantial way, in-consistent

way with the Bid Documents, the Company's right or the bidder's obligations under the contract, and the rectification of which deviation or reservation would affect unfairly the competitive position of other bidders presenting substantial responsive bids. The Company's determination of Bid's responsiveness is to be based on the contents of the Bid itself without recourse to extrinsic evidence.

- 21.8 A Bid determined as not substantially responsive will be rejected by the Company and may not subsequently be made responsive by the Bidder by correction of the non-conformity.
- 21.9 The Company may waive minor informality or nonconformity or irregularity in a Bid, which does not constitute a material deviation, provided such waiver, does not prejudice or affect the relative ranking of any Bidder.

**22.0 OPENING OF PRICED BIDS:**

- 22.1 Company will open the Priced Bids of the technically qualified Bidders on a specific date in presence of representatives of the qualified bidders. The technically qualified Bidders will be intimated about the Priced Bid Opening Date & Time in advance. In case of any unscheduled holiday or Bandh on the Priced Bid Opening Date, the Bids will be opened on the next working day.
- 22.2 The Priced bids of the unsuccessful bidders which remain unopened with OIL, may be returned to the concerned bidders on request only after receipt of Performance Security from the successful bidders after issue of Letter of Award (LOA) by OIL.
- 22.3 The Company will examine the Price quoted by Bidders to determine whether they are complete, any computational errors have been made, the documents have been properly signed, and the bids are generally in order.
- 22.4 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price (that is obtained by multiplying the unit price and quantity) the unit price shall prevail and the total price shall be corrected accordingly. If there is a discrepancy between words, and figures, the amount in words will prevail. If any Bidder does not accept the correction of the errors, their Bid will be rejected.

- 23.0 CONVERSION TO SINGLE CURRENCY:** While evaluating the bids, the closing rate of exchange declared by State Bank of India on the day prior to price bid opening will be taken into account for conversion of foreign currency into Indian Rupees. Where the time lag between the opening of the price bids and final decision exceeds three months, the rate of exchange declared by State Bank of India on the date prior to the date of final decision will be adopted for conversion.

- 24.0 EVALUATION AND COMPARISON OF BIDS:** The Company will evaluate and compare the bids as per **BID REJECTION CRITERIA (BRC) / BID EVALUATION CRITERIA (BEC), PART-2** of the Bid Documents.
- 24.1 **DISCOUNTS / REBATES:** Unconditional discounts/rebates, if any, given in the bid will be considered for evaluation.
- 24.2 Post bid or conditional discounts/rebates offered by any bidder shall not be considered for evaluation of bids. However, if the lowest bidder happens to be the final acceptable bidder for award of contract, and if they have offered any discounts/rebates, the contract shall be awarded after taking into account such discounts/rebates.
- 24.3 **LOADING OF FOREIGN EXCHANGE:** There would be no loading of foreign exchange for deciding the inter-se-ranking of domestic bidders.
- 24.4 **EXCHANGE RATE RISK:** Since Indian bidders are now permitted to quote in any currency and also receive payments in that currency, Company will not be compensating for any exchange rate fluctuations in respect of the services.
- 24.5 **REPATRIATION OF RUPEE COST:** In respect of foreign parties rupee payments made on the basis of the accepted rupee component of their bid, would not be repatriable by them. A condition to this effect would be incorporated by the Company in the contract.
- 25.0 CONTACTING THE COMPANY:**
- 25.1 Except as otherwise provided in Clause 21.0 above, no Bidder shall contact Company on any matter relating to its bid, from the time of the bid opening to the time the Contract is awarded except as required by Company vide sub-clause 21.7.
- 25.2 An effort by a Bidder to influence the Company in the Company's bid evaluation, bid comparison or Contract award decisions may result in the rejection of their bid.
- D. AWARD OF CONTRACT**
- 26.0 AWARD CRITERIA:** The Company will award the Contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined as the lowest evaluated bid, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.
- 27.0 COMPANY'S RIGHT TO ACCEPT OR REJECT ANY BID:** Company reserves the right to accept or reject any or all bids and to annul the bidding process and reject all bids, at any time prior to award of contract, without thereby incurring any liability to the affected bidder, or bidders or

any obligation to inform the affected bidder of the grounds for Company's action.

**28.0 NOTIFICATION OF AWARD:**

28.1 Prior to the expiry of the period of bid validity or extended validity, Company will notify the successful Bidder in writing by registered letter or by fax or E-mail (to be confirmed in writing by registered / couriered letter) that its Bid has been accepted.

28.2 The notification of award will constitute the formation of the Contract.

28.3 Upon the successful Bidder's furnishing of Performance Security pursuant to Clause 29.0 below, the Company will promptly notify each unsuccessful Bidder and will discharge their Bid Security, pursuant to Clause 11.0 hereinabove.

**29.0 PERFORMANCE SECURITY:**

29.1 Within 2(two) weeks of receipt of notification of award from the Company, the successful Bidder shall furnish to Company the Performance Security for an amount specified in the Forwarding Letter (and Letter of Award (LOA) issued by Company to Contractor awarding the contract) as per **Proforma-F** or in any other format acceptable to the Company and must be in the form of Bank Guarantee (BG) or an irrevocable Letter of Credit (L/C) from any of the following Banks:

- i) Any Nationalised / Scheduled Bank in India OR
- ii) Any Indian branch of a Foreign Bank OR
- iii) Any reputed foreign Bank having correspondent Bank in India

The Performance Security shall be denominated in the currency of the contract or in equivalent US Dollars converted at the B.C. Selling rate of State Bank of India on the date of issue of LOA (Letter of Award). Bank Guarantees issued by Banks in India should be on non-judicial stamp paper of requisite value, as per Indian Stamp Act, purchased in the name of the Banker.

29.2 The Performance Security specified above must be valid for 12(Twelve) months (covering the warranty period) plus 3 months to lodge claim, if any, beyond the contract period to cover the warranty obligations indicated in clause 6.0 of Section-I hereof for Project work and 6 Months beyond the O&M contract period for Operation & Maintenance job/work. The Performance Security will be discharged by Company not later than 30 days following its expiry. In the event of any extension of the Contract period, Bank Guarantee should be extended by Contractor by the period equivalent to the extended period.

29.3 The Performance Security shall be payable to Company as compensation for any loss resulting from Contractor's failure to fulfill its obligations under the Contract.

- 29.4 The Performance Security will not accrue any interest during its period of validity or extended validity.
- 29.5 Failure of the successful Bidder to comply with the requirements of clause 29.0 and/or 30.0 shall constitute sufficient grounds for annulment of the award and forfeiture of the Bid Security or Performance Security. In such an eventuality, the party shall be debarred for a period of 2(two) years from the date of default.
- 29.6 Performance Security towards the Operation & Maintenance of the Plant shall be submitted prior to the commencement of O&M. This PBG should be 7.5% of the Annual Contract Cost of O&M and should be valid through the O&M contract period plus 6(six) months.

**30.0 SIGNING OF CONTRACT:**

- 30.1 At the same time as the Company notifies the successful Bidder that its Bid has been accepted, the Company will either call the successful Bidder for signing of the agreement or send the Contract Form provided in the Bid Documents, along with the General & Special Conditions of Contract, Technical Specifications, Schedule of Rates incorporating all agreements agreed between the two parties.
- 30.2 Within 30 days of issue of LOA, the successful Bidder shall sign and date the contract and return it to the Company. Till the contract is signed, the LOA issued to the successful bidder shall remain binding amongst the two parties.
- 30.3 In the event of failure on the part of the successful Bidder to sign the contract within the period specified above or any other time period specified by Company, OIL reserves the right to terminate the LOA issued to the successful Bidder and invoke the Bid Security or the Performance Security if submitted by the successful Bidder. The party shall also be debarred for a period of 2(two) years from the date of default.

**31.0 FURNISHING FRAUDULENT INFORMATION/DOCUMENTS:**

If it is found that a bidder/contractor has furnished fraudulent information / documents, the Bid Security/Performance Security shall be forfeited and the party shall be debarred for a period of 3(three) years from the date of detection of such fraudulent act besides the legal action.

- 32.0 CREDIT FACILITY:** Bidders should indicate clearly in the Bid about availability of any credit facility inclusive of Government to Government credits indicating the applicable terms and conditions of such credit.

**33.0 ADVANCE PAYMENT:**

- 33.1 Request for advance payment shall not be normally considered. However, depending on the merit and at the discretion of the Company, advance against mobilisation charge may be given at an interest rate of 1% above

the prevailing Bank rate (CC rate) of SBI from the date of payment of the advance till recovery/refund.

- 33.2 Advance payment agreed to by the Company shall be paid only against submission of an acceptable bank guarantee whose value should be equivalent to the amount of advance plus the amount of interest covering the period of advance. Bank guarantee shall be valid for 6 months beyond the contract period and the same may be invoked in the event of Contractor's failure to fulfil their obligations as per terms and conditions of the Contract.
- 33.3 In the event of any extension to the contract period, Contractor shall have to enhance the value of the bank guarantee to cover the interest for the extended period and also to extend the validity of bank guarantee accordingly.

**34.0 INTEGRITY PACT:**

- 34.1 OIL shall be entering into an Integrity Pact with the Bidders as per format enclosed vide **Annexure-A** of the Bid Document. The Integrity Pact has been duly signed digitally by OIL's competent signatory and uploaded in the OIL's e-portal. The Integrity Pact shall be returned by the bidder (along with the technical Bid) duly signed by the same signatory who signed the Bid i.e. who is duly authorized to sign the Bid. Any Bid not accompanied by the Integrity Pact Proforma duly signed by the bidder shall be rejected straightway. Uploading the Integrity Pact in the OIL's E-portal with digital signature will be construed that all pages of the Integrity Pact has been signed by the bidder's authorized signatory who has signed the bid.
- 34.2 OIL has appointed Shri N. Gopaldaswami, IAS (Retd), Ex-CEC and Shri R. C. Agarwal, IPS (Retd) as Independent Monitors (IEMs) for a period of 3(three) years to oversee implementation of Integrity Pact in OIL. Bidders may contact the Independent Monitors for any matter relating to the IFB at the following addresses:
- a. Shri N. Gopaldaswami, IAS(Retd), Ex-CEC, Phone No. : 91-44-2834-2444(Res), 91-9600144444(Cell) ; E-mail : [gopaldaswamin@gmail.com](mailto:gopaldaswamin@gmail.com)
  - b. Shri R. C. Agarwal, IPS(Retd), Phone No. : 91-11-22752749(Res), 91-9810787089(Cell) ; E-mail : [rcagarwal@rediffmail.com](mailto:rcagarwal@rediffmail.com)

**35.0 LOCAL CONDITIONS:**

It is imperative for each Bidder to be fully informed themselves of all Indian as well as local conditions, factors and legislation which may have any effect on the execution of the work covered under the Bidding Document. The bidders shall be deemed, prior to submitting their bids to have satisfied themselves of all the aspects covering the nature of the work as stipulated in the Bidding Document and obtain for themselves all necessary information as to the risks, contingencies and all other

circumstances, which may influence or affect the various obligations under the Contract.

No request will be considered for clarifications from the Company (OIL) regarding such conditions, factors and legislation. It is understood and agreed that such conditions, factors and legislation have been properly investigated and considered by the Bidders while submitting the Bids. Failure to do so shall not relieve the Bidders from responsibility to estimate properly the cost of performing the work within the provided timeframe. Company (OIL) will assume no responsibility for any understandings or representations concerning conditions made by any of their officers prior to award of the Contract. Company (OIL) shall not permit any Changes to the time schedule of the Contract or any financial adjustments arising from the Bidder's lack of knowledge and its effect on the cost of execution of the Contract.

**36.0 SPECIFICATIONS:**

Before submission of Bids, Bidders are requested to make themselves fully conversant with all Conditions of the Bid Document and other relevant information related to the works/services to be executed under the contract.

**END OF PART - 1**

**&&&&**

## PART – 2

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

**I) BID REJECTION CRITERIA (BRC):** The bid shall conform generally to the specifications and terms and conditions given in this bid document. Bids shall be rejected in case the services offered do not conform to required parameters stipulated in the technical specifications. Notwithstanding the general conformity of the bids to the stipulated specifications, the following requirements will have to be particularly met by the Bidders without which the same will be considered as non-responsive and rejected.

**A. TECHNICAL CRITERIA:**

Bidders must meet the following criteria:

**1.0 DESIGN CRITERIA** : The following minimum design criteria should be satisfied by the offered model of the Generating Sets :

(i) **PRIME MOVERS** : The prime movers of the Generating sets shall be, four stroke, spark-ignited, naturally aspirated or turbo-charged, vertical inline or V-type, water cooled Natural Gas Engines rated for continuous power and overload power in accordance with IS 3046/BS 5514/IS:1000 or equivalent Internationally approved/accepted standards, and capable of developing BHP sufficient to deliver 7 MW power continuously at the installation site conditions when operated at 1500 RPM (maximum) and equipped with all engine-mounted parasitic loads. However the design configuration of the Power Plant should be as per **Para 2.0** below.

(ii) **ALTERNATORS**: The Alternators must be brushless type with generation 3 phase voltage 11KV at 50 Hz with necessary synchronization facility & control panel.

**2.0 DESIGN PARAMETERS OF THE POWER PLANT:** The following design parameters of the Power Plant is to be satisfied:

- i) Net Power output : 6.3 MW ( Minimum)
- ii) Minimum Electrical efficiency at unity pf should be 38% as per IS 3046/1 Standard.
- iii) Maximum quantity of Natural Gas requirement at ambient conditions for 7MW gross power should be 35000 SCMD.
- iv) Minimum load throw off Capacity should be 60% of full load.
- v) Implementation Schedule of the Power Plant should be 3 (Three) Months from the date of issuance of LOA.

**Note:** The bid should be accompanied by Technical Literature from the Original Equipment Manufacturer (OEM) in support of Para 1.0 & Para 2.0 above except for **Para 2.0 (v) above**.

- 3.0 The Model of the Generating Sets shall have satisfactory service record for power generation application in Central/State PSUs or Government Organizations or Public/Private Limited Company and shall have logged minimum 3000 hours (cumulative) or six months of operation from its date of commissioning prior to the bid closing date of this tender.
- 3.1 The fuel for the Generating Set shall be natural gas and it shall be running with natural gas from well head.

**B. FINANCIAL CRITERIA:**

- 1.0 The bidder shall have an average Annual financial turnover of minimum Rs. 23.42 Crores or USD 3.86 Million during the last 3(three) years ending 31.03.13(for Accounting Year April-March) and 31.12.12(for calendar Year Accounting year).

**C. BIDDER'S EXPERIENCE CRITERIA:** The bidder should meet the following Experience Criteria:

- 1.0 The bidder shall be an OEM for the Engine or Alternator or the complete Generating Set.

OR

The bidder shall be an authorized dealer of OEM for the Engine / Alternator or the complete Generating Set

OR

The bidder shall be an OEM approved assembler of the Complete Generating Set or its authorized representative.

OR

The bidder shall have experience of executing Turnkey Contracts for commissioning of Gas Engine Driven Power Plant.

Note: For each of the cases as per para 1.0 above, bidder shall enclose the following documentary evidence must be submitted along with the bid:

(i) Duly Notarized Article of Association, Memorandum of Association & Certificate of Incorporation is to be submitted by the bidder in support of OEM of the Engine or Alternator or Assembler of Generating Set.

(ii) In case the bidder is the OEM Authorized Assembler of the Complete Generating Set or Authorized dealer of the Engine/Alternator/Complete Generating Set, authority letter from the OEM is to be submitted in support of the Bid. The authority letter should be valid for the entire duration of the Contract till successful completion. This is in addition to the documentary proof in support of the OEM of the Engine or alternator or Complete Generating set.

- 2.0 The Bidder should have the experience of having successfully completed minimum one no. of work of supply, installation and commissioning of Natural Gas Engine driven Power Plant of capacity 5 MW or above in Central or State PSUs, Government Organizations or any other Public/Private Limited Company and subsequent Operation & Maintenance of the Plant atleast for the next consecutive Three (3) Years during the last 10(ten) years prior to the Bid Closing Date of the Tender.

Note:

The bidder must submit the following as documentary evidence (Duly Notorised) in support of Para 2.0 above:

(a) For OIL Contracts, copy of “Certificate of Compliance (COC)”/ “Certificate of Payment (COP)”/ “Service Entry Sheet (SES)s” of successfully completed job must be submitted as per para No 2.0 above. It may be clearly noted that simply mentioning of OIL Contract Number/Work Order number will not be accepted.

(b) For other contracts, Contract Completion certificate from the end user clearly showing the following:

- Gross value of the job done.
- Nature of Job done
- Contract Period.
- Contract No.

**D. Joint Venture/Joint Venture Partner/Technical Collaborator or CONSORTIUM Criteria:**

In case the bidder does not fulfill any of the above conditions then the bidder can bid on strength of his Joint Venture/Joint Venture Partner/Technical Collaborator or as a consortium subjected to the following conditions:

**1.0 Joint Venture/Joint Venture Partner/Technical Collaborator:**

In case, the bidder is an Indian Company/Indian joint venture Company, either the Indian Company/Indian Joint Venture Company or its technical collaborator/joint venture partner should meet the Bidder’s Experience criteria as per **Para C** above. However, the Indian Company/ Indian joint venture Company must meet the Financial Criteria as per **Para B** above.

Indian bidders quoting based on technical collaboration/joint venture, shall submit a duly notorised Memorandum of Understanding/Agreement with their technical collaborator/joint venture partner clearly indicating their roles under the scope of work which shall also be addressed to OIL and shall remain valid and binding for the contract period under this tender.

2.0 **Bids from Consortium**: In case, the bidder is consortium of companies, the following requirement should be satisfied by the bidder:

(i) Any one of the consortium members individually shall have to meet the Financial Criteria as per Para B.0 above and the same or any other consortium member individually should meet the Experience Criteria as per Para C above.

(ii) Consortium bids shall be submitted with a Memorandum of Understanding between the consortium members duly signed by the authorized Executives of the consortium members clearly defining the role/scope of work of each partner/member, binding the members jointly and severally to the responsibility for discharging all obligations under the contract and identifying the Leader of Consortium. Unconditional acceptance of full responsibility by the Leader of the Consortium for executing the 'Scope of Work' of this tender document till the end of the Contract Period under this tender, shall be submitted along with the technical bid. The Memorandum of Understanding between the consortium members should be duly Notorised by Notary person.

(iii) Only the Leader of the consortium shall buy the bid document, submit bid and sign the Contract Agreement (in the event of award of Contract) on behalf of the Consortium.

(iv) The Bid Security shall be in the name of the Leader of the consortium on behalf of consortium with specific reference to consortium bid and name & address of consortium members. Similarly the Performance Security shall be in the name of the Leader on behalf of the consortium.

3.0 Any party who is extending technical support by way of entering into technical collaboration with another party, shall not be allowed to submit an independent Bid against the tender and such bids shall be rejected straightway. Further, all bids from parties with technical collaboration support from the same Principal will be rejected.

**E. UNDERTAKING CRITERIA**: The following Undertaking duly notorised by Notary should be submitted along with the bid:

1.0 For deployment of minimum manpower as per Annexure, for Operation & Maintenance of plant for the entire duration of the Contract Period under this tender, in the event the Contract is awarded to the bidder against this tender.

2.0 Undertaking and confirmation from OEM of the equipments that the equipments to be supplied are not going to become obsolete for the next 10 years and provisioning of spares will be continued till completion of the Contract period against this tender.

### **3.0 Undertaking to the following effects :**

In case the bidder is an OEM of Engine or its authorized dealer, Alternator shall be purchased from the OEM of Alternator or its authorized dealer and vice versa. And to the effect that the offered model of the equipments shall be deployed in the Power Plant in the event the Contract against this tender is awarded to the bidder.

OR

In case the bidder is an OEM approved assembler of the Complete Generating set, the Engine and the Alternator shall be purchased from respective OEM or their authorized dealers. And to the effect that the offered model of the equipments shall be deployed in the Power Plant in the event the Contract against this tender is awarded to the bidder.

OR

In case the bidder is having experience in executing turn key contracts for commissioning of Gas Engine Driven Power Plant, then the bidder should purchase the Engine and the Alternator from respective OEM or their authorized dealers or the complete gen-set from OEM of the Complete Gen-Set or their authorized assembler. And to the effect that the offered model of the equipments shall be deployed in the Power Plant in the event the Contract against this tender is awarded to the bidder.

### **F. COMMERCIAL – BID SUBMISSION**

- 1.0 Bids shall be submitted under single stage two Bid system i.e. Technical Bid and Priced Bid separately in the OIL's e-Tender portal. The Technical Bid is to be uploaded as per Scope of Work & Technical Specification of the tender in **“Technical Rfx Response” Tab** and Priced Bid as per Proforma-B uploaded in the **“Notes & Attachments” Tab**. Bids shall be rejected outright if the prices are indicated in the technical bids. Bids not conforming to this two bid system shall be rejected outright.
- 2.0 Bidder shall offer firm prices. Price quoted by the successful bidder must remain firm during the execution of the contract and not subject to variation on any account.
- 3.0 Bids with shorter validity will be rejected as being non-responsive.
- 4.0 Bid Security in Original shall be furnished as a part of the Technical Bid and shall reach OIL's Head-Contract's office at Duliajan on or before 12.45 Hrs (IST) on the bid closing date. A scanned copy of the bid security shall however be uploaded in OIL's E-Procurement portal along with the Technical Bid. The amount of Bid Security shall be as specified in the Forwarding Letter of the Bid Document. Bid without proper & valid Bid Security will be rejected.
- 5.0 The Integrity Pact must be uploaded in OIL's E-Procurement portal along with the Technical Bid digitally signed by the same signatory who digitally

- signed the Bid i.e. who is duly authorized to sign the Bid. Bids without the Integrity Pact digitally signed by the bidder shall be rejected straightway.
- 6.0 Physical Bids, if any received from the bidders, shall not be considered and will be rejected.
- 7.0 Bids submitted after the Bid Closing Date and Time will be rejected.
- 8.0 Bids received through the e-procurement portal shall only be accepted. Bids received in any other form shall not be accepted.
- 9.0 The bid documents are non-transferable. Bid can only be submitted in the name of the bidder in whose name the User ID and Password have been issued. Unsolicited bids will not be considered and will be straightway rejected.
- 10.0 Bids shall be typed or written in indelible ink and shall be digitally signed by the bidder or his authorized representative.
- 11.0 Any physical documents wherever called for, submitted by bidders shall contain no interlineations, white fluid erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such correction shall be initialed by the person or persons who has/have digitally signed the Bid.
- 12.0 Any Bid containing false statement will be rejected.
- 13.0 Bidders must quote clearly and strictly in accordance with the price schedule outlined in “Price Bid Format” of Bid Document, otherwise the Bid will be summarily rejected.
- 14.0 Against this tender, either the Indian agent on behalf of the Principal/OEM or Principal/OEM itself can bid but both cannot bid simultaneously for the same item/product.
- 14.1 If an agent submits bid on behalf of the Principal/OEM, the same agent shall not submit a bid on behalf of another Principal/OEM in the same tender for the same item/product.
- 15.0 Bidder must accept and comply with the following clauses as given in the Bid Document in toto failing which bid will be rejected –
- i) Performance Guarantee Clause
  - ii) Force Majeure Clause
  - iii) Tax Liabilities Clause
  - iv) Arbitration Clause
  - (iv) Acceptance of Jurisdiction and Applicable Law
  - (v) Liquidated damage and penalty clause

- (vi) Safety & Labour Law
- (vii) Termination Clause
- (viii) Integrity Pact

**G. GENERAL**

- 1.0 In case bidder takes exception to any clause of bid document not covered under BEC/BRC, then the Company has the discretion to load or reject the offer on account of such exception if the bidder does not withdraw/modify the deviation when/as advised by Company. The loading so done by the Company will be final and binding. Company reserves the right to ask the bidder for clarification on any clause referred to in the NIT except under the BEC/BRC.
- 2.0 To ascertain the substantial responsiveness of the Bid the Company 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.
- 3.0 If any of the clauses in the BRC contradict with other clauses of the Bid Document elsewhere, then the clauses in the BRC shall prevail.

**II. BID EVALUATION CRITERIA (BEC):**

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

- 1.0 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.
- 2.0 For conversion of foreign currency into Indian currency for evaluation of Bids, B.C. selling (Market) rate declared by State Bank of India, one day prior to the date of priced bid opening shall be considered. However, if the time lag between the opening of the bids and final decision exceeds 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.
- 3.0 The bidders must quote their charges/ rates in the manner as called for vide "Schedule of Rates" under Section - IV and the summarized price schedule format vide enclosed Proforma -B.
- 4.0 The quantities shown against each item in the "Price Bid Format (i.e. in Proforma-B)" shall be considered for the purpose of Bid Evaluation. It is, however, to be clearly understood that the assumptions made in respect of the number of days/parameters for various operations are only for the

purpose of evaluation of the bid and the bidder will be paid on the basis of the actual number of days/parameter, as the case may be.

- 5.0 To ascertain the inter-se-ranking, the comparison of the responsive bids will be made subject to loading for any deviation. The Inter-se-ranking of the bidders "Ranking Position" shall be based on their Technical Bid and Commercial Bid. The Ranking shall be evaluated as per the following formulae:

**Ranking Position = 40% of the Total Commercial Point scored + 60% of the Total Technical Points Scored.**

The bidder with the highest Ranking Points i.e. highest points scored during evaluation as per the above formulae shall be awarded the Contract.

Note:

(i) The Total Commercial Points Scored and The Total Technical Point scored shall be worked out respectively as per Para 6.0 and 7.0 below.

(ii) In case of identical Ranking Points are scored by more than 01(one) bidder, the bid with the **LOWEST COMMERCIAL QUOTE** shall be selected.

(iii) In case of identical Ranking Points are scored by more than 01(one) bidder and their Commercial Quote are also identical then the bidder offering lowest Implementation Schedule of the plant shall be selected.

(iv) In case of identical Ranking Points are scored by more than 01(one) bidder and their Commercial Quote are also identical and their offered Implementation Schedule of the plant is also identical then the Bidder offering the highest thermal efficiency of the plant shall be selected.

(v) In case of identical Ranking Points are scored by more than 01(one) bidder with identical Commercial Quote, their offered Implementation Schedule of the plant is also identical and have offered identical (highest) thermal efficiency of the plant then the bidder shall be selected through the draw of lots.

- 6.0) **SCHEDULE OF RATES:** The bidder is to quote their rates as per the schedule below:

A.0 **TOTAL CAPITAL COST:** The bidder is to quote for the total Capital Cost as per the schedule below:

Sl No	Description of work (inclusive of all that are covered item wise in scope of work under terms of reference & technical specification the tender document )	Quantity	Total Price	
			Rs in figure	Rs in words
01	Civil & Structural Work	LSM		
02	Natural Gas Engine Driven generating set	LSM		
03	Electrical Items & Illumination	LSM		
04	Piping work			
05	Misc Mechanical Equipment ( e. g Compressor , Gas dryer/ booster plant , gas purification plant etc)	LSM		
06	Firefighting system	LSM		
07	Black start Generating Set	LSM		
08	Construction of water & effluent disposal system	LSM		
09	Fitting of Lifting facilities	LSM		
10	Implementation of CDM project	LSM		
11	Painting of entire plant	LSM		
	<b>TOTAL CAPITAL COST : A</b>			

Bidder to provide Cost breakup for Item No 02 and Item No 03 in their bid. The break-up is to be shown separately.

B.0 **TOTAL OPERATION & MAINTAINANCE COST:** The bidder is to quote for the Operation & Maintenance cost (O&M Cost) of the Power Plant as per below:

Sl No	ITEM	CURRENCY	COST
	<b>Operation &amp; Maintenance Cost Of the plant</b>		
1.	For The First Year		
2	For The Second Year		
3	For The Third Year		
4	For The Fourth Year		
5	For The Fifth Year		
6	For The Sixth Year		
7	For The Seventh Year		
8	For The Eighth Year		
9	For The Ninth Year		
10	For The Tenth Year		
	<b>TOTAL OPERATION &amp; MAINTAINANCE COST : B</b>		

**TOTAL COMMERCIAL QUOTE = Total Capital Cost “A” + Total Operational Cost “B”.**

Points shall be awarded to the bidders based on their “Total Commercial Quote” as per the following order:

- Points shall be awarded on a scale of 125 to 250.
- The bid with the lowest Commercial quote shall be awarded 250 Points. The bid with the Highest Commercial Quote shall be awarded 125 Points. The intermittent bidder shall be awarded proportionate points counted upto two decimal points.
- Out of the Total Commercial Point scored by the bidder. 40% of the Total Commercial Points scored by the bidder shall be taken for evaluation of RANKING POSITION.

Note: The followings should be taken note by the bidders while quoting for this tender:

- The bid price should be inclusive of all taxes & levies on “FOR Kumchai basis”.
- There is an Arunachal Pradesh entry tax applicable on all the Goods & Services entering Arunachal Pradesh. Bidder to take note of this and forward their quote inclusive of the entry tax.
- The operation & Maintenance Cost is to be inclusive of all types of spares. The bidder is to forward the list of tentative spares to be consumed for operation & maintenance of the plant on per year basis.

**BEC- TECHNICAL:**

7.0 Based on the Technical Bid submitted by the bidder, the Total Technical Point to be awarded shall be worked out as follows:

Sl No	ITEM	Points Scored	Points Scoring Scale
1.	Net Power output Min-6.3 MW [ 25 Marks]		The bidder offering highest Net power Output shall be awarded 50 Points. The bidder offering lowest net Power Output shall be awarded 25 Points. The intermittent bidder shall be awarded proportionate points counted upto two decimal points.
2.	Electrical efficiency at unity pf Min – 38 % [ 25 Marks]		The bidder offering most efficient Gen-set Units shall be awarded 50 Points. The bidder offering lowest efficient Gen-set Units shall be

			awarded 25 Points. The intermittent bidder shall be awarded proportionate points counted upto two decimal points
3.	Gas requirement at ambient conditions for 7MW gross power = Max 35,000SCMD [ 25 Marks]		The bidder offering Lowest Gas Requirement shall be awarded 50 Points. The bidder offering Highest Gas Requirement shall be awarded 25 Points. The intermittent bidder shall be awarded proportionate points counted upto two decimal points
4.	load throw off Capacity		The bidder offering highest load throw off Capacity shall be awarded 50 Points. The bidder offering lowest load throw off Capacity shall be awarded 25 Points. The intermittent bidder shall be awarded proportionate points counted upto two decimal points.
5.	Implementation Schedule [ Implementation period of 3 months from the date of LOI 25 marks]		The bidder offering Lowest Implementation Schedule shall be awarded 50 Points. The bidder offering Highest Implementation Schedule shall be awarded 25 Points. The intermittent bidder shall be awarded proportionate points counted upto two decimal points

**Full score = 250**

Total Technical Points Scored = Sum of the Points scored against **Sl No( 1 + 2 + 3 + 4 + 5)above.**

Note: 60 % of the Total Technical Points Scored shall be taken for evaluation of RANKING POSITION.

**Ranking Position = 40% of the Total Commercial Point scored + 60% of the Total Technical Points Scored.**

8.0 **Granting of Price Preference to Domestic Bidders (applicable to ICB tenders only)**

Domestic bidders would be entitled to a price preference up to ten percent (10%) over the lowest acceptable (evaluated) Foreign bid subject to value addition. For ensuring value addition and eligibility for price preference, domestic bidders should provide all evidence necessary to prove that they meet the following criteria:

- (a) Be registered within India
- (b) Have majority ownership by Nationals of India
- (c) Not sub-contract more than 50% of the works measured in terms of value, to Foreign contractors.

For meeting the criteria at (c) above, domestic bidders should obtain a certificate in original from practicing Statutory Auditor engaged by them for auditing their annual accounts, which could establish that not more than 50% of the works measured in terms of value has been sub-contracted to Foreign contractors. The original certificate indicating various sub-contracting details in percentage terms as well as in absolute value should be submitted in the priced bid. However, a copy of the Statutory Auditor's certificate indicating various sub-contracting details in percentage terms only and with price details should be submitted in the un-priced bid.

Consortium between domestic(Indian) and foreign firms led by Indian firm shall also be eligible for the price preference provided they fulfill the conditions of price preference given for domestic bidder at (a), (b) & (c) above.

However Consortium between domestic and foreign firms led by foreign firms shall not be eligible for price preference even though their domestic partner satisfies the conditions given for domestic bidder at (a), (b) & (c) above.

It must be noted that above information so furnished, if at any stage found wrong, incorrect or misleading, will attract action as per rules/law.

The bidders are requested to check the latest position on the subject on their own and OIL does not accept any liability whatsoever on this account.

**END OF PART - 2**

**&&&&**

## SECTION-I

### GENERAL CONDITIONS OF CONTRACT

1.0 **DEFINITIONS:**

1.1 In the contract, the following terms shall be interpreted as indicated:

- (a) "The Contract" means agreement entered into between Company and Contractor, as recorded in the contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein;
- (b) "The Contract Price" means the price payable to Contractor under the contract for the full and proper performance of its contractual obligations;
- (c) "The Work" means each and every activity required for the successful performance of the services described in Section II, the Terms of Reference.
- (d) "Company" or "OIL" means Oil India Limited;
- (e) "Contractor" means the Contractor performing the work under this Contract.
- (f) "Contractor's Personnel" means the personnel to be provided by the Contractor to provide services as per the contract.
- (g) "Company's Personnel" means the personnel to be provided by OIL or OIL's Contractor (other than the Contractor executing the Contract). The Company representatives of OIL are also included in the Company's personnel.

2.0 **EFFECTIVE DATE, MOBILISATION TIME, DATE OF COMMENCEMENT OF THE CONTRACT AND DURATION OF CONTRACT:**

- 2.1 **EFFECTIVE DATE:** The contract shall become effective as of the date Company notifies Contractor in writing (through Letter of Award) that it has been awarded the contract. This date of issue of Letter of Award (LOA) will be the Effective Date of Contract.
- 2.2 **MOBILISATION TIME:** The mobilization shall have to be completed by the contractor within 15(fifteen) days from the Effective Date of the Contract. Mobilization shall be deemed to be completed when Contractor's personnel and material arrives at OIL's facility in Kumchai duly certified by the Company's authorized representative.
- 2.3 **DATE OF COMMENCEMENT OF CONTRACT:** The commencement date of the Contract will be reckoned from the date of issue of LOA.

- 2.4 **DURATION OF CONTRACT:** The duration of the Contract shall be for a period of 3(Three) months to be reckoned from the commencement date of the Contract plus commissioning period with Operability Run of 45 days plus 10(Ten) years Operation & Maintenance of the Plant.
- 3.0 **GENERAL OBLIGATIONS OF CONTRACTOR:** Contractor shall, in accordance with and subject to the terms and conditions of this Contract:
- 3.1 Perform the work described in the Terms of Reference (Section II) in most economic and cost effective manner.
- 3.2 Except as otherwise provided in the Terms of Reference and the special Conditions of the contract provide all labour as required to perform the work.
- 3.3 Perform all other obligations, work and services which are required by the terms of this contract or which reasonably can be implied from such terms as being necessary for the successful and timely completion of the work.
- 3.4 Contractor shall be deemed to have satisfied himself before submitting his bid as to the correctness and sufficiency of its bid for the services required and of the rates and prices quoted, which rates and prices shall, except insofar as otherwise provided, cover all its obligations under the contract.
- 3.5 Contractor shall give or provide all necessary supervision during the performance of the services and as long thereafter within the warranty period as Company may consider necessary for the proper fulfilling of Contractor's obligations under the contract.
- 4.0 **GENERAL OBLIGATIONS OF THE COMPANY:** Company shall, in accordance with and subject to the terms and conditions of this contract:
- 4.1 Pay Contractor in accordance with terms and conditions of the contract.
- 4.2 Allow Contractor and his personnel access, subject to normal security and safety procedures, to all areas as required for orderly performance of the work.
- 4.3 Perform all other obligations required of Company by the terms of the contract.
- 4.4 Catering for the insurance of the assets post commissioning of the Plant including public liability insurance in relation thereto.
- 5.0 **PERSONNEL TO BE DEPLOYED BY CONTRACTOR**
- 5.1 Contractor warrants that they will provide competent, qualified and sufficiently experienced personnel to perform the work correctly and

efficiently and shall ensure that such personnel observe applicable Company and statutory safety requirement. Upon Company's written request, Contractor, entirely at their own expense, shall remove immediately, from assignment to the work, any personnel of the Contractor determined by the Company to be unsuitable and shall promptly replace such personnel with personnel acceptable to the Company without affecting Company's work.

- 5.2 The Contractor shall be solely responsible throughout the period of the contract for providing all requirements of their personnel, and of their Sub-contractors, if any, including but not limited to insurance, housing, medical services, messing, their transportation to & fro from field site(both air and land transportation), enroute expenses, vacation, salaries and all amenities, termination payment and taxes, if any, payable at no charge to the Company & Company shall have no responsibility or liability in this regard
- 5.3 Contractor's key personnel shall be fluent in English language (both writing and speaking).

6.0 **WARRANTY AND REMEDY OF DEFECTS**

- 6.1 Contractor must warrant that they shall perform the work in a first class, workman-like, and professional manner and in accordance with the highest degree of quality, efficiency, and with the state of the art technology and in conformity with all specifications, standards and drawings set forth or referred to in the Technical- Scope of Work (Section-II) and with instructions and guidance which the Company may, from time to time, furnish to the Contractor.
- 6.2 Should the Company discover at any time during the tenure of the Contract or within the Performance Liability Period of the Contract that the work carried out by the contractor does not conform to and perform as per terms and conditions of the Contract, Contractor shall after receipt of notice from Company, promptly perform all corrective work required to make the services conform to the Warranty. Such corrective work shall be performed entirely at Contractor's own expenses. If such corrective work is not performed within a reasonable time, the Company, at its option, may have such remedial work carried out by others and charge the cost thereof to Contractor, which the Contractor must pay promptly. In case Contractor fails to perform remedial work, the performance security shall be forfeited.
- 6.3 All Goods or Materials shall be supplied strictly in accordance with the specifications, drawings, data sheets, other attachments and conditions stated in the Contracts.
- 6.4 The Contractor guarantees that the Goods or Materials supplied under the Contract are new, unused, of the most recent or current models and

incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Contractor further warrants that the goods supplied under this Contract shall have no defect arising from design, materials or workmanship.

- 6.5 No deviation from such specifications or alterations or of these conditions shall be made without agreement with the COMPANY in writing, which must be obtained before any work against the order is commenced. All materials supplied by the CONTRACTOR pursuant to the Contract (irrespective of whether engineering, design data or other information has been furnished, reviewed or approved by Company) are guaranteed to be of the best quality of their respective kinds, (unless otherwise specifically authorized in writing by Company) and shall be free from faulty design, workmanship and materials, and to be of sufficient size and capacity and of proper materials so as to fulfill in all respects operating conditions, if any, specified in the Contract.
- 6.6 This Guarantee shall remain valid for a period of 12 (twelve) months from the date of putting the plant into operation i.e. DATE OF COMPLETION OF THE PROJECT. If any trouble or defect, originating with the design, material, workmanship or operating characteristics of any materials, arises at any time prior to expiry of guarantee period, the CONTRACTOR is notified thereof, CONTRACTOR shall, at his own expense and as promptly as possible, make such alterations, repairs and replacements as may necessary to permit the material to functions in accordance with the specifications and to fulfill the foregoing guarantees.
- 6.7 The Company may, at its option, remove such defective materials, at CONTRACTOR'S expense in which event CONTRACTOR shall, without cost to Company and as promptly as possible, furnish and install proper materials. Repaired or replacement materials shall be similarly guaranteed by the CONTRACTOR for a period of no less than 12 (twelve) months from the date of replacement/ repair.
- 6.8 In the event that the materials supplied do not meet the specifications and/ or not in accordance with the drawings data sheets or the terms of Contract and rectification is required in site, COMPANY shall notify the CONTRACTOR giving full details of differences. The CONTRACTOR shall attend the site within 3 (three) days of receipt of such notice to meet and agree with representatives of COMPANY, the action required to correct the deficiency. Should the CONTRACTOR fail to attend meeting at site within the time specified above, COMPANY shall immediately rectify the work/ materials and CONTRACTOR shall reimburse COMPANY all cost and expenses incurred in connection with such trouble or defect. In case the Contractor fails to perform remedial work, the Performance Bank Guarantee shall be invoked.

7.0 **CONFIDENTIALITY, USE OF CONTRACT DOCUMENTS AND INFORMATION:**

- 7.1 Contractor shall not, without Company's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing pattern, sample or information furnished by or on behalf of Company in connection therewith, to any person other than a person employed by Contractor in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far, as may be necessary for purposes of such performance.
- 7.2 Contractor shall not, without Company's prior written consent, make use of any document or information except for purposes of performing the contract.
- 7.3 Any document supplied to the Contractor in relation to the contract other than the Contract itself remain the property of Company and shall be returned (in all copies) to Company on completion of Contractor's performance under the Contract if so required by Company. All information obtained by Contractor in the conduct of operations and the information/maps provided to the Contractor shall be considered confidential and shall not be divulged by Contractor or its employees to anyone other than the Company's personnel. This obligation of Contractor shall be in force even after the termination of the contract.

8.0 **TAXES:**

- 8.1 Tax levied as per the provisions of Indian Income Tax Act and any other enactment/rules on income derived/payments received under this contract will be on Contractor's account.
- 8.2 Contractor shall be responsible for payment of personal taxes, if any, for all the personnel deployed in India.
- 8.3 The Contractor shall furnish to the Company, if and when called upon to do so, relevant statement of accounts or any other information pertaining to work done under this contract for submitting the same to the Tax authorities, on specific request from them. Contractor shall be responsible for preparing and filing the return of income etc. within the prescribed time limit to the appropriate authority.
- 8.4 Prior to start of operations under the contract, the Contractor shall furnish the Company with the necessary documents, as asked for by the Company and/ or any other information pertaining to the contract, which may be required to be submitted to the Income Tax authorities at the time of obtaining "No Objection Certificate" for releasing payments to the Contractor.
- 8.5 Tax clearance certificate for personnel and corporate taxes shall be obtained by the Contractor from the appropriate Indian Tax authorities

and furnished to Company within 6 months of the expiry of the tenure of the contract or such extended time as the Company may allow in this regard.

- 8.6 Corporate income tax will be deducted at source from the invoice at the specified rate of income tax as per the provisions of Indian Income Tax Act as may be in force from time to time.
- 8.7 Corporate and personnel taxes on Contractor shall be the liability of the Contractor and the Company shall not assume any responsibility on this account.
- 8.8 All local taxes, levies and duties, sales tax, octroi, etc. on purchases and sales made by Contractor shall be borne by the Contractor.
- 8.9 The Contractor agrees to and does hereby accept full and exclusive liability at his own cost for the payment of any and all taxes, duties licence fee and other such levies etc. as are payable to government, local or statutory authority as are now in force and as are payable by Contractor, his agents, Sub-Contractor's and their employees etc. for performance of work under this Contract. The Contractor shall be deemed to have been fully informed with respect to all such liabilities and considered the same in his bid, and the Contract shall not be varied in any way on this account.
- 8.10 For imported supplies of goods, Contractor at their cost shall arrange the clearance of all equipment, spare parts, consumable, etc. from customs and port authorities in India. The responsibility for clearance will rest with the Contractor. Any demurrage in this process will be at Contractor's cost.
- 8.11 Service Tax: The price excludes Services Tax and the service tax as applicable shall be to the Company account.

9.0 **INSURANCE:**

- 9.1 The Contractor shall arrange insurance to cover all risks in respect of their personnel, materials and equipment belonging to the Contractor or its subcontractor during the currency of the contract.
- 9.2 Contractor shall at all time during the currency of the contract provide, pay for and maintain the following insurance amongst others:
- a) Workmen compensation insurance as required by the laws of the country of origin of the employee.
  - b) Employer's Liability Insurance as required by law in the country of origin of employee.
  - c) General Public Liability Insurance covering liabilities including contractual liability for bodily injury, including death of persons, and liabilities for damage of property. This insurance must cover all

- operations of Contractor required to fulfill the provisions under this contract.
- d) Contractor's equipment used for execution of the work hereunder shall have an insurance cover with a suitable limit (as per international standards).
  - e) Automobile Public Liability Insurance covering owned, non-owned and hired automobiles used in the performance of the work hereunder, with bodily injury limits and property damage limits as governed by Indian Insurance regulations.
  - f) Public Liability Insurance as required under Public Liability Insurance Act 1991.
- 9.3 Contractor shall obtain additional insurance or revise the limits of existing insurance as per Company's request in which case additional cost shall be to Contractor's account.
- 9.4 Any deductible set forth in any of the above insurance shall be borne by Contractor.
- 9.5 Contractor shall furnish to Company prior to commencement date, certificates of all its insurance policies covering the risks mentioned above.
- 9.6 If any of the above policies expire or are cancelled during the term of this contract and Contractor fails for any reason to renew such policies, then the Company will renew/replace same and charge the cost thereof to Contractor. Should there be a lapse in any insurance required to be carried out by the Contractor for any reason whatsoever, loss/damage claims resulting therefrom shall be to the sole account of Contractor.
- 9.7 Contractor shall require all of his sub-Contractor to provide such of the foregoing insurance coverage as Contractor is obliged to provide under this Contract and inform the Company about the coverage prior to the commencement of agreements with its sub-Contractors.
- 9.8 All insurance taken out by Contractor or his sub-Contractor shall be endorsed to provide that the underwriters waive their rights of recourse on the Company.
- 9.9
- i) All goods/equipment to be supplied under this contract shall be under Contractor's custody until such goods/equipment are installed and commissioned on turnkey basis. The Contractor shall at his own expense, secure and maintain insurance covering the full value of all such goods/equipment for the period up to commissioning of the Plant.
  - ii) Such insurance shall cover any loss or damage of supplied goods/equipment during transit from Contractor's source of despatch to project sites, storage at various sites, erection, installation and commissioning of such goods/equipment till such time the entire Plant

is commissioned. The beneficiary of all such insurance policies shall be OIL. Unless insurance document in this regard are furnished to the Company no payment will be made for such supplies.

**10.0 CHANGES:**

10.1 During the performance of the work, Company may make a change in the work within the general scope of this Contract including, but not limited to, changes in methodology, and minor additions to or deletions from the work to be performed. Contractor shall perform the work as changed. Changes of this nature will be affected by written order (Change Order) by the Company.

10.2 If any change result in an increase in compensation due to Contractor or in a credit due to Company, Contractor shall submit to Company an estimate of the amount of such compensation or credit in a form prescribed by Company. Such estimates shall be based on the rates shown in the Schedule of Rates (Section IV). Upon review of Contractor's estimate, Contractor shall establish and set forth in the Change Order the amount of the compensation or credit for the change or a basis for determining a reasonable compensation or credit for the change. If Contractor disagrees with compensation or credit set forth in the Change Order, Contractor shall nevertheless perform the work as changed, and the parties will resolve the dispute in accordance with Clause 13 hereunder. Contractor's performance of the work as changed will not prejudice Contractor's request for additional compensation for work performed under the Change Order.

**11.0 FORCE MAJEURE:**

11.1 In the event of either party being rendered unable by 'Force Majeure' to perform any obligation required to be performed by them under the contract, the relative obligation of the party affected by such 'Force Majeure' will stand suspended as provided herein. The word 'Force Majeure' as employed herein shall mean acts of God, war, revolt, agitation, strikes, riot, fire, flood, sabotage, civil commotion, road barricade (but not due to interference of employment problem of the Contractor) and any other cause, whether of kind herein enumerated or otherwise which are not within the control of the party to the contract and which renders performance of the contract by the said party impossible.

11.2 Upon occurrence of such cause and upon its termination, the party alleging that it has been rendered unable as aforesaid thereby, shall notify the other party in writing within Seventy Two (72) hours of the alleged beginning and ending thereof, giving full particulars and satisfactory evidence in support of its claim.

11.3 Should 'force majeure' condition as stated above occurs and should the same be notified within seventy two (72) hours after its occurrence the 'force majeure rate' shall apply for the first fifteen days. Either party will

have the right to terminate the contract if such 'force majeure' condition continues beyond fifteen (15) days with prior written notice. Should either party decide not to terminate the contract even under such condition, no payment would apply after expiry of fifteen (15) days period unless otherwise agreed to. Time for performance of the relative obligation suspended by the 'Force Majeure' shall then stand extended by the period for which such cause lasts.

The above clause (i.e. Clause No. 11.0) with all its sub-clauses shall be referred to as **Force Majeure Clause** of this tender document.

12.0 **TERMINATION:**

12.1 **TERMINATION ON EXPIRY OF THE TERMS (DURATION):** This Contract shall be deemed to have been completed on successful commissioning of the plant and completion of its O&M for 10 years thereafter.

12.2 **TERMINATION ON ACCOUNT OF FORCE MAJEURE:** Either party shall have the right to terminate this Contract on account of Force Majeure as set forth in Article 11.0 above.

12.3 **TERMINATION ON ACCOUNT OF INSOLVENCY:** In the event that the Contractor at any time during the term of this Contract, becomes insolvent or makes a voluntary assignment of its assets for the benefit of creditors or is adjudged bankrupt, then the Company shall, by a notice in writing have the right to terminate this Contract and all the Contractor's rights and privileges hereunder, shall stand terminated forthwith.

12.4 **TERMINATION FOR UNSATISFACTORY PERFORMANCE:** If the Company considers that, the performance of the Contractor is unsatisfactory, or not up to the expected standard, the Company shall notify the Contractor in writing and specify in details the cause of the dissatisfaction. The Company shall have the option to terminate this Contract by giving 15 days notice in writing to the Contractor, if Contractor fails to comply with the requisitions contained in the said written notice issued by the Company,

12.5 **TERMINATION DUE TO CHANGE OF OWNERSHIP & ASSIGNMENT:** In case the Contractor's rights and /or obligations under this Contract and/or the Contractor's rights, title and interest to the equipment/material, are transferred or assigned without the Company's consent, the Company may at its absolute discretion, terminate this Contract.

12.6 If at any time during the term of this Contract, breakdown of Contractor's equipment results in Contractors being unable to perform their obligations hereunder for a period of 15 successive days, Company at its option, may terminate this Contract in its entirety without any further right or obligation on the part of the Company, except for the payment of money then due. No notice shall be served by the Company under the condition stated above.

12.7 Notwithstanding any provisions herein to the contrary, the Contract may be terminated at any time by the company on giving 15 (fifteen) days written notice to the Contractor due to any other reason not covered under the above clause from 12.1 to 12.6 and in the event of such termination the Company shall not be liable to pay any cost or damage to the Contractor except for payment of services as per the Contract upto the date of termination.

12.8 **TERMINATION FOR DEFAULT :**

The Company may, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Contractor, terminate the Contract in whole or in part:

- A) If the Contractor fails to deliver any or all of the GOODS within the period(s) specified in the Contract; or
- B) If the Contractor fails to perform any of their obligations(s) under the Contract, and
- C) If the Contractor, in either of the above circumstances does not rectify his failure within a period of 30 (Thirty) days (or such longer period as the Company may authorise in writing) after receipt of the default notice from the Company.

12.9 **CONSEQUENCES OF TERMINATION:** In all cases of termination herein set forth, the relative obligations of the parties to the Contract shall be limited to the period up to the date of termination. Notwithstanding the termination of this Contract, the parties shall continue to be bound by the provisions of this Contract that reasonably require some action or forbearance after such termination.

12.10 Upon termination of this Contract, Contractor shall return to Company all of Company's items, which are at the time in Contractor's possession.

12.11 In the event of termination of contract, Company will issue Notice of termination of the contract with date or event after which the contract will be terminated. The contract shall then stand terminated and the Contractor shall demobilize their personnel & materials.

12.12 Notwithstanding any provisions herein to the contrary, the Contract may be terminated at any time by the Company on giving 15 (Fifteen) days written notice to the Contractor due to any other reason not covered under the above Sub-Clause from 12.1 to 12.8 and in the event of such termination the Company shall not be liable to pay any cost or damage to the Contractor except for payment for Work done as per this Contract up to the date of termination.

13.0 **SETTLEMENT OF DISPUTES AND ARBITRATION:**

13.1 All disputes or differences whatsoever arising between the parties out of or relating to the construction, meaning and operation or effect of this contract or the breach thereof shall be settled by arbitration in accordance with the Rules of Indian Arbitration and Conciliation Act, 1996. The venue of arbitration will be Duliajan, Assam. The award made in pursuance thereof shall be binding on the parties.

14.0 **NOTICES:**

14.1 Any notice given by one party to other, pursuant to this Contract shall be sent in writing or by telex or Fax and confirmed in writing to the applicable address specified below:

**Company**

a) **For contractual matters**

Head (Contracts)  
OIL INDIA LIMITED  
PO DULIAJAN - 786602  
ASSAM, INDIA  
Fax No. 91-374-2803549  
Email: contracts@oilindia.in

b) **For technical matters**

General Manager (FE&Tpt)  
OIL INDIA LIMITED  
PO Duliajan - 786602,  
Assam, India  
Fax No. 91-374-2803294  
Email: FieldEngineering@oilindia.in

c) **Contractor**

\_\_\_\_\_  
\_\_\_\_\_  
Fax No. :

14.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

15.0 **SUBCONTRACTING/ASSIGNMENT:**

15.1 Contractor shall not subcontract, transfer or assign the contract, in full or any part under this contract, to any third party (ies). Except for the main services under this contract, Contractor may sub-contract the petty support services subject to Company's prior approval. However, Contractor shall be fully responsible for complete execution and performance of the services under the Contract.

16.0 **MISCELLANEOUS PROVISIONS:**

16.1 Contractor shall give notices and pay all fees at their own cost required to be given or paid by any National or State Statute, Ordinance, or other Law or any regulation, or bye-law of any local or other duly constituted authority as may be in force from time to time in India, in relation to the performance of the services and by the rules & regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the services.

- 16.2 Contractor shall conform in all respects with the provisions of any Statute, Ordinance of Law as aforesaid and the regulations or bye-law of any local or other duly constituted authority which may be applicable to the services and with such rules and regulation public bodies and Companies as aforesaid and shall keep Company indemnified against all penalties and liability of every kind for breach of any such Statute, Ordinance or Law, regulation or bye-law.
- 16.3 During the tenure of the Contract, Contractor shall keep the site where the services are being performed reasonably free from all unnecessary obstruction and shall store or dispose of any equipment and surplus materials and clear away and remove from the site any wreckage, rubbish or temporary works no longer required. On the completion of the services, Contractor shall clear away and remove from the site any surplus materials, rubbish or temporary works of every kind and leave the whole of the site clean and in workmanlike condition to the satisfaction of the Company.
- 16.4 Key personnel cannot be changed during the tenure of the Contract except due to sickness/death/resignation of the personnel in which case the replaced person should have equal experience and qualification, which will be again subject to approval, by the Company.
- 16.5 All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the site where the services are performed, be deem to be the absolute property of the Company. The Contractor shall take reasonable precautions to prevent the personnel or any other persons from removing or damaging any such article or thing and shall immediately upon the discovery thereof and, before removal, acquaint the Company of such discovery any carry out, at the expense of the Company, the Company's orders as to the disposal of the same.

17.0 **LIQUIDATED DAMAGES**

**17.1 LIQUIDATED DAMAGES FOR DEFAULT IN TIMELY COMPLETION:**

- 17.1.1 Time is the essence of this Contract. In case there is delay in completion of the contract as per the schedule of Completion (as per Sub-Clause 2.4 of Section-I) due to the reasons attributable to the Contractor, the Contractor shall be liable to pay liquidated damages at the rate of 0.5% of the estimated total contract value per week or part thereof of delay subject to maximum of 7.5% of the total calculated Contract Price. Liquidated Damages will be reckoned from the date after expiry of the scheduled completion period till the actual completion period of Contract as defined in Clause 2.4 of Section-I. The Company may without prejudice to any other method of recovery, deduct the amount of such liquidated damages from any amount due to the Contractor
- 17.1.2 The Company also reserves the right to cancel the Contract without any compensation whatsoever in case of failure to Complete the work within

the stipulated period. In the event of non-completion of the jobs as per the provisions of this contract, the company reserves the right to claim back the amount already paid to the contractor. Any part/phase completion, barring the final phase, will be regarded as non-completion of the contract and loss of time & cost to the company.

17.1.3 The parties agree that the sum specified above is not a penalty but a genuine pre-estimate of the loss/damage which will be suffered by OIL on account of delay/breach on the part of the Contractor and the said amount will be payable without proof of actual loss or damage caused by such delay/breach and without any demur and shall not be open for any dispute whatsoever.

18.0 **PERFORMANCE SECURITY:** The Contractor has to furnish to Company a Bank Guarantee No. \_\_\_\_\_ dated \_\_\_\_\_ issued by \_\_\_\_\_ for \_\_\_\_\_ (being 7.5 % of estimated total Contract Price excluding O&M cost) valid till \_\_\_\_\_ towards performance security. The performance security shall be payable to Company as compensation for any loss resulting from Contractor's failure to fulfil their obligations under the Contract. In the event of extension of the Contract period, the validity of the bank guarantee shall be suitably extended by the Contractor. The bank guarantee will be discharged by Company not later than 30 days following its expiry.

18.1 Performance Security towards the Operation & Maintenance (O&M) of the plant shall be submitted prior to commencement of O&M. This PBG should be for 7.5% of the Annual contract value for 10 years O&M and should be valid throughout the O&M contract period plus 6 months.

18.2 **INVOKATION OF PERFORMANCE BANK GUARANTEE:**  
In the event of the Contractor failing to honour any of the commitments entered into under the Contract and/or in respect of any amount due from the Contractor to the Company, the Company shall have an unconditional option under the guarantee to invoke their performance bank guarantee and clear the amount from Bank.

19.0 **ASSOCIATION OF COMPANY'S PERSONNEL:**

19.1 The Company may depute one or more than one representative (s) / Engineer (s) to act on its behalf for overall co-ordination and operational management at location. Company's representative shall liaise with the Contractor and monitor progress to ensure timely completion of the jobs. Company's representative shall also have the authority to oversee the execution of jobs by the Contractor and to ensure compliance of provisions of the Contract.

19.2 The Company's representatives shall have free access to all the equipment of the Contractor during operations as well as idle time for the purpose of observing / inspecting the operations performed by the Contractor in

order to judge whether, in the Company's opinion, the Contractor is complying with the provisions of the Contract.

20.0 **LABOUR**: The recruitment of the labour shall be met from the areas of operation and wages will be according to the rates prevalent at the time which can be obtained from the District Authorities of the area. The facilities to be given to the labourers should conform to the provisions of labour laws as per contract Labour (Regulation and Abolition) Act, 1970.

21.0 **LIABILITY**:

21.1 Except as otherwise expressly provided, neither Company nor its servants, agents, nominees, Contractors, or sub-contractors shall have any liability or responsibility whatsoever to whomsoever for loss of or damage to the equipment and/or loss of or damage to the property of the Contractor and/or their Contractors or sub-contractors, irrespective of how such loss or damage is caused and even if caused by the negligence of Company and/or its servants, agent, nominees, assignees, contractors and sub-Contractors. The Contractor shall protect, defend, indemnify and hold harmless Company from and against such loss or damage and any suit, claim or expense resulting there from.

21.2 Neither Company nor its servants, agents, nominees, assignees, Contractors, sub-contractors shall have any liability or responsibility whatsoever for injury to, illness, or death of any employee of the Contractor and/or of its Contractors or sub-contractor irrespective of how such injury, illness or death is caused and even if caused by the negligence of Company and/or its servants, agents nominees, assignees, Contractors and sub-contractors. Contractor shall protect, defend, indemnify and hold harmless Company from and against such liabilities and any suit, claim or expense resulting therefrom.

21.3 The Contractor hereby agrees to waive its right to recourse and further agrees to cause their underwriters to waive their right of subrogation against Company and/or its underwrites, servants, agents, nominees, assignees, Contractors and sub-contractors for loss or damage to the equipment of the Contractor and/or its sub-contractors when such loss or damage or liabilities arises out of or in connection with the performance of the contract.

21.4 The Contractor hereby further agrees to waive its right of recourse and agrees to cause its underwriters to waive their right of subrogation against Company and/or its underwriters, servants, agents, nominees, assignees, Contractors and sub-contractors for injury to, illness or death of any employee of the Contractor and of its Contractors, sub-contractors and/or their employees when such injury, illness or death arises out of or in connection with the performance of the contract.

- 21.5 Except as otherwise expressly provided, neither Contractor nor its servants, agents, nominees, Contractors or sub-contractors shall have any liability or responsibility whatsoever to whomsoever for loss of or damage to the equipment and/or loss or damage to the property of the Company and/or their Contractors or sub-contractors, irrespective of how such loss or damage is caused and even if caused by the negligence of Contractor and/or its servants, agents, nominees, assignees, Contractors and sub-contractors. The Company shall protect, defend, indemnify and hold harmless Contractor from and against such loss or damage and any suit, claim or expense resulting there from.
- 21.6 Neither Contractor nor its servants, agents, nominees, assignees, Contractors, sub-contractors shall have any liability or responsibility whatsoever to whomsoever for injury or illness, or death of any employee of the Company and/or of its Contractors or sub-contractors irrespective of how such injury, illness or death is caused and even if caused by the negligence of Contractor and/or its servants, agents, nominees, assignees, Contractors and sub-contractors. Company shall protect, defend indemnify and hold harmless Contractor from and against such liabilities and any suit, claim or expense resulting therefrom.
- 21.7 The Company agrees to waive its right of recourse and further agrees to cause its underwriters to waive their right of subrogation against Contractor and /or its underwriters, servants, agents, nominees, assignees, Contractors and sub-contractors for loss or damage to the equipment of Company and/or its contractors or sub-contractors when such loss or damage or liabilities arises out of or in connection with the performance of the contract.
- 21.8 The Company hereby further agrees to waive its right of recourse and agrees to cause it underwriters to waive their right of subrogation against Contractor and/or its underwriters, servants, agents, nominees, assignees, Contractors and sub-contractors for injury to, illness or death of any employee of the Company and of its Contractors, sub-contractors and/or their employees when such injury, illness or death arises out of or in connection with the performance of the Contract.
- 22.0 **CONSEQUENTIAL DAMAGE:** Except as otherwise expressly provided, neither party shall be liable to the other for special, indirect or consequential damages resulting from or arising out of the contract, including but without limitation, to loss or profit or business interruptions, howsoever caused and regardless of whether such loss or damage was caused by the negligence (either sole or concurrent) of either party, its employees, agents or sub-contractors.
- 23.0 **INDEMNITY AGREEMENT:**
- 23.1 Except as provided hereof Contractor agrees to protect, defend, indemnify and hold Company harmless from and against all claims, suits, demands

and causes of action, liabilities, expenses, cost, liens and judgments of every kind and character, without limit, which may arise in favour of Contractor's employees, agents, contractors and sub-contractors or their employees on account of bodily injury or death, or damage to personnel/property as a result of the operations contemplated hereby, regardless of whether or not said claims, demands or causes of action arise out of the negligence or otherwise, in whole or in part or other faults.

23.2 Except as provided hereof Company agrees to protect, defend, indemnify and hold Contractor harmless from and against all claims, suits, demands and causes of action, liabilities, expenses, cost, liens and judgments of every kind and character, without limit, which may arise in favour of Company's employees, agents, contractors and sub-contractors or their employees on account of bodily injury or death, or damage to personnel/property as a result of the operations contemplated hereby, regardless of whether or not said claims, demands or causes of action arise out of the negligence or otherwise, in whole or in part or other faults.

24.0 **INDEMNITY APPLICATION:** The indemnities given herein above, whether given by Company or Contractor shall be without regard to fault or to the negligence of either party even though said loss, damage, liability, claim, demand, expense, cost or cause of action may be caused, occasioned by or contributed to by the negligence, either sole or concurrent of either party.

25.0 **WITHHOLDING:** Company may withhold or nullify the whole or any part of the amount due to Contractor, after informing the Contractor of the reasons in writing, on account of subsequently discovered evidence in order to protect Company from loss on account of :-

- a) For non-completion of jobs assigned as per Section-II.
- b) Contractor's indebtedness arising out of execution of this Contract.
- c) Defective work not remedied by Contractor.
- d) Claims by sub-Contractor of Contractor or others filed or on the basis of reasonable evidence indicating probable filing of such claims against Contractor.
- e) Failure of Contractor to pay or provide for the payment of salaries/wages, contributions, unemployment compensation, taxes or enforced savings with-held from wages etc.
- f) Failure of Contractor to pay the cost of removal of unnecessary debris, materials, tools, or machinery.
- g) Damage to another Contractor of Company.
- h) All claims against Contractor for damages and injuries, and/or for non-payment of bills etc.
- i) Any failure by Contractor to fully reimburse Company under any of the indemnification provisions of this Contract. If, during the progress of the work Contractor shall allow any indebtedness to accrue for which Company, under any circumstances in the opinion of Company may be primarily or contingently liable or ultimately

responsible and Contractor shall, within five days after demand is made by Company, fail to pay and discharge such indebtedness, then Company may during the period for which such indebtedness shall remain unpaid, with-hold from the amounts due to Contractor, a sum equal to the amount of such unpaid indebtedness.

Withholding will also be effected on account of the following:-

- i) Order issued by a Court of Law in India.
- ii) Income-tax deductible at source according to law prevalent from time to time in the country.
- iii) Any obligation of Contractor which by any law prevalent from time to time to be discharged by Company in the event of Contractor's failure to adhere to such laws.
- iv) Any payment due from Contractor in respect of unauthorised imports.

When all the above grounds for withholding payments shall be removed, payment shall thereafter be made for amounts so with-hold.

Notwithstanding the foregoing, the right of Company to withhold shall be limited to damages, claims and failure on the part of Contractor, which is directly/indirectly related to some negligent act or omission on the part of Contractor.

**26.0 APPLICABLE LAW:**

- 26.1 The Contract shall be deemed to be a Contract made under, governed by and construed in accordance with the laws of India for the time being in force and shall be subject to the exclusive jurisdiction of Courts situated in Dibrugarh/ Guwahati.
- 26.2 The Contractor shall ensure full compliance of various Indian Laws and Statutory Regulations, to the extent applicable, as stated below, but not limited to, in force from time to time and obtain necessary permits/licenses etc. from appropriate authorities for conducting operations under the Contract:
- a) The Mines Act 1952- as applicable to safety and employment conditions
  - b) The Minimum Wages Act, 1948
  - c) The Oil Mines Regulations, 1984
  - d) The Workmen's Compensation Act, 1923
  - e) The Payment of Wages Act, 1963
  - f) The Payment of Bonus Act., 1965
  - g) The Contract Labour (Regulation & Abolition) Act, 1970 and the rules framed there under
  - h) The Employees Pension Scheme, 1995

- i) The Interstate Migrant Workmen Act., 1979 (Regulation of employment and conditions of service)
  - j) The Employees Provident Fund and Miscellaneous Provisions Act, 1952
  - k) The AGST Act, WB & Bihar
  - l) Service Tax Act
  - m) Customs & Excise Act & Rules
  - n) Assam, West Bengal and Bihar Entry Tax Act
- 26.3 The Contractor shall not make Company liable to reimburse the Contractor to the statutory increase in the wage rates of the contract labour appointed by the Contractor. Such statutory or any other increase in the wage rates of the contract labour shall be borne by the Contractor.
- 26.4 The Contractor shall not engage labour below 18 (eighteen) years of age under any circumstances.
- 27.0 **RECORDS, REPORTS AND INSPECTION:** The Contractor shall, at all times, permit the Company and its authorised employees and representatives to inspect all the Work performed and to witness and check all the measurements and tests made in connection with the said work. The Contractor shall keep an authentic, accurate history and logs for inspection by the Company designated representatives and its authorised employees and representatives. The Contractor shall provide the Company designated representatives with a daily written report, on form prescribed by the Company showing details of operations during the preceding 24 hours and any other related information requested by the Company whenever so requested.
- 28.0 **SUBSEQUENTLY ENACTED LAWS:** Subsequent to the date of submission of contractor's bid, if there is a change in or enactment of any law or interpretation of existing law, which results in additional cost/reduction in cost to Contractor on account of the operation under the Contract, the company/Contractor shall reimburse/pay Contractor /company for such additional/ reduced costs actually incurred.
- 29.0 **ROYALTY AND PATENTS:** Each party shall hold harmless and indemnify the other from and against all claim and proceedings for or on account of any patent rights, design, trade mark or other protected rights arising from any use of materials, equipment, processes, inventions and methods which have not been imposed on the attending party by the terms of the contract or the specifications or drawings forming part thereof.
- 30.0 **WAIVER:** Any delay in exercising and any omission to exercise any right, power or remedy exercisable by the Company under this contract shall not impair such right, power or remedy nor shall any waiver by the Company of any breach by the Contractor of any provision of this contract prevent

the subsequent enforcement of that provision by the Company or be deemed a waiver by the Company of any subsequent breach by the Contractor.

**31.0 PAYMENT & INVOICING PROCEDURE:**

- 31.1 The Company shall pay to the Contractor, during the term of the Contract, the amount due from time to time calculated according to the rates of price schedule and in accordance with other provisions hereof. No other payments shall be due from the Company unless specifically provided for in this Contract. All payments will be made in accordance with the terms hereinafter described.
- 31.2 All payments due by the Company to the Contractor shall be made at the Company's designated Bank. All Bank charges will be on Contractor's account.
- 31.3 Payment of any invoices shall not prejudice the right of the Company to question the validity of any charges therein, provided the Company within one year after the date of payment shall make and deliver to the Contractor written notice of objection to any item or items the validity of which the Company questions.
- 31.4 The Contractor will submit six sets of all invoices duly certified by Engineer-In-Charge along with duly filled up activity completion sheet to OIL, Duliajan for processing of payment. One set of all invoices with measurement sheet to be submitted to Engineer-In-Charge for his record.
- 31.5 Invoices shall be raised by the Contractor as per the Payment Schedule prescribed in this document.
- 31.6 The Company shall within 20 (Twenty) days of receipt of the invoice notify the Contractor of any item under dispute, specifying the reasons thereof, in which event, payment of the disputed amount may be withheld until settlement of the dispute, but payment shall be made of any undisputed portion within 30 (Thirty) days from the date of receipt of the invoices at OIL, Duliajan. This will not prejudice the Company's right to question the validity of the payment at a later date. No interest shall be payable by the Company on any delayed / disputed amount.
- 31.7 The acceptance by the Contractor of part payment on any billing not paid on or before the due date shall not be deemed to be a waiver of the Contractor's rights in respect of any other billing, the payment of which may then or thereafter be due.
- 31.8 The Contractor shall maintain complete and correct records of all information on which the Contractor's invoices are based up to 2 (two) years from the date of last invoice. Such records shall be required for

making appropriate adjustments or payments by either party in case of subsequent audit query /objection.

31.9 Any audit conducted by the Company of the Contractor's records, as provided herein, shall be limited to the Company's verification (i) of the accuracy of all charges made by the Contractor to the Company and (ii) that the Contractor is otherwise in compliance with the terms and conditions of this Agreement.

32.0 **SAFETY**

32.1 The Contractor shall take all measures necessary to protect the personnel, work and facilities and shall observe safety rules and regulations as per Oil Mines Regulation & other statutory provisions. No smoking or open flame shall be permitted while operating inside Industrial area or any stations of the Company.

32.2 The Contractor shall report, as soon as possible, any evidence, which may indicate or is likely to lead to an abnormal or dangerous situation and then immediately take the first emergency control steps conforming to good operation practice and safety regulations.

33.0 **PROTECTION OF PROPERTY AND EXISTING FACILITIES:**

33.1 The Contractor shall perform each work in such a manner as will prevent damage to the Company's property and conform to and are consistent with, operational practices of hydrocarbon industries. Any permanent damage /loss to the Company's pipeline, assets and plants due to actions undertaken by the Contractor in order to provide the services envisaged under this Contract shall have to be remedied by the Contractor, entirely at their own cost. This cost shall include and not be limited to actual replacement of such damaged pipeline, assets or plants, or payment of actual replacement cost in relation thereto as may be incurred by the Company.

33.3 The CONTRACTOR shall take sufficient care in moving his plants, equipments and materials from one place to another so that they do not cause any damage to any person or to the property of COMPANY or any third party including overhead and underground cables and in the event of any damage resulting to the property of COMPANY or of a third party during the movement of the aforesaid plant, equipment or materials, the cost of such damages including eventual loss of production, operation or services in any plant or establishment as estimated by COMPANY or ascertained or demanded by the third party shall be borne by the CONTRACTOR.

34.0 **PERFORMANCE OF WORK:**

34.1 The Contractor shall submit daily reports to EIC detailing progress of different operations as per the scope of the work. The Company, at its option may change the periodicity of such reports. In addition, they shall

submit the complete job report (with all pertinent details to serve permanent record) within 15 (Fifteen) days from the date of completion of each individual job. The manner and the speed of execution and maintenance of the operations are to be conducted in a manner to the satisfaction of the Company's representative. Should the rate of progress of the operations or any part of them is at any time too slow in the opinion of the Company's representative, (to ensure completion of the operations within schedule) the Company's representative may so notify the Contractor in writing. The Contractor shall reply to the written notice giving details of the measures, which he proposes to take to expedite the operations. If no satisfactory reply to the Company's notice is received in seven days, the Company shall be free to take necessary actions as deem to be fit.

**35.0 PERMITS & CERTIFICATES:**

35.1 The Contractor shall procure, at his expense, all necessary permits, certificates and licences required by virtue of all applicable laws, regulations, ordinances and other rules in effect at the place where any of the works is to be performed, and Contractor further agrees to hold COMPANY harmless from liability or penalty which might be imposed by reason of any asserted or established violation of such laws, regulations, ordinances or other rules. COMPANY will provide necessary permits for Contractor's personnel to undertake any work in India in connection with Contract.

**36.0 POLLUTION AND CONTAMINATION:**

36.1 Contractor shall be responsible for loss or damage from pollution or contamination arising out of or resulting from any of the Contractor's services/operation unless such pollution or contamination is for reasons beyond the control of the Contractor.

**END OF SECTION - I**

**&&&&**

## **SECTION- II**

### **SCOPE OF WORK, TERMS OF REFERENCE AND TECHNICAL SPECIFICATIONS**

**Preamble:** Since the year 1977, OIL INDIA LIMITED is in operation at Kumchai Field, located at Village Innao under Diyun Circle of district Changlang of Arunachal Pradesh. An Early Production Set-up (EPS) is in operation at Kumchai. Crude Oil produced at this EPS is pumped through a trunk pipe-line to a terminal situated near Bordumsa Town of Arunachal Pradesh. From Bordumsa terminal, the crude oil is transferred through Bowser/tankers to Digboi Field under EPA Field of Oil India Limited. Major amount of Natural Gas produced from the Kumchai Field is unutilised which is approximately 35,000 SCMD. After Work-Over / Drilling operations, the quantity of Gas produced from Kumchai Field is expected to rise further. Oil India Limited intends to establish a Natural Gas Engine Driven power plant to generate power by utilizing the natural Well head gas produced from the Kumchai field. The proposed power plant is to be set up on GAS To WIRE Concept, initially to be of 5 MW capacity to be upgraded to 10 MW in near future. The power to be produced from the plant shall be evacuated through the existing distribution line of the area. The power generated is expected to contribute towards improvement of power scenario of the nearby region.

#### **1.0 Details of the Site/Location:**

- i. The proposed location map of the site is attached as OIL Drawing No. OIL/0529. The site is in two plots, Plot A and Plot B. The Power plant shall be installed at Plot B of the site. The contours of Plot B is shown in OIL Drawing No. OIL/9984. The broad requirement for installing the Power Plant at the site are as below:
- ii. Width of the Road between plots A & B to be maintained as 30 feet.
- iii. Provision of Green Belt (Minimum 10 feet) shall be maintained along the periphery of the plot.
- iv. Earth Filling of Plot B is required.
- v. The boundary wall of the Plot B, where the Power plant shall be installed is to be constructed. The extreme boundary wall of the proposed Power Plant should maintain approximately 90 meter distance from the nearest Well head .
- vi. The engine exhausts should not be towards the well site.

The geographical data of the site /location is as below:

1. Coordinates : Latitude: 96°02'55"  
Longitude: 27°33'46"
2. Country : India
3. State : Arunachal Pradesh
4. District : Changlang
5. Sub Division : Bordumsa
6. Circle : Diyun
7. Village : Innao
8. Time Zone : IST (UTC+05:30)
9. Temperature : Average Summer Temperature: 27°  
Average Winter Temperature: 19°
10. Elevation : 205 mts above mean sea level
11. National Highway : NH 52 , 26 KM (Namsai 2nd Mile)
12. Railway Station : New Tinsukia Jn, 110 KM
13. Airport : Mohanbari Airport, Dibrugarh, 160 KM
14. Market : Innao Market 1.5 kms.

2.0 **SCOPE OF SUPPLIES AND SERVICES** : This Contract is for two distinct and separate phases as under :

**Phase -I** is for Supply, Installation and Commissioning of Natural Gas Engine Driven Power Plant to be owned by Oil India Limited. The Power plant is to be set up utilizing the well head Natural Gas produced at the Kumchai EPS.

**Phase II:** Operation and Maintenance of the power plant set up as per phase i above: Operation & Maintenance of the Installed Power House for the next Ten (10) years. The Operation and Maintenance of the Power Plant shall start immediately on commissioning of the Power Plant. The well natural gas for the proposed plant shall be made available by the Owner (from the existing early production setup at Kumchai) to a point within the periphery of the Power plant. The Contractor should design the power plant to utilize the Natural Well Head gas made available by the owner to produce electrical power. The Power from the said plant shall be evacuated by the customer through their existing 33kvdistribution line. The integration of the power produced from the power plant to the existing 33 KV network of the consumer is within the scope of this Contract. The power produced from the power plant should also cater to the captive need of Owner at the Kumchai EPS and to the power plant.

The broad scope of work including Phase I and Phase II is as below :

- i) Lump sum turnkey (LSTK) contract with Single point responsibility **including but not limiting to design, engineering, procurement, manufacture, packing, supply, transportation,**

**customs clearance and insurance Gas Engine Generator Portable Power plant** with of Gas engine driven generating set of capacity in the range of **7 MW with combination of 3 x 2MW + 1 x 1MW , complete with Gas Receiving and Conditioning station, Gas Booster station, electrical Switchgear, water treatment plant & cooling system** and all other systems/facilities required for installation & commissioning, **Operation & Maintenance** of the said power plant within **for ten years, including supply of Spares and consumable** of above Gas Engine power Plant as described under detailed scope of work.

All associated **civil & structural works, fire detection and protection**, complete **mechanical, electrical & instrumentation jobs & testing and successful commissioning** and establishing the successful performance during the performance guarantee tests of the plant including all other incidental services required for the satisfactory completion and performance of the plant as per applicable codes and standards shall form part of the contract.

- ii) The scope of the work further includes **integration of the power plant** with the **Existing Electrical Distribution Network of Arunachal Government** which is located adjacent to the site of above new Power plant.
- iii) The scope of work also includes Familiarization training of at least 15 (fifteen) Days **for Company (OIL or "Owner")'s five (five ) Engineers** (3 + 2 in two batches) at OEM's works or at site on the gas engine manufacturing plant which should include mechanical, electrical and Controls & Instrumentations. For the above training Lodging and boarding of the Owner's nominated engineers shall be borne by owner.
- iv) Contractor shall obtain all necessary applicable permits and clearances required for setting up and operating 7 MW power Plant. If the Contractor at any time becomes aware, whether as a result of notice from OWNER or otherwise, of any applicable permit not obtained by him, Contractor shall promptly give notice thereof to OWNER and the Contractor shall be responsible for obtaining such Applicable Permit.
- v) The Contractor shall indemnify and hold harmless OWNER and all OWNER indemnified parties from any damages arising from and out of the securing of, or failure to secure, such permits.
- vi) The scope includes Complete Operation of the said plant for 10 years including but not limiting to Spares, Consumable, Minor and Major overhaul to achieve a plant availability of at least 95%.

- 2.1 **Battery Limit:** \_The broad battery limit of the Power plant shall be as below:

**MECHANICAL**

**1. GAS**

The owner shall terminate the untreated natural Gas line near the power plant with Isolation valve without counter flange and necessary treatment/conditioning including the further distribution shall be in the scope of the Contractor.

**2. WATER**

Water required for the Power plant including during Phase –I shall be arranged by the Contractor. The Contractor shall obtain all necessary permits from statutory authorities on name of the Owner. Further distribution inside the terminal point including but not limiting to drinking, industrial use & service and for firefighting network to be done by the Contractor.

**3. AIR**

All the requirements the plant shall in the scope of the bidder.

**ELECTRICAL**

The 33 KV outgoing feeders of the power plant shall be connected to the 33 KV electrical Overhead distribution line of Department of Power, Arunachal Pradesh and as per Single Line diagram attached.

Battery limit of electrical will be up to the cable connected to the overhead line.

**CIVIL**

Owner shall handover the area to the Contractor. The Contractor shall construct all necessary Civil structures including but not limiting to boundary wall, earth filling, equipment foundation, roads, drains development of green belt., overhead water storage tank etc.

2.2 **SHOP ASSEMBLY AND INSPECTION**

2.2.1 **Shop Assembly**

Shop Assembly to the largest extent feasible shall be performed by the Contractor to assure proper fitting of the various parts, and for checking the correctness of clearances and dimensions. Parts thus assembled shall be match-marked for reassembly at the Site, prior to dismantling for shipment. A detailed description of the intended shop assemblies shall be submitted along with a Quality Assurance Plan.

### 2.2.2 **Inspection before Shipment**

All the Equipments shall be inspected & certified by Company Engineers at Manufacturer's works before dispatch. The Contractor is to notify the Company atleast 15 days advance prior to dispatch of the materials to depute OIL's Engineers in time.

No Goods shall be shipped before all tests and inspections have been carried out at OEM works according to the Approved Quality Assurance Plan unless otherwise instructed by the Company (OIL).

The acceptance of any Goods prior to shipment shall in no way relieve the Contractor of any of his responsibilities for meeting all the requirements of the Specification and shall not prevent subsequent rejection if such Goods are found to be defective.

### 3.0 **CONTRACTOR'S DRAWINGS AND DATA**

a) To get the exact details of the schedule of works, progress of the works and the completion time, the bidder shall submit the entire activities of the project in MS Project-2007 (Shall include Start Date, Free Float and Total Float with start to finish relationship in Gantt chart format of each activities of the project) and above **within TEN (10) days from the date of receipt of LOI.**

b) The Contractor shall be responsible for developing detailed Drawings to adopt equipment and materials to be supplied to the requirements indicated in the Specification and shall submit a list of such Drawings & a programme for submission of these Drawings & documents **within forty-five (45) days from the date of receipt of the LOA/LOI.**

c) Within a reasonable time, not exceeding forty-five (45) days from the date of receipt of the LOA/LOI, the Contractor shall also provide the Company (OIL) with the following Drawings and documents in the number of copies mentioned in Technical Specifications.

d) Six (6) marked-up copies of technical particulars conforming to the Specifications.

e) Outline drawings of major equipment together with weights and sufficient overall dimensions.

f) Other drawings and documents as indicated in the Technical Specifications.

g) The Contractor shall, prior to submitting the Drawings and documents, submit to the Company (OIL) two copies of the Codes and Standards, which shall govern the Works.

4.0 **MISTAKES IN DRAWINGS**

The Contractor shall be responsible for and shall pay for any alterations of the Work due to any discrepancies, errors or omissions in the Drawings or other particulars supplied by him whether such Drawings or particulars have been Approved by the Engineer or not. The contractor has to deposit the as six sets of as build drawing after commissioning of the power plant.

5.0 **MATERIALS AND WORKMANSHIP FOR MANUFACTURER**

All Goods to be supplied and all Works to be done by the Contractor under the Contract shall be manufactured and executed in the manner stipulated in the Specifications.

The Contractor shall use the best available materials for the Works. These materials shall be of recent manufacture, free from defects and imperfections and unused.

The highest standards of safety shall be adhered to during execution of the Works.

6.0 **COMPLETENESS OF EQUIPMENT**

The equipment supplied shall be complete in all respects. The Contractor shall not be eligible for any extra payment in respect of such mountings, fittings, fixtures and accessories if required for the safe and reliable operation of the equipment. Parts of all similar equipment supplied shall be interchangeable with one another.

7.0 **WARRANTY**

The Contractor shall provide a Warranty in respect of the equipment and materials to be furnished by him the following:

a) All equipment and materials shall be new and in accordance with the Contract Documents, all equipment shall be free from any defect due to faulty design, materials and/or workmanship.

b) The equipment shall perform satisfactorily and the performance and efficiencies of the specified equipment shall not be less than the respective guaranteed values.

c) The efficiencies, temperature rise and other performance data of all other equipment shall be as per the Contract Documents.

d) All other works including civil, structural and architectural works shall be in accordance with the contract documents and free from any defect and omission.

The Warranty has to be furnished on forms approved by the Company (OIL) and shall be signed by the Contractor and if needed, also by his sub-contractor(s).

The above **Warranty shall be valid for a period of twelve (12) calendar months** commencing from the date of taking over of the fully commissioned Plant. This period of the Warranty shall be called the "**Warranty Period**". During this period, the Contractor's liability shall be limited to the replacement of any defective parts that may develop in plant of his own manufacture or those of his associate(s) and sub-contractor(s) under the conditions provided for by the Contract under proper use and arising solely from faulty design, materials or workmanship provided always that such defective parts as are not repairable at site, and are not essential in the meantime in the commercial use of the plant, are promptly returned to the Contractor's works unless otherwise arranged. All such replacements of defective parts mentioned above shall be made free of cost at site by the Contractor and the return of the defective parts to the Contractor's works shall be the Contractor's responsibility and shall be made at his expense. In the case of these defective parts, which are not repairable at site but are essential for the commercial operation of the equipment, the Contractor & the Company (OIL) shall mutually agree to a programme of replacement or, renewal which will minimize interruption to the max. extent in the operation of the equipment.

The cost of any special or, general overhaul rendered necessary during maintenance period due to defects in the Plant or defective work carried out by the contractor, the same shall be borne by the Contractor. The Company (OIL) will, however, render such assistance in this matter as will expedite the same. In the case of defective parts not repairable at the Site but essential in the meantime for the commercial use of the Plant, the Contractor shall replace at the Site, free of cost of the Company (OIL) the said defective parts before the defective parts are removed to his works.

#### 8.0 **PROGRESS REPORTS AND PHOTOGRAPHS**

The Contractor shall furnish three (3) prints each of monthly progress reports with photographs of the Works done in his shop. Photographs shall be taken when and where requested by the Engineer. Photographs shall be approximately 100mm x 125mm in size including margin of 5mm side for fixing. Adequate number of photographs shall be submitted indicating various stages of manufacture. Each photograph shall contain the date, the name of the Contractor and the title of the view taken.

Monthly progress report shall be submitted by the Contractor. These shall detail the status of design, drawings, procurement of raw materials and manufacture of the equipment & delivery of the equipment. The Company (OIL) shall advise the Contractor about the nos. of copies of progress schedule and photographs he has to submit each month together with the

names & addresses of persons to whom they are to be sent. The Contractor shall also furnish actual progress against Works schedule and such other information as the Company (OIL) may require to satisfy himself about the timely manufacture & delivery of equipment and timely construction & erection works to suit the commissioning date.

**Progress Reports:**

The Contractor shall constantly monitor the progress of all activities in connection with delivery of the Supplies in accordance with the Delivery Schedule and the Project Schedule . Contractor shall prepare the first report and cover the period up to the end of the calendar week in which the Commencement Date occurred and subsequent reports shall be submitted weekly thereafter, each within 2 (two) Days of the last Day of the period to which it relates. Reporting shall continue until the Bidder has supplied all the Goods and / or completed all Works, which is known to be outstanding at the completion date stated in the Take-Over Certificate for the Works. Each progress report shall include

- a. Photographs and detailed descriptions of progress including each stage of design, procurement, Manufacture, delivery at Site, construction, erection, testing and Commissioning.
- b. A description of the current status (the name of Manufacturer, manufacture location, percentage progress, and the actual or expected dates of commencement of manufacture, Bidder's inspections, Tests and delivery) of supplies and Equipment and of Bidder's and all Major Sub-contract activities and engineering, manufacturing, construction and installation progress as compared with the Project Schedule (and, at the request of OWNER/ OWNER's Representative, an updated schedule). The Progress Report shall detail the actual status of procurement of raw materials and sub-contracted equipment, manufacture, assembly, inspection, testing and delivery of the Plant and Equipment and each Item of such Plant and Equipment as against the Project Schedule and if any activities are behind the Delivery Schedule and/or Project Schedule, shall set out the explanation therefore, consequences thereof, and the action being taken to remedy the delay.
- c. Copies of quality assurance reports including Test results (i) from the manufacturing and fabrication facilities of all Sub-bidders and (ii) with respect to all construction activity at the Facility Site
- d. Comparisons of actual and planned progress, with details of any aspects which may jeopardise the completion in accordance with the Contract, including Project Schedule and the measures/ catch-up plan being (or to be) adopted to overcome such aspects. It shall include a clear identification and evaluation of problems

and deficiencies in the Services (including but not limited to, an evaluation of any factors which are anticipated to have a material effect on the quality of Work and Project Schedule).

- e. All other information reasonably requested by Financing Parties and OWNER/OWNER's Representative.

A brief weekly report shall be prepared by the Bidder. The following shall be clearly reflected in the report:

- a. Anticipated delays in the schedule for the month and action plan to overcome them
- b. Any deviation in regard to quality/process
- c. Any industrial relations problem

Bidder shall submit a detailed Progress Report, in 6 (six) copies in print and soft copy in CD, to the Owner every Month

9.0 **TRAINING OF PURCHASER'S/COMPANY (OIL)'S PERSONNEL:**

The Contractor shall furnish all manuals, documentation and train Company (OIL)'s Engineers/Personnel free of cost for safe, successful and reliable operation of the plant.

The Contractor shall undertake to train free of charge, Engineering personnel selected and sent by the Purchaser/Company (OIL) at the works of the Contractor/OEM of the equipment/at site . The period and the nature of training for the individual personnel shall be agreed upon mutually between the Contractor and the Purchaser i.e. Company (OIL). These engineering personnel shall be given special training in the shops, where the equipment will be manufactured and/or in their Collaborator's works and in any other plants where equipment manufactured by the Contractor or his Collaborator is under installation/operation or testing to enable those personnel to become familiar with the equipment being furnished by the Contractor.

All traveling expenses, including accommodation & food for the engineering personnel to be trained during the total period of training will be borne by the Company (OIL). However, the Contractor shall provide necessary local transport for such personnel.

The Contractor shall also train Company (OIL)'s Operation & Maintenance personnel at site to become proficient in operating the equipments and for routine maintenance/repair/replacement, lubrication, overhauling, adjustments, testing etc. of the plant and equipments.

10.0 **DETAILS OF THE SCOPE OF WORK UNDER PHASE I for SETTING UP OF THE POWER PLANT:**

**This includes DESIGN, Supply, Installation, Erection & Commissioning of an Industrial Type Natural Gas Engine Driven Power House at Kumchai under Diyun Circle of Arunachal Pradesh. This also includes all the Mechanical/Electrical & Civil Engineering associated works in connection with the setting up of the Power Plant.**

**A.1 SUPPLY OF NATURAL GAS ENGINE DRIVEN GENERATION SETS:** The total number of Generating sets shall be Four (04) numbers of the following capacity:

- Three (03) Numbers of capacity 2 MW each at alternator output
- One (01) Number of capacity 1 MW each at alternator output

**Note:**

- (i) The capacity defined above is specified for minimum capacity only. The bidder may offer their Generating Sets of higher capacity but the total number of Generating Sets should be minimum four numbers, three numbers to be in operation and one number to be in stand-by mode at any time during operation of the Power Plant. The peak power demand on the Plant shall be 5 MW initially in the first phase. On expansion of the Plant, the peak demand shall be 10 MW.
- (ii) The Generating Sets shall be Industrial type Natural Gas Engine Driven complete with accessories, Control Panels as per specifications. The Generating Sets shall be rated for 11000 Volts, 3 Phase, 50 Hz, 1500 RPM Conforming to ISO 8528 Standard and the rated output shall be available at the generator output terminals at site ambient condition.
- (iii) The Generating Sets shall be the primary source of power for Continuous Operation.
- (iv) The Generating set shall have a natural gas engine as its prime mover coupled to an Alternator with Control Panel housed in a container type enclosure. The natural Gas Engine shall be complete with all ancillary equipment necessary for starting and running of the set, including cooling systems, instrumentation, control and protection arrangements, spares and special tools as per specifications.
- (v) All assemblies and sub-assemblies constituting the Generating Set, such as Cooling System, Air Intake System and Exhaust Outlet

Fittings, Enclosure, Base Skid, Control Panels, shall be designed, built, and assembled as a complete unit.

**Proprietary design software such as ETAP is to be used for designing the system electrical parameters and the design data shall be forwarded to owner for their records/analysis/comments.**

- (vi) The Alternator housing shall be one piece and mount directly to the engine flywheel housing without bolted adapter. The engine and alternator shall be unitized through a suitable selected flexible coupling to transfer power from the engine to the alternator.
- (vii) The unitized engine, alternator and radiator (for radiator cooled engine) shall be mounted on a combined under-base (Skid) of stress relieved fabricated steel and engine accessories shall also be mounted on the under base where appropriate. Adequate access for maintenance personnel shall be provided while mounting the accessories.
- (viii) The set is to be mounted on suitable arrangement of anti-vibration mounting designed to minimize the transmission of vibration but without resulting in excessive amplitudes of movement of any parts of the set. If rubber is employed in the mounts, their design should incorporate means of preventing deterioration due to oil leakages. Flexible connection shall be provided to all exhaust, water, air, fuel and oil piping that leave the engine to prevent the transmission of vibration and the fracture of the piping due to movement of the set. The choice of connections and their installation is to be such as to give long life under normal operating condition of the set.
- (ix) The Generating Set should be designed to satisfy the following design parameters:
  - vi) Net Power output of the plant : 6.3 MW ( Minimum)
  - vii) Minimum Electrical efficiency at unity p. f. should be 38%
- viii) Maximum quantity of Natural Gas requirement at ambient conditions for 7MW gross power should be 35000 SCMD.
  - ix) Minimum load throw off Capacity should be 60% of full load.

**A.2) MECHANICAL EQUIPMENTS AND ACCESSORIES:**

The scope of supply shall include the following:-

**TECHNICAL SPECIFICATION OF PRIME MOVER OF THE GENERATING SET AND THE ASSECCORIES:** The specification of the

Prime Movers and their accessories shall be as per the following specifications:

- A.2.1 **PRIME MOVERS** : The prime movers of the Generating sets shall be, four stroke, spark-ignited, naturally aspirated or turbo-charged, vertical inline or V-type, water cooled Natural Gas Engines rated for continuous power and overload power in accordance with IS 3046/BS 5514/IS:1000 or equivalent Internationally approved/accepted standards, and capable of developing BHP sufficient to deliver 7 MW power continuously at the installation site conditions when operated at 1500 RPM (maximum) and equipped with all engine-mounted parasitic loads. The natural Gas Engine shall be complete with all ancillary equipment necessary for starting and running of the set, including cooling systems, instrumentation, control and protection arrangements, spares and special tools as per specifications.

The Engines should be rated for Continuous Power applications. The engine shall meet all the performance requirements of the set under the specified operating conditions and shall be suitable for operation without knocking and able to deliver the rated power when operating on well head natural gas. Any deviation in the performance requirement of the engine or the generating set shall be within the standard tolerable limits. Engines shall start, achieve rated generator voltage and frequency and transient response to Block Loading shall conform to ISO 8528 requirements. Single Block Load capacity shall not be less than 30% of its rated capacity

The bid shall be accompanied by the manufacturer's product catalogue/literature/brochure containing details of the engine fuel specification, engine rating and schematic and wiring diagrams for the complete power system.

**SPECIFICATION OF ENGINE SUB SYSTEM:**

The engine shall comprise of the following sub systems:

1. **Cooling System:**

The cooling system of water cooled engine shall comprise of an engine mounted water pump, with either an industrial type heavy duty radiator with blower fan suitable for operation in ambient temperature of 48°C or Cooling System with Cooling Tower.

2. The engine jacket water cooling system shall be a closed circuit design with provision for filling, expansion, and de-aeration. The cooling pump shall be driven by the engine. Coolant temperature shall be internally regulated to disconnect external cooling system until operating temperature is achieved.

3. **Cooling by Radiator/cooling tower :**  
Heat rejected to the engine jacket water shall be discharged to the atmosphere through a close coupled radiator or through cooling tower. The radiator/cooling tower shall be sized to cool the engine continuously while operating at full rated load and at site conditions of 48°C ambient.
4. **Blower Fan:**  
The radiator cooling fan shall be a blower type driven from the engine. Air shall be drawn from the engine side and exhausted through the radiator core with no more than 12.7MM (0.5 Inch) of water column external restriction in addition to core restrictions.
5. **Fan and Belt guarding:**  
The fan, fan drive, and fan belts shall be covered with punched steel mesh guarding for personnel protection.

**Note:** Bidder shall furnish in their offer Arrangement Drawing showing the radiator/Cooling Tower, Blower Fan arrangement with the engine. The radiator, blower fan assembly size shall be such that it shall be mounted within the acoustic container.

**Heat Exchanger Cooling with Cooling Tower:** The cooling capacity of the Cooling Tower shall meet the engine's duty rating and output performance. It shall be suitable and compatible with all the performance requirements of the Generating set at site. Arrangement drawing showing the Cooling Tower with the engine shall be furnished in the offer. (Bidder shall furnish details of Cooling Tower design and specification of the offered Cooling Tower).

**Note:** The bidder shall furnish an undertaking by the engine manufacturer that the Cooling Tower meets the engine's output and duty rating.

6. **Air Intake System:**  
The air intake system shall comprise of a heavy duty-engine air cleaner mounted on the engine with a vacuum indicator and air intake manifold with dry element requiring replacement no more frequently than 300 hours or once each year. Level of suspended particulate matter in ambient air at site is 75µg/m<sup>3</sup> (maximum.).
7. **Electric Starting System (24 volt negative ground):**  
The engine shall be started by 24 V starter motor(preferably of LUCAS TVS/DELCO REMY make) engaging with the flywheel ring gear and disengaging automatically when the engine starts. The equipment shall include an adequately rated lead/acid battery (rating of 180 Ampere- Hour) together with an engine mounted belt driven battery charging alternator with an automatic voltage

regulator. It shall be suitable for heavy duty applications with a rating of 24 volts. The battery shall be capable of providing at least six starting cycles within a period of 5 minutes. Batteries shall be housed in a hard rubber or polypropylene case with provision for venting. Required cables shall be furnished and sized to satisfy circuit requirements.

8. **Battery Charger(Mains energized):**

The Battery charger shall be an automatic mains energized battery charger. The charger shall have a continuous output rating sufficient to recharge the battery from 1.8 V/cell to a fully charged condition in a period of 8 hours.

9. **Ignition System:**

The ignition system shall be a shielded ignition comprising Altronic III/V driven by the engine, Individual Ignition Coil on Plug, High Tension and Low Tension Wiring Harness, Transformer and Spark Plugs (Preferably STITT/ CHAMPION/Danso make).

10. **Exhaust System:**

- i. The Exhaust System shall consist of silencer (sound muffler), Spark Arrestor, Flexible spool for vibration isolation and piping terminating with Rain Cap. Long radius bends where appropriate shall be used. The Exhaust System shall be installed with appropriate insulation and shielding.
- ii. Piping should be supported and braced to prevent weight or thermal growth being transferred to the engine and flexible expansion fittings provided to accommodate thermal growth.

11. **Gaseous Fuel System:**

The fuel system shall at minimum consist of the following items but not limited to these:

- i. Carburetor (Preferably IMPCO make): The carburetor shall be a diaphragm type which includes a load screw for air - fuel ratio adjustment, and throttle body to control the air-fuel mixture to the engine.
- ii. Governor (Preferably WOODWARD make). The governor of the engine shall be hydraulic/electronic type and be capable of fine governing of speed to Class A2 of BSS 5514/1977, ISO 3046/IV. It shall be an isochronous governor and shall control engine speed and transient load response within ISO 8528 tolerances. It will be selected, installed, and tested by OEM of the engine. Speed droop shall be externally adjustable from 0 (isochronous) to 4% from no load to full

rated load. Steady state frequency regulation shall be + / - 0.5 percent.

- iii. Gas pressure regulators (preferably VANAZ/FISHER) to regulate gas pressure to the carburetor intake point. (Bidders shall note that Natural Well Head Gas at pressure of 4.5 kg/cm<sup>2</sup> & 1.5 kg/cm<sup>2</sup> shall be available at site for tapping.) The Contractor is to make their own Gas conditioning & filtration plant to suit their engine design.
- iv. Gas shut off valve: Fuel gas line shall close automatically when the engine is stopped.
- v. Pressure relief valve
- vi. Gas fuel filter
- vii. Interconnecting gas piping

**Note:**

The gas conditioning & piping shall be carried out in such a way as to prevent condensate carry over to engine. Fuel inlet line to the carburetor shall be having stainless steel flexible connection to take care of vibration/shock if any, in the system.

12. **Lubricating System:**

The lubricating system should comprise of lubricating oil pump, lubricating oil filter with a replaceable paper element, 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 bypass valve to continue lubrication in the event of filter clogging.

The bypass valve must be integral with the engine filter base of receptacle. The bidder shall mention the brands of lub oil recommended by the engine manufacturer.

13. **Instrument Panel:** The engine mounted instrument panel shall consist of a shock-mounted formed and welded enclosure. Metric marked gauges to be provided. The instrument panel shall include the following:

- a. Lubricating Oil pressure gauge
- b. Lubricating oil temperature gauge.
- c. Water temperature gauge
- d. Starting Switch

- e. Ignition Switch
- f. Mechanical/Digital tachometer and hour meter
- g. Ampere meter
- h. Intake manifold pressure and temperature
- i. Exhaust temperature and pressure
- j. Engine temperature
- k. Gas inlet and downstream pressures, mass flow rate, and control valve position

14. **Engine Safety Controls:** Engine mounted safety shut off/trip system for tripping the engine in the event of

- a. Low lubricating oil Pressure
- b. High cooling water temperature
- c. Engine over speed
- d. Over-crank

In addition to the above, the following protection systems are to be engine mounted on the engines:

- Emergency stop
- Low and high battery voltage warning
- Weak battery warning
- Fail to start (over crank) shutdown
- Fail to crank shutdown
- Cranking lockout

15. **Other Features:**

The engine shall be equipped with air filters, fuel filters and pressure gauge, lubricating oil cooler, filters, and pressure gauge, water pump and temperature gauge, service hour meter, flywheel, and flywheel housing and shall include the following amongst others:

- a. Flexible coupling / direct coupling
- b. AVM Pad
- c. Flywheel with housing
- d. Lifting eyes
- e. Coupling guard if applicable
- f. Guards over belt drives (blower fan, water pump drive pulley, timing pulley)
- g. Standard painting
- h. Suitable hand throttle control
- i. Mechanical hour meter
- j. SAE standard rotation

**Note:**

Provision of guards over belt drives and couplings has become mandatory as per recommendation of OISD (Oil Industry Safety Director) & DGMS (Directorate General of Mines & Safety)

**16. Compliance of CPCB Norms for Emission and Noise Limits:**

The engine shall meet the latest Emission Limits and the Gen Set a unit shall meet the latest Emission & Noise Limits set by Central Pollution Control Board (CPCB), Delhi. It may kindly be noted that the Govt. Of India is in the process of notifying the CPCB norms for Noise Limit & emission for Natural Gas Engines and Natural Gas Engine Driven Generating Sets. As and when the norms are notified, the Engines and the generating Set should comply all the terms of the notifications. Bidders should note the same.

**17. The Original Equipment Manufacturer(OEM) shall have authorized dealer in India for the Generating Set/Engine/ Alternator of generating set(engine, Radiator/Cooling Tower, Governor, Ignition System) offered and also shall have proven record of providing after sales services including maintenance services at least during last ten years.** The offered engine model shall have Shop Manual prepared by the OEM and at least three copies of the original printed Shop Manual shall be supplied along with the order.

**A.2.2 GENERAL NOTES ON ENGINE:**

- i) The manufacturer shall have printed literature and brochures describing the standard series offered (not a one of a kind fabrication). The manufacturer shall provide schematic and wiring diagrams for the complete power system.

**A.2.3 SPARE PARTS FOR ENGINE:**

The following shall be furnished by the supplier:

- a) List of spares, consumables for the initial two years normal operation of the engine shall be included in the offer. (Item wise breakdown price of spare parts and consumables shall also be provided but which will not be considered for evaluation).
- b) List of spares, consumables required for normal operation and periodic servicing of the engine.

**A.2.4 COMPOSITION OF FUEL GAS:**

The engine shall be capable of developing required BHP with the fuel composition (tentative) as given below. Chromatograph analysis of two samples of Natural Well Head Gas produced from Kumchai EPS is furnished below -



**The software shall be procured under the name of owner (Oil India Limited) and licensed accordingly. It shall be pre-loaded in a new laptop computer (with latest hardware and operating system) dedicated for this purpose. The laptop computer shall be exclusively used for the purpose. The same shall be handed over to owner once the installation and commissioning of the plant is complete.**

**Brief Description of the Electricals of the Plant:**

Gas engine generators will develop power at 11 kV, which will be stepped up to 33 kV through step up power transformers. Power will then be evacuated to overhead electrical power lines of Arunachal Pradesh at 33 kV.

**A.3.1 Generator Control and Monitoring System Control and monitoring:**

Bidder shall offer proven micro-processor/PLC based controller for monitoring of operation of generator, its auxiliary systems and generator and engine protection systems. The monitoring system is to be controlled from Human Machine Interface (HMI) and Plant Information System as part of the total gas engine generator control system. In addition to the remote control and monitoring (in the main control room), local control, monitoring and alarms for all the auxiliary systems to be realized in the local panel mounted near these systems as per manufacturer's standard. Local panel is to be provided with all the necessary instrumentation and alarms.

**Auxiliary Power System**

Auxiliaries of the gas engines of the plant may range from medium capacity motors to small fractional horsepower motors. Motors will be connected to either HT or LT 415V system.

Continuous duty 415 V motors rated 125 KW and above will be controlled by breakers and Soft starters/ Star Delta Starters. Other 415 V motors will be controlled through either DOL or star delta starters. HT Motors, if applicable, will be controlled through Vacuum Circuit Breakers and the breaker shall have in built spike guards.

**A.3.2 System Neutral Grounding**

**Generator Neutral Grounding**

Generator neutral will be earthed through neutral grounding transformer and resistor. With this arrangement, the earth fault current will be limited to about 10 Amps. The design of the grounding system shall be fool proof.

**11 kV System**

The step up transformers LV (11 kV) side will be delta connected.

### **33 kV System Grounding**

33 kV (HV) side of the step up transformer will be star connected and neutral is to be solidly earthed as per IS-3043 and the current practices.

### **415 V System Grounding**

415 V systems are widely distributed and 3-phase, 4-wire system is required to meet the requirement of power supply, control, indication, annunciation, etc. According to Central Electricity Authority Regulations (2010), Regulation # 41, the neutral conductor of a 3phase, 4-wire, low voltage or medium voltage system will be earthed and no impedance will be connected in the neutral circuit (other than that required solely for the operation of switchgear or instruments), cut-out or circuit breaker. In view of the above, 415 V system of this project is envisaged as solidly grounded.

Neutral Grounding and equipment grounding shall be separate. For neutral grounding of generator or transformers two nos. of separate and distinct ground electrodes shall be used. For equipment grounding all grounding electrodes shall be bonded together. For grounding, GI pipes, cast iron pipes or plate earthing shall be used. Grounding practices as per IS: 3043 shall be followed.

## **A.3.3 Major Electrical Equipment of the Plant**

### **A.3.3.1 Alternator**

The generator coupled with gas engine will have the following salient technical features:

Type	: Synchronous generator (salient pole type, 4 poles)
Stator cooling	: By Air (fan cooled)
Rotor cooling	: By Air
Rated kVA	: 2500/1250 kVA
Rated output	: 2000/1000 kW (3 nos./1 no.)
Rated RPM	: 1500
Frequency	: 50 Hz
Duty	: Continuous
Rated power factor	: 0.80 lag Rated
Terminal Voltage	: 11 kV (Line to line)
Efficiency at 100% load and 0.8 p.f.	: More than 90%
Insulation class	: F (Temperature rise limited to class 'B') for both stator and rotor
No. of phases	: 3, Star connection (Neutral point shall be available at terminal board)
Short circuit ratio	: Not less than 0.48

Enclosure	: IP 23
Bearing	: Roller/sleeve bearing at both driven and non-driven end- bearings shall be insulated.
Over-speed	: 20% for 2 minutes
Overload capacity and duration	: 110%, for max. 1 hr in every 12 hrs

Generator will conform to IEC- 60034. The generator will be capable of withstanding short circuit level as per IEC. Generator will be suitable to operate continuously with a negative sequence current of 8% of the rated value, and I<sup>2</sup>T will not be less than 8. The generator withstanding capability for 3 phase short circuit at the generator terminals when operating at rated MVA and p.f. with 5% over voltage will be for a period of not less than 3 seconds. The generator will be capable of delivering at least three fourths of the rated output with one gas cooler out of service.

Generator and its excitation system shall have capability to at least match the declared maximum continuous rated output of the gas engine. Also the generator and its excitation system shall be capable of continuous stable operation without any excessive temperature rise at the peak output of the associated gas engine.

The generator winding will be star connected and all the three leads of the generator phase and neutral side will be brought out of the stator frame for connection to bus. The neutral of the generator will be earthed through neutral grounding transformer and resistor to limit the ground fault current to 10 amps.

#### **A.3.3.2 Generator Operational Requirement:**

- i) Voltage variation: ( $\pm$ ) 5% of rated value at rated power and rated power factor.
- ii) Frequency variation: (-) 5 to (+) 3% of 50Hz at rated power and rated power factor.
- iii) Combined voltage and frequency variation : 5% (absolute sum)
- iv) Operating range MVA for short duration and time period at 110% rated voltage shall be specified by the bidder.
- x) Power factor variation: 0.80 (lag) to 0.95 (lead)
- xi) Operation under unbalanced load: Capable of operating continuously with a negative sequence current of 8% of the

rated current. The maximum current in any of the phases shall not exceed the rated current.

- vii) Operation under unsymmetrical short: Capable of withstanding during any circuit transient unsymmetrical short circuit condition, negative sequence current  $I_2$  expressed in per unit of rated circuit current for duration of 't' sec. such that the value of  $I_2^2t$  is not less than eight (8).
- viii) Voltage waveform: The voltage waveform shall be approximately close to a pure sine wave under all conditions of loading within the tolerance limits specified in the relevant standards. The balanced and residual telephone harmonic factor (THF) is to be within limits specified in IEC-60034-1.
- ix) Short circuit withstanding capacity: Capable of withstanding of 3-phase short circuit at the generator terminals when operating at rated MVA and power factor with 5% over voltage for a period of not less than 3seconds. However, the generator is to be subjected to withstand test as per clause no. 8.7 of IEC-60034-1.
- x) Line charging capability (MVAR): Not less than 35% of the rated MVA at zero power factor leading.
- xii) Generator neutral earthing: Non-effectively earthed neutral system. Neutral to be earthed through a neutral grounding transformer loaded with a resistor.
- xiii) Generator capability diagrams: Bidder to submit the capabilities of the generator at different p.f. (lead and lag), clearly indicating the operating limits.
- xiv) Impulse level and surge protection: Impulse level as per IEC-60034, Pt.15. Surge arrester of suitable rating to be provided for the surge protection of the generator winding. The surge capacitors are also to be included.
- xv) Harmonics: Voltage and current harmonics not to exceed the limits as per IEEE-519.

#### **A.3.3.3 Major Components of the Generator System:**

- i) Generator excitation system
- ii) Generator Protection system with switchgear, control gear and protective relays
- iv) HMI- Part of total GG set controller (Screens for operator inputs, generator operational data, engine operational data, protection

relay status, engine/generator fault and alarm/trip status, historical trends etc.)

- v) Analogue meters, indicators, hour counters, push buttons, selector switches
- v) Synchronization panel with synchroscope with provision for automatic synchronization with provision for manual synchronization

#### **A.3.3.4 Generator Excitation System:**

##### **General**

The generator will be provided with excitation system achieving high degree of operational reliability and minimum maintenance.

- a) The generator shall be provided with Brushless Excitation System along with Automatic Voltage Regulator to meet the requirement specified herein. The excitation system will have fast response time to meet the system requirement. The excitation system will have automatic voltage regulator to maintain steady generator terminal voltage under variable load conditions and for parallel operation with the grid. AVR response time will be fast so that it can control generator during system disturbances requiring rapid changes in excitation to maintain the system dynamic stability margins. Voltage range of AVR shall be +/- 10%. The excitation system offered shall be of proven design and have a satisfactory field service record on machines of similar size and construction incorporating the type of excitation.
- b) The excitation system shall have matching characteristics suitable for satisfactory parallel operation with other generators in the plant.
- c) The necessary inputs and interface equipment shall be provided with Generator Excitation and Automatic Voltage Regulator for hooking up with the gas engine control system and generator control and monitoring system.
- d) Excitation system will be provided with power system stabilizer for achieving dynamic stability under varying operating conditions.
- e) The excitation system will have in-built protective as well as limiting devices so as to safeguard the generator and excitation system against all possible faults, troubles and mal-operation, if any.

##### **Specific Technical Requirements for Brushless Excitation System:**

The complete equipment shall be mounted on a bed plate and enclosed by suitable exciter cover. The system shall consist of:

- Permanent Magnet Generator (PMG) type pilot exciter.
- Voltage Regulator (AVR, MVR along with rectifier bridges for PMG)
- Field Circuit Breaker along with field discharge resistor
- Rotating rectifier bridges
- Brushless AC Main Exciter
- Complete instrumentation and protection system
- Inter-connecting cables between different components of the system

#### **A.3.3.5 Generator Protection Relays**

The following relays will be required for protection of the generator: (All relays shall be numerical)

- Differential protection - generator winding
- Over voltage protection
- 95-100% Stator earth fault protection
- 0-95% Stator earth fault protection
- Reverse power protection
- Negative phase sequence current protection
- Field failure protection
- Rotor earth fault protection
- Generator overload protection
- Generator under frequency protection
- Generator Over frequency protection
- Dead machine protection
- Local breaker back-up protection
- Backup Impedance Protection
- Low forward Power protection
- Pole slipping protection
- Winding temperature protection
- Standby stator earth fault protection
- VT fuse failure protection
- Interterm fault protection

#### **A.3.4 HT Switchgear (11 kV/33 kV):**

(Refer the single line diagram-**Annexure-D**.)

HT switchgear for the plant shall be placed in a separate HT switchgear room/s. The 11 kV generators shall be connected to the 11 kV bus through 11 KV VCB type switchgears, through proper protective relays, protection/metering CT/PTs and protective gear such as surge diverters and filters. Two spare incomer VCB panels shall also be provided, one panel rated for an additional 2 MW generator and the other rated for an additional 1 MW generator. A bus coupler shall also be placed in the incomer 11 kV bus.

Two nos. 11 kV outgoing breakers shall be used to feed two nos. 10 MVA 11/33 KV step up transformers. The transformers shall be used to step up voltage from the generator for connection to the grid. One spare 11 KV breaker will also be provided, with similar ratings of the breakers feeding the transformers. One 11 KV additional breaker shall be provided for feeding the station auxiliary transformer 500 KVA, 11/0.415 KV rated.

Output from the 11/33 KV step up transformers will be terminated on a 33 KV bus through 33 KV individual VCB units. There will be bus coupler in the 33 KV bus also. Four nos. 33 KV outgoing VCB units shall be provided for evacuation of power from the power plant. One spare 33 KV outgoing VCB shall be provided as spare unit.

The HT switchgear (for all levels) shall have single front, single tier, fully compartmentalized, metal clad construction complying with clause No. 3.102.1 of IEC-60298, comprising of a row of free standing floor mounted panels. Each circuit shall have a separate vertical panel with distinct compartments for circuit breaker/contactors truck, cable termination, main busbars and auxiliary control devices. Each breaker shall have sufficient current carrying capacity and breaking/making capacity, according to system short circuit kVA calculation.

### **A.3.5 Transformers**

#### **Power Transformer (Step up transformers)**

The power transformers shall be filled with synthetic mineral oil and ONAN/ONAF type with suitable capacity radiator banks. The protection scheme for transformers shall be:

- Differential protection for Transformer (87T)
- HV restricted earth fault protection (64R)
- HV backup directional over current protection (67P)
- HV backup directional earth fault protection (67N)
- Buchholz protection
- Oil/winding temperature protection
- Over fluxing protection
- Pressure Relief Valve
- Local Breaker Backup Protection

All relays shall be numerical.

#### **Station Auxiliary (11/0.415 KV) Transformer**

Station auxiliary transformer shall be used to cater the station auxiliary loads. Though capacity is indicated as 500 kVA, this may change depending upon the station load requirement with sufficient provision for future expansion. The transformer shall be filled with synthetic mineral oil (ONAN/ONAF) and suitable capacity radiator banks or dry type. The protection scheme for transformer shall be:

- Over current and earth fault protection (50P,50N,51p,51N)
- Backup Earth fault protection (64N)

- Buchholz protection
- Oil/winding temperature protection
- Pressure Relief valve
- Local Breaker Backup Protection
- Grounding and Lightning Protection (surge suppressor)

All relays shall be numerical.

#### **A.3.6 Plant grounding system:**

The plant grounding system will be designed as per the requirements of IEEE-80/IEEE 142/IS-3043.

The earth material of the station will be designed such that the total ground impedance does not exceed values as described in IS: 3043.

The plant grounding will utilize mild galvanized steel rods. Equipment grounding conductor will be of galvanized steel flats. (Minimum size 6mm x 25mm).

Each large structure and building complex will have a ground loop around its perimeter.

The ground loops around each structure will be connected to the ground grid.

The fence within the ground grid will be bonded to the plant ground system. The power plant ground grid will be connected together with the switchyard ground grid. Also grounding grid for phase 2 will be interconnected to the phase 1 grid.

The grounding system will be connected to all metallic equipment, electrical as well as non-electrical (except underground pipelines), located at the plant site. All these will be earthed at two distinct points. This will include all structures, buildings, towers, etc.

The chimney and powerhouse building will be equipped with lightning protection. Lightning protection conductors located on the top of the structures will be connected to the ground loop surrounding the structures with down comers as per the provisions contained in the latest issues of CEA Regulations and IS 2309. Dedicated instrumentation/electronic earthing arrangement shall be provided for control systems as per the requirement of the manufacturer.

#### **A.3.7 Energy Metering:**

- i) Digital energy meters for measuring energy in MWH shall be provided as per the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 and its amendments.

However, the following energy accounting and audit meters shall be provided in general:

- On each incoming generator feeder of 11kV bus (including the spare panels)
  - On all 33kV out going feeders (including the spare panels) Energy accounting and audit meters shall be of accuracy class of 0.2S. The accuracy class of CTs and VTs shall not be inferior to that of associated meters.
- ii) Digital energy meters for measuring energy in KWH shall also be provided on LV side of each incoming transformer feeder of 415 V bus as per the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 and its amendments.

Energy accounting and audit meters for LV side shall be of accuracy class not inferior to 1.0S as per CEA regulations. The accuracy class of CTs and VTs shall not be inferior to that of associated meters.

### **A.3.8 Power and Control Cables :**

11/33 kV cables will be of stranded aluminium conductor with heavy duty IS mark XLPE insulated, each core screened on conductor as well as on insulation, colour coded, extruded bedding, extruded PVC inner sheathed, armoured and overall FRLS PVC sheathed. The cables will be suitable for unearthed system.

LT power cables will be 1100 V grade with stranded aluminium conductor, XLPE/PVC insulated, extruded PVC inner sheathed, armoured and overall FRLS PVC sheathed.

Control cables will be multi-core 1100 V grade, PVC insulated, PVC inner sheathed armoured and overall FRLS PVC sheathed with 2.5sqmm stranded copper conductors.

Main factors, which will be taken into consideration for selection of cable sizes, are as follows:

- System short circuit current
- Derating factors due to higher ambient temperature and grouping of cables
- Continuous current rating.
- Voltage drop during starting and continuous operation
- Standardization of the cable size to minimize too many sizes of cables.
- The cables will conform to the relevant Indian/International standards in general with the following special, FRLS properties for the outer sheath.
- Oxygen index of the cable will not be less than 29 when tested in accordance with ASTM-D-2863.

- Acid gas emission will be less than 20% as per the requirements of IEC-754.
- Smoke generation will not be more than 63% when tested as per ASTM-D-2843.
- The cable will meet the flammability test as per IEEE-383.

### **A.3.9 Illumination System :**

All container enclosures should be provided with sufficient lighting with light fittings as per the relevant standard. The plant lighting system shall include the normal AC lighting and emergency AC lighting, which contribute together 100% lighting as well as emergency DC lighting in selected areas of the plant during plant emergency conditions. The emergency AC lighting will provide about 20% of the total AC lighting. The plant lighting (illumination level) varies at different locations of the plant depending on the utility and nature of work expected to be carried out at that area.

The lux level of the lighting shall conform to the relevant Indian/International standard & OHSAS standard.

#### **A.3.9.1 Normal A.C. Lighting of the Plant :**

Lighting feeders will be provided with lighting transformers of voltage ratio 1:1 for reducing fault level. For general illumination inside the plant, fluorescent fixtures are taken into consideration. However, in some places where fluorescent fixtures are not suitable, high intensity discharge (metal halide/sodium vapour) lamps of suitable design (medium bay/high bay) are considered. This lighting will be energized from 3-phase, 4-wire, 415 V main lighting distribution PCC boards fed from suitably rated lighting transformers. These MLDBs will feed lighting panels for each individual area/room.

#### **A.3.9.2 Emergency AC Lighting :**

Emergency AC lighting will be fed from emergency 125 KVA 415Volts AC DG set through emergency switchgear and lighting transformer. Under normal plant running condition, Emergency AC lighting will be fed from PCC through emergency switchgear and lighting transformer.

#### **A.3.9.3 Emergency DC Lighting :**

Emergency DC lighting will be provided in specific areas such as control room, switchgear rooms, areas near local panels, staircases and other strategic areas during AC supply failure.

Industrial type receptacles rated for 16A, 20A, 63A, 240/415 AC will be provided for all indoor and semi indoor areas such that any point is accessible within 25 m for maintenance and testing, portable tools and other services. Flush type single phase receptacles will also be provided for office rooms, control rooms and false ceiling areas.

### **A.3.10 LT PMCC Board for Station Auxiliary Loads (through Station Auxiliary Transformer):**

One no. PMCC panel board shall be supplied for supplying power to all the LT AC loads such as plant illumination, air compressor system, HVAC system, engine cooling water system (if water cooled), EOT crane, battery chargers, plant water supply etc. The PMCC panel shall be fed from the station auxiliary power transformer. Emergency DG set shall also be connected to the PMCC panel through ATS (automatic transfer switch) for feeding the emergency/critical loads of the power plant. The system shall be suitably designed accordingly taking into account all such eventualities. The PMCC panel shall broadly have the following compartments / sections.

- A) Incomer section
- B) Bus chamber
- C) Outgoing Feeder section
- D) Cable chamber / cable alley

Incoming feeder & outgoing feeder Instruments are to be of proper range of digital Voltmeter, digital Ammeter (or digital multi-function meter showing voltage, current, Frequency, Power factor, Power and Energy, LED type indication lamps for 'phase Healthy', 'Feeder ON', 'Feeder OFF', 'Feeder tripped' etc. HRC instrument fuses are to be used as per requirement.

All incoming and outgoing feeders shall be through microprocessor controlled adjustable rating MCCBs for overcurrent and short circuit protection. The incomer MCCB will have inbuilt type **earth fault** protection, with adjustable current and time setting. The outgoing MCCBs shall have **earth leakage** type protection with inbuilt earth leakage sensing module or separate CBCT/earth leakage relay combination. The earth leakage type protection will also have adjustable current and time settings (from 0.03 A to 3.0 A and time from 0 to 3 seconds).

The incomer and outgoing cables shall be connected to the panel breakers through individual brought out connection in the rear of the panel. Sufficient clearance between individual phases of the same panel and between adjacent panels shall be maintained for easy workability and maintenance. Suitable barriers shall also be provided between outgoing terminals of the adjacent panels. Suitable cable glands are to be used for entry of cables.

The busbars shall consist of 1 set of hard drawn, high conductivity, TPN (neutral equally rated to phase bars), electrolytic grade, virgin aluminium bars (bus rating shall be calculated by the supplier to cater to connected loads as well as future provision), supported at sufficient intervals on non-hygroscopic, non-inflammable GRP/SMC

supports. Busbars shall be rated to withstand short circuit fault currents of 50 KA for 1 second. The busbar individual phases shall be colour coded for easy identification. Main busbars shall be full length of the panel. Vertical bus bars for feeding individual starter/feeder shall be full height of the panel. Sufficient clearance shall be maintained in the bus chamber for proper cooling of the busbar. Busbar should be extensible type to facilitate future extension.

#### **A.3.11 Plant Communication :**

The plant communication system will be provided to facilitate operations by establishing fast communications among the operating personnel stationed at various locations of the plant.

The plant Communication System will consist of the following:

- Telephone system completes with EPABX with VOIP compatibility, telephone sets in the Power Plant and associated administration buildings.

#### **A.3.12 Station DC System :**

The DC power system provides DC power to protection and control requirements and the essential loads that are required to function on a loss of AC power. The DC system comprises of:

- 110 V DC battery
- Battery chargers (float cum boost charger)
- DC distribution boards.

#### **A.3.13 Battery :**

The batteries will be sized for the required load and two hour duty cycle duration, taking into account approximate temperature correction, design margin and aging compensation factors.

Battery will be of storage type lead acid with plate or tubular positive plates. Two (2) nos. redundant batteries set at have been considered. This battery shall feed the station DC including Lighting and Switchyard DC requirements.

#### **A.3.14 Battery Chargers :**

One (1) no. battery charger for each battery set (float cum boost) of suitable capacity will be provided for quick boost and trickle charging.

The battery charger will be of solid-state control rectifier type, completely automatic and self-regulating.

The float charger will be capable of floating the battery and at the same time supply the continuous DC load of the unit.

The boost charger will be capable of boost charging the battery a fully discharged battery to a state of full charge in 12 hours.

- Normal operation: During normal operation (when main power available) the load is supplied from the mains through the converter. The converter also supplies the current for charging battery in fully charge state.
- Mains failure: When the main power fails, the battery supplies the load. During this phase the battery discharges and maintains the load in normal operation.
- Main supply resumes: When the main supply resumes the charger return automatically to normal mode of operation. The converter starts to recharge the battery as well as supply power to the load.

#### **A.3.15 DC Distribution Boards :**

The main DC distribution boards and other DC switchboards will be suitably designed to meet the requirement of the plant and these boards will have short-circuited ratings consistent with the available short circuit current.

#### **A.3.16 Uninterruptible Power Supply System :**

The uninterruptible power supply (UPS) system furnishes a reliable and interruption free source of required voltage, three/single phase power to equipment / instrument vital for plant control and emergency shutdown. The UPS is to be of Microprocessor based. Battery would be similar to unit batteries as mentioned above.

One (1) UPS unit (1x100%) will be furnished for each unit of the Power Plant sized to feed essential AC loads like DCS and other C&I equipment.

The DC supply for the UPS system will be sourced from station DC system. The UPS system will be provided with two (1) nos. 100% capacity inverter.

An alternative 240 V A.C. single-phase source through by pass transformer and stabilizer is provided through a static transfer switch to feed the vital A.C. loads during the failure of both the inverters.

#### **A.4.0 Emergency DG Set :**

There should be a provision for Emergency Generating Set for supply of emergency power in the Power Plant in case of no power situation for whatever reason may be in the Plant. The capacity of the Emergency Generating set should be so designed that this generating set shall be capable to supply power for the plant illumination and also to restart the bare equipment required to start the Power Plant again. The Emergency Generating Set shall be Diesel Engine Driven Generating Set. The emergency power shall be provided by the party

and automatic Change over arrangements for emergency services shall be provided by the bidder. This generating set may also be used during installation of the Power plant.

**Specifications of DG Set (Black start): 125 KVA**

The Diesel engine should be a four stroke, multi cylinder, turbocharged/Natural aspirated, heat exchanger/ radiator cooled engine rated for continuous power and capable of developing at least 145 Net Brake Horse power at 1500 rpm (maximum) with a maximum compression ratio of 18:1. Only single stage turbo charging is allowable. The engine should comprise of the following sub systems.

a) **Cooling System**

The cooling system of water cooled engine should comprise of an engine mounted water pump, an industrial type heavy duty radiator/ heat exchanger suitable for operation in ambient temperature of 48 Deg C and a blower fan.

- (i) The engine jacket water cooling system should be a closed circuit design with provision for filling, expansion, and de-aeration. The cooling pump should be driven by the engine. Auxiliary coolant pump required for heat exchanger or separate circuit after cooling should also be engine driven. Coolant temperature should be internally regulated to disconnect external cooling system until operating temperature is achieved.
- (ii) Radiator, Engine Mounted: Heat rejected to the engine jacket water shall be discharged to the atmosphere through a close coupled radiator. The radiator shall be sized to cool the engine continuously while operating at full rated load and at site conditions of 48 Deg C ambient.
- (iii) Blower Fan: The radiator cooling fan shall be a blower type driven from the engine. Air shall be drawn from the engine side and exhausted through the radiator core with no more than 12.7 mm( 0.5 Inch ) of water external restriction in addition to core restrictions.
- (iv) Fan and Belt guarding: The fan, fan drive, and fan belts shall be covered with punched steel mesh guarding for personnel protection.

b) **Air Intake System:**

The air intake system should comprise of a heavy duty engine air cleaner mounted on the engine with a vacuum indicator and air intake manifold with dry element requiring replacement no more frequently than 500 hours or once each year.

- c) **Electric Starting System:**  
The engine should have an electric starting system comprising of a Maintenance Free Heavy Duty Battery pack of reputed make having a minimum capacity 180 ampere hours with a alternator mounted on the engine for a battery charging and a 24 Volt starter( preferably of LUCAS TVS/DELCO REMY make), starter relay, and automatic reset circuit breaker to protect against butt engagement. Batteries shall be maintenance free, lead acid type mounted near the alternator. Batteries should be housed in a hard rubber or polypropylene case with provision for venting. Required cables should be furnished and sized to satisfy circuit requirements.
- d) **Battery Charger:**  
The battery charger is to be a solid-state device with adjustable float voltage control. It is to be a constant voltage device with current limit, and it is to include an equalize switch which will allow the battery to be overcharged for maintenance purpose.
- e) **Fuel System:**  
The fuel system should comprise of fuel pump with Governor, fuel pump, fuel injectors, 12 volt DC solenoid coil, Replaceable fuel filter. Diesel tank of minimum 200 litres capacity tank fabricated from 14SWG sheet metal built and same would be integrated in the base of the Gen set inside acoustic container complete with drain valve, air vent, and inlet and outlet connection. The fuel tank shall be suitable for minimum 8 hours continuous running of DG set.
- f) **Exhaust System:**  
(i) The exhaust system should comprise of water cooled exhaust manifold, stainless steel exhaust flexible connection, residential type exhaust silencer, spark arrestor and piping connections  
(ii) Heavy walled piping of schedule 40 with radii of 90 Deg bend at least 1½ times the pipe diameter. Piping should be installed with appropriate insulation and shielding.  
(iii) Piping should be supported and braced to prevent weight or thermal growth being transferred to the engine and flexible expansion fittings provided to accommodate thermal growth.
- g) **Lubricating System:**  
The lubricating system should comprise of lubricating oil pump, lubricating oil filter with a replaceable paper element, lubricating oil cooler, lubricating oil pan and crankcase breather.

- i) 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 bypass valve to continue lubrication in the event of filter clogging.
  - (ii) The bypass valve must be integral with the engine filter base of receptacle.
- h) **Instrument Panel:**  
 The engine mounted instrument panel shall consist of a shock-mounted formed and welded enclosure. Provide Metric marked gauges as above.
- The instrument panel should include the following:
- (i) Lubricating Oil pressure gauge
  - (ii) Lubricating oil temperature gauge
  - (iii) Water temperature gauge
  - (iv) Starting Switch
  - (v) Mechanical/Digital tachometer and hour meter
  - (vi) Circuit Breaker
  - (vii) Ampere meter
  - (viii) Electric service meter
- i) **Engine Safety Controls:**  
 Engine mounted safety shut off / trip system for tripping the engine in the event of
- (i) Low lubricating oil pressure
  - (ii) High cooling water temperature
  - (iii) Engine over speed
  - (iv) Low & High Battery Voltage Warning
  - (v) Weak Battery Warning
  - (vi) Fail To Start Shutdown,
- j) **Other Features:**
- (i) flexible /direct coupling
  - (ii) viscous vibration dampener
  - (iii) flywheel with housing
  - (iv) lifting eyes
  - (v) coupling guard, guards over belt drives (blower fan drive, water pump drive pulley, charging alternator drive pulley and timing pulley).
  - (vi) standard painting
  - (vii) suitable hand throttle control
  - (viii) mechanical hour meter
  - (ix) SAE standard rotation

**GENERAL NOTES ON ENGINE:**

- (a) The engine shall conform to ISO 3046/ IS1000 /BS 5514 specifications and shall be rated for continuous power with an over load power rating of 110 % of the continuous power corresponding to engine application , for a period of 1 hr within a period of 12hrs of operation.
  
- (b) The bidder should submit the following information along with relevant performance rating curves and engine product catalogues
  - Gross HP developed at rated RPM
  - Deduction for fan, charging alternator and other ancillary equipment
  - Net HP developed at rated RPM
  - Specific fuel consumption at rated power as well as 110%, 75%, 50% of rated load

**Alternator Specifications:**

**Alternator:**

Alternator shall be designed, constructed and tested as per IS: 4722, with the following requirements:

- 1) Rating: 125 KVA, 415 Volts, 50 Hz, 3 Phase, 0.80 PF and 1500 RPM
- 2) Enclosure (SPDP) screen protected drip proof & degree of protection (Min.), IP-23(As per IS: 4691)
- 3) Rated Voltage: 415 Volts
- 4) Voltage regulation (Maximum):  $\pm 1\%$
- 5) RPM: As per engine rated speed (Max. 1500)
- 6) Frequency: 50 Hz
- 7) Rated Power factor: 0.80 lagging
- 8) Insulation: Class "F/H"
- 9) Connection: 6 wire, with external provision for star connection in the generator terminal box.
- 10) Bearings: Oil/ grease lubricated ball/ roller/ sealed and single/double
- 11) Phase sequence: UVW - phase sequence and direction of rotation shall be clearly marked on the alternator.
- 12) Duty/load: S1- Continuous duty rated
- 13) Excitation: Brushless, self- excited, self-regulated with solid state AVR. Voltage characteristics- VG3 as per Table-1, IS: 13364 (Part-1/2). Exciters shall be rated 1.25 times the full load (rated) conditions.
- 14) Over speed: 1.2 times rated speed for two minutes without any damage
- 15) Efficiency: As per IS: 4889 & tolerance as per IS: 13364 (Part-1/2)
- 16) Temperature rise: As per IS: 13364 (Part-1/2)

- 17) Overload capacity: 110% of continuous rated power for one hour in any period of 12 hours consecutive running
- 18) Type of AVR: Electronic, In the event of any fault due to over voltage/high bearing temperature/high winding temperature, or an external fault, the AVR shall remove the excitation voltage to the alternator. An emergency trip PB shall also be provided.
- 19) Earthing: As per IS: 3043
- 20) Cooling: Fan air cooled
- 21) Coupling: Rigid coupling
- 22) Alternators Enclosure Protection: Min. IP 23
- 23) Alternators Terminal Box Protection: Min. IP 54: Terminal box shall be suitable for terminating Cu/Al armoured PVC cables
- 24) Anti-condensation heater: 230 volts 50 Hz
- 25) Embedded type Bearing and Winding Temperature Detectors
- 26) Frame size: **Bidder to specify**
- 27) Lifting eye bolts in the frame.
- 28) Mounting: Foot mounted on Gen set skid that has been mounted on anti-vibration pad.
- 29) Protection: overcurrent/short circuit/earth leakage/over- and under voltage/over- and under frequency/enclosure over temperature

**Alternator shall have:**

- 1) Permissible voltage variation: As per Table-1, IS-13364 (Part-1/2)
- 2) Permissible frequency variation: As per IS-13364(Part-1/2)
- 3) Permissible waveform deviation: As per IS-13364 (Part-1/2)
- 4) Permissible unbalanced current: As per IS-13364 (Part-1/2)
- 5) Permissible short circuit current: As per IS-13364 (Part-1/2)
- 6) Permissible voltage swing (Transient response): As per IS-13364 (Part-1/2)
- 7) Permissible harmonic distortion factor: As per IS-13364 (Part-1/2)
- 8) Permissible vibration: As per IS-12075

**Bidder shall specify the following in their offer:**

- a) Efficiency of the alternator: At 25%, 50%, 75% and 100% load
- b) Power factor of the alternator: At 25%, 50%, 75% and 100% load

**Construction of Alternator:**

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

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

- b) Automatic voltage regulator should be mounted with approved rubber bushes under AVR mounting holes to reduce vibration. AVR shall be suitable for motor loads, VG3 regulation.

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

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

- c) The alternator terminal box should be of suitable size and should be suitable for terminating power cables of alternator.
- d) Two nos. of earth points are to be provided on both sides of the alternator. Lifting hooks are to be provided for lifting the alternator.

#### **SPECIFICATION OF GENERATOR CONTROL PANEL**

Sheet steel clad, self-supporting, floor mounting, cubicle type, dust and vermin proof generating set control panel made of 2mm thick MS CRCA sheet and built upon rigid framework of channels, beams as required, having front and rear hinged doors with danger plate fitted on both sides, lifting lugs on top, ventilation louvers on both sides, bottom detachable gland plates, double earthing studs on two sides, complete with suitably sized zinc passivated hardware with heavy plain and spring washers. The panel doors should have neoprene rubber gasket. The panel should be designed and manufactured as per IS-8623. The panel enclosure will be as per IP54 except for the open part of cooling louvers at bottom and top of the panel sides. Suitable wire mesh should be provided on the inner side of the louvers to prevent entry of insects. The metal surface of the panel should be given seven tanks anti corrosion treatment and then powder coated in DA grey colour (Min. 50 micron thick paint). The frame should be able to withstand the stress and vibration during transportation and operation. All cable entry shall be from bottom side. Separate removable gland plates shall be provided for all cables. Provision shall be made in the bottom channel for grouting of the panel.

The detail description of the panel is as described below:

1. Generator control panel mounted MCCB should trip on the following faults.
  - i) Over load, short circuit and earth fault. Tripping from internal trip unit of MCCB.

- ii) Under Frequency. From Frequency Relay
- iii) Engine fault (Low lub oil, high water temp, over speed). Trip contact from engine protection system.

**PROTECTIVE AND METERING DEVICES AND INDICATING LAMPS:**

(Mounted on front hinged door of Control Panel)

- i) 1 No. Power & Energy monitor showing Voltage, current, power (KW), Power factor, KWH & Maximum demand, 5 elements of power showing at a glance with communication port compatible to PCs. Make of Meter - Siemens (Sentron PAC 3200)/ SOCOMEC -HPL ( Model -DIRIS A 40/A41)/ Schneider Group (Model- PM700). Bar Primary Resin Cast CT of 200/5 ratio, 15 VA burden, class-1, conforming to IS 2705.No of CTs as per circuit requirement. Make of CT: AEI/ kappa / L&T
- ii) 1 No. Digital micro controller based Frequency Relay. Relay shall have digital display, tropicalised design. Frequency and time settings adjustable in steps. Relay to have potential free output contacts, 240V AC, 6 amp. Make: ProkDvs, ABB.
- iii) Hour meter to record running hours of the genset.
- iv) The control panel should have indication lamps mounted on panel front door for following faults and indications. All lamps shall be of LED type, having long life and low energy consumption. Binay, L&T, Siemens Make.
  - a) Low Engine Speed (From frequency relay)
  - b) Engine fault
  - c) Three nos. Red/ Yellow/ Blue for Incoming Supply
  - d) Set on load
  - e) Electrical fault (From aux contact of trip unit of MCCB)

**MAIN COMPONENTS: (Mounted Inside the Control Panel)**

- i) Panel should have one set of TP & N electrolytic grade, high conductivity, electro tinned copper bus-bars, made from rectangular sections conforming to IS, rated 300 amps (Free air rating of sections) and supported at required intervals to withstand short circuit fault levels up to 25 KA for 1 Sec. Rating of neutral bus shall be minimum 50% of phase bus rating. Bus-bar support shall be non- hygroscopic GRP/FRP and the Bus-bar shall be insulated with heat shrinkable PVC sleeves.
- ii) Incoming and outgoing power cables shall terminate on electrolytic grade, high conductivity electro tinned copper links liberally sized for termination of all power cables. Neutral bar shall also have provision for connection of neutral earth cables. Power cable from alternator terminal box to control panel input

shall be supplied and connected by party if the control panel shall be located inside the acoustic enclosure.

- iii) 1 No. 415v, 250 Amps, 4 pole, MCCB, 25 KA breaking capacity, with inbuilt microprocessor based, adjustable overload & short circuit and earth fault protection, Under voltage trip coil. Rotary operating handle shall be provided on the panel door for manual operation of MCCB. MCCB shall have suitable indication in case of trip from trip unit of MCCB.  
Make: Schneider/Legrand/Siemens.
- iv) One no. four pole on load changeover type switch rated for 300 amp. The switch shall be mounted on the genset skid with suitable enclosure. Connection links shall be provided with switch for proper termination of all power cables. Power wiring from control panel to COS shall be done by the party. Sufficient space and arrangement shall also be provided in COS enclosure for entry and termination of main power cable to OIL's PCC. The power cable is 3.5x 120 sq mm, PVC insulated, PVC sheathed, Armoured cable with copper conductor.  
Make of switch: HPL- Socomec/GE/Siemens.
- vi) Contactor type Auxiliary Relay, all relays with minimum 2 nos spare contacts. No. of relays should be as per the control circuit requirement. Plug in type relays and contactors shall not be used. Current rating of aux contacts shall be as per control circuit requirement. Make-Siemens/GE
- vi) HRC instrument fuse holders phenol moulded with suitable fuses & links for different circuits. Separate fuses and neutral links should be provided for control circuit indicating system lamps, instruments, enclosure illumination and tripping circuit.  
Make-GE

### **WIRING SCHEME**

- i) Control voltage for generator control: 240v AC. Control system wiring shall be done with 1.5sqmm, flexible copper, 1100v grade PVC insulated wires approved by ISI, TAC, FIA. All wiring will have copper lugs & terminal blocks as required. Wiring for lighting circuit MCB, power outlet and wiring for CT will be done with 2.5sqmm, flexible copper, 1100v grade PVC insulated wires approved by ISI, TAC, FIA& have copper lugs. Colour code for wires shall be followed as per IS. Make: Finolex / Havells or any reputed brand.
- ii) All power and control wiring inside the enclosure shall be done at manufacturer's works with armoured cables or with single core cables laid in metallic conduits/ casings. Heavy duty Single

Compression Cable Glands shall be provided at all cable entries for armoured cables. Cables with conduit wiring shall have suitable entry clamp. All cables shall be with stranded copper conductor and shall be of 1100v grade and approved by ISI.

- iii) 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 labeled for identification.
- iv) Separate gland plates shall be provided for power and control cables.
- v) Separate TB shall be provided for all interconnection cables between control panel and engine.
- vi) Provision of exhaust blower power supply shall be required if the blower is fitted inside the.
- vii) Power supply arrangement with switching and protection shall be also provided for any auxiliary motor, if installed for genset operation.
- viii) All auxiliary and main contactors shall be mounted on DIN channel. Plug in relays shall not be used.

Control panel shall preferably be manufactured by the Genset Manufacturer.

**Acoustic Enclosure of the Emergency Gen-Set:** Acoustic enclosure is to be made up of compact steel design (CRCA) conforming to CPCB norms. It shall be painted with weather proof, acid proof, heat resistant paint after pre treatment of minimum seven tank method, derusting, pickling, phosphating and passivation etc. and application of one coat of primer for durability and better look. OIL emblem shall be made both sides. Acoustic enclosure for DG set for sound attenuation fabricated from 2.0 mm CRCA sheet steel (Structure) with side fabricated from 2.0 mm CRCA sheet & filled with 100 mm thick fire retardant glass wool/rock wool/mineral wool (96 kg/m<sup>3</sup>) as per IS: 8183. The insulation material shall be covered with fine glass fiber cloth and would be supported by perforated SS Sheet. The hinged doors of 100 mm thick and fabricated from 1.6 mm CRCA sheet packed with acoustic material. The floor of MSS chequered plate 5.0 mm thick, canopy fixed with axial flow fan of industrial heavy duty of reputed make, All doors/opening are to be sealed with neoprene/EPDN gaskets.

The enclosure shall have built in fuel tank, residential silencer (Isolated from main DG chamber) with protection and tripping of DG set against temperature of more than 50° C. The controls for operation of the DG set shall be from outside as far as applicable. The enclosure for the DG control panel with emergency stop switch mounted inside enclosure shall be visible and accessible from outside. Noise level shall be less than 75 db (A) at a distance of 1 meter duly certified by authorized agency etc. complete in all respect. The enclosure shall be provided with suitable size & no. of hinged type doors along the length of the enclosure on each side for easy access inside the acoustic and sufficient space for inspection, operation and maintenance purpose. The drain oil collector shall be provided at the bottom.

**Ventilation:** Provision shall be made for heat dissipation inside the enclosure by eliminating the excessive heat within the acoustic enclosure through suitable number of dynamically balanced blowers/exhaust fans and louvers. The difference of ambient temperature inside the enclosure and outside ambient should not be more than 7 deg. Celsius. Provision of sufficient capacity blower will be made inside the enclosure which provides combustion air requirement of the engine. Power for these blowers/fans shall be provided either from the engine power train or electrically and provision for these in all respects shall be in the scope of manufacturer and supplier.

**Modular Construction:** The acoustic enclosure will be made on the basis of modular construction i.e. made in parts which can be assembled or disassembled at site. The complete unit should be on a sturdy steel frame with lifting eye bolts so as to allow transportation without dismantling of any components and without causing damage to the unit during lifting. The viewing meter and control panel shall be at right side (viewed from alternator) of the DG set.

**Lighting & Power utilities:** The lighting arrangement with sufficient illumination and emergency lights shall be provided inside the enclosure will have three nos. of well glass/bulkhead type luminaries suspended from the enclosure top and wired with heavy duty PVC insulated and PVC sheathed armoured, stranded copper cable approved by IS. Lights will be switched from individual MCBs, 6 amp, C curve, mounted on control panel cover & have back-up HRC fuse and neutral link of 16 amp rating. One no. industrial type metallic plug socket of 20 amp rating with 10 amp SP MCB as switch should also be fed from lighting circuit fuse. The socket should be mounted on the enclosure side. Power for lighting circuit and socket outlet should be taken from the main bus.

**A.5.0) Basic Control and instrument requirements functions of the Plant:**

- Automatic program sequence for start and stop for the gas engine plant
- Reliable control of the exhaust gas emissions to low values
- Integrated digital speed and power control
- Connection of actuators and sensors at the I/O controller in the auxiliary power unit control cabinet and data transmission
- Monitoring of all sensors at the unit
- Monitoring of the engine cooling water
- Control and monitoring of the lubricating oil circuit inclusive oil pre- and after-lubrication as well as oil change
- Test mode for checking the connected actuators, sensors and auxiliary power units
- Electronic line recorder for measured values for control and diagnostic purposes over periods of 40h/6min as well as synchronous with work cycle
- Electronic operation diary for recording any warning, malfunction and operational messages with date and time for detailed monitoring of the operation
- Electronic operating hours counter with breakdown in 5 load ranges
- Connection option for one workstation
- Engine cooling water control: The cooling water circuit control ensures an optimal cooling water temperature by piloting a three-way valve. The cooling water inflow temperature is increased for partial load
- Serial coupling for data exchange:
- Intercooling circuit: Control of the intercooling water inflow temperature by piloting a control valve in the intercooling water circuit; monitoring of the receiver temperature
- I/O controller: The I/O controller controls the auxiliary power units, pumps, valves, etc. and records the respective measured values The I/O controller is delivered loose for installation in the auxiliary power unit control cabinet
- 16configurable messages: Digital inputs with comprehensive configuration options in order to be able to connect plant-specific malfunctions, warnings or messages directly to the HMI system. Monitoring a plant is thus considerably easier and clearer by the protocol function in the operation diary.
- Antiknock control: Highly dynamic individual antiknock control for each cylinder to ensure safe operation of the engine also at a low methane number. Maximum possible power with best degrees of efficiency while complying with emission thresholds
- Variable monitoring of the exhaust gas temperature after exhaust gas turbochargers A and B: Display (screen, history, serial coupling) and variable monitoring of the exhaust gas

- temperature after the exhaust gas turbocharger. A malfunction will be triggered if a configurable limit value is exceeded
- Measurement and restriction of the exhaust gas turbocharger speeds: Display (screen, history, serial coupling) and restriction of the exhaust gas turbocharger speeds
- Monitoring of the generator bearing temperatures: Display (screen, history, serial coupling) and monitoring of the two generator bearing temperatures. A malfunction or warning is triggered if a configurable limit value is exceeded
- To protect the engine, the basic bearing temperature (main engine bearing temperature) has to be recorded and monitored. Exceeding the limit value will trigger a warning and then a malfunction, depending on by how much it was exceeded
- The controls the intake air pre-heating by piloting the control valve. Where preheating is requested, the intake air temperature is regulated according to the configurable target value. The controller actuates the control valve of the heat exchanger unit
- Connection for service PC: Rugged service connector at the HMI unit control cabinet. then the service PC is connected, a control unit will interrupt the connection to the workstation or any modem that might be connected.
- To protect the catalytic converter, the System should measure the exhaust gas temperature after the catalytic converter and monitors it in dependence on the operating point. A malfunction will be triggered if the configurable limit value is exceeded
- Central Control
  - Workstation: with 15" TFT colour display and USB printer, key dongle or USB memory stick

#### **A.5.1 Central Control Room / Control Equipment Room :**

Central Control Room (CCR) is envisaged from where complete operation of the plant is performed. This control room will house all CRT/LCD consoles, back-up unit control panel housing annunciator, emergency push button etc., unit / station auxiliaries, bus transfer panel, transformer and switchgear control panel, generator relay panel, Synchronizing panel, fire and smoke detection panel etc., with all control, auxiliary and power cables along with associated cable trenches, ducts etc. An Uninterruptible Power Supply (UPS) will be employed to supply AC power to essential control, safety and information system such as annunciators, protection system, control panels etc. The building shall include all the required closed spaces including but not limiting to Office Room, store room, Owner's office, Toilets etc. There should be conference room to accommodate at least 10 (ten) people at a time with adequate furniture. The conference room should have the facilities for connecting PCs and projectors. The control room shall be a brick building with air conditioning and ventilation system.

**A.6.0 Auxiliary systems required for Plant Operation and Maintenance:**

**A.6.1 Air Compressor System:**

For Generating Sets with electrical starting system there should be at least two numbers of Air Compressor in the Power Plant. One unit to be in operation and the second unit to be in stand by mode. The Air compressors should be electrical motor driven with capacity sufficient to cold start the Main Generating Set Units.

In addition to the Electrical Motor driven units there should be at least one number Diesel Engine Driven Unit to be used in case of Power failure or for cold starting of the Units. The Diesel Engine driven Air compressor should be designed for cold start the Units.

The Air Compressors should conform to IS: 6206 standard. The design of the drive motors and Diesel Engine should be governed by the same principles as laid down under the criteria for the Main Generating Sets Units save the capacity. The Air vessels should be constructed as per the OISD safety standard no. 128.

**A.6.2 HVAC System:**

Suitable HVAC/air conditioning system for the control room (and areas where controlled temperature is to be maintained) shall be designed, supplied and installed as a part of the total package.

The following are the basic requirement for the air-conditioning system:

Temperature is to be maintained at 20 deg. Celsius.

Humidity is to be maintained at 45-55%.

**A.6.3 Area Illumination of the Plant:**

Sufficient area lighting shall be provided for illumination of the entire plant area and boundary by Sodium vapour/ Metal halide flood light fittings with standard height GI LT poles or High mast light system through automatic control system. Individual Connection for light fittings shall be done by proper size of PVCA Al/copper cable through underground cables in trenches (buried/pucca).

**A.6.4 Power Pack Container**

Power Pack container shall be designed to perform at the maximum efficiency/output of the Gas Engine Generation Set at various ambient conditions with sufficient ventilation and acoustic sound level of not more than 85 dBA at one metre distance of power pack at free field condition.

**Construction:**

The container will be constructed with steel frames. It should consist of fully vertical-corrugated steel side's and horizontal-corrugated steel

double door at rear end. Roof is die-stamped steel with corner fittings. The sub assemblies of the container and material specification are stated below.

**Base frame Assembly** – Base frame consist of front and rear bottom sill, left and right bottom side rail, floor cross members and floor with corner casting with fork lift pockets.

**Front and rear Assembly** – This consists of doors and insulated louvers, bottom end rail, top end rail, door locking mechanism, hinges etc.

**Side Assembly** – It consists of front and rear corner post, inner corner post for additional support. Equipment access doors are provided. Process connections for LT, HT, Gas and Water line are provided.

**Roof Assembly** – Main sheet is from die stamped roof and corner castings. Opening for exhaust and ventilation connection and drain points are provided. Roof is further strengthened by roof structural supports to take load of engine/Alternator parts during maintenance.

**Insulation** – Internal side of the container is fully acoustic insulated to achieve high NRC (Noise reduction coefficient). High density Rock wool layered with FRP glass mat to cover the insulation sheet. This layer is than is covered by galvanized iron perforated sheet.

**1. Materials Specification :**

<b>Sl.</b>	<b>Description</b>	<b>MOC</b>
1	Cross Member sand structural steel	IS2062 / IS808
2	Formed sections	IS5986 / IS1079
3	Corrugated Sheet	IS5986 / IS1079
4	Insulation material	IS8183
5	Chequered Plate	IS3508
6	Process Connections	ASA 150

**2. Surface preservation and Painting:**

All steel surfaces prior to forming or after will be fully abrasive shot blasted conforming to relevant standard to remove all rust, dirt, mill scale and all other foreign materials.

Prior to assembly All steel surfaces will be coated with 10 – 15 microns thick two-pack polyamide cured zinc rich epoxy primer immediately after shot blasting, and then dried up in drying room.

All weldments will be shot blasted to remove all welding fluxes, spatters, burnt primer coatings caused by welding heat, and other foreign materials. Then all blasted weldments will be coated with zinc rich epoxy primer.

All fasteners such as self-tapping screws and bolts, nuts, hinges, cam keepers, lashing fittings it is electro-galvanized with approximately 13 microns thickness.

Top coating – After drying of primer, exterior of container will be coated again with high build top paint and interior will be coated again with polyamide cured epoxy resin based high build coating.

Under coating – After completion of flooring, all the understructures and floor will be coated with minimum 230 microns dry film thickness bituminous coating.

### **3. Some suggested Dimensions AS PER REQUIREMENT:**

#### **Category – I:**

<b>Sl</b>	<b>Description</b>	<b>Length (mm)</b>	<b>Width (mm)</b>	<b>Height (mm)</b>
1	Dimension with Door closed	12192	2438	2896
2	Dimension with Door Open	14592	4850	8879
3	Door Rear – Panel	NA	2338	2624
4	Door Side – Access	NA	2338	2624

#### **Category – II**

<b>Sl</b>	<b>Description</b>	<b>Length (mm)</b>	<b>Width (mm)</b>	<b>Height (mm)</b>
1	Dimension with Door closed	10668	2438	2896
2	Dimension with Door Open	13018	4765	6911
3	Door Rear – Panel	NA	2338	2624
4	Door Side – Access	NA	2338	2624

### **4. Handling**

The container will be constructed to be capable of being handled without any Permanent deformation under the following conditions:

- a) Lifting, full or empty, at top corner fittings vertically by means of spreaders fitted with hooks, shackles or twist locks.
- b) Lifting, full or empty, at bottom corner fittings using slings with terminal fittings at any angles between vertical and 45 degrees to the horizontal.

5. **Transportation:** The container will be constructed to be suitable for transportation in the various modes such as Road, Rain or Marine.

6. **General Arrangement Drawing:-**

Following General Arrangement Drawing for category – II Container is just for guidance, which is indicative only. The PARTY may offer suitable container for the purpose meant for.

**Note :**

The maximum permissible sound level shall be 75dB (A) at one metre from the enclosure surface.

- c) Exhaust silencer shall be provided of the size as recommended by the manufacturer and shall attenuate the sound to the level noted above. It shall be supplied with a flexible, seamless, stainless steel exhaust connection as well as with all internal pipe work. A rain cap will be supplied to terminate the exhaust pipe. These components must be properly sized to assure operation with minimum back pressure and high sound when installed. The canopy should be finished in synthetic enamel paint incorporating rust inhibitors and aluminum sprayed silencers and spark arrestors to guarantee a superior and long lasting finish.
- d) There should be carefully designed inlet and outlet baffles / attenuators with corresponding weather louvers and bird mesh allowing sufficient air flow, for the set to operate even under the harshest ambient conditions whilst maintaining specified noise levels. Suitably sized blower should be incorporated to meet total air requirement.
- e) The temperature inside the enclosure should be suitable for human comfort. The temperature of exhaust line should not exceed the self ignition temperature of fuel gas. A high temperature trip system (to shut down the engine by cutting off fuel supply to the engine through the solenoid valve) with variable setting connected to a thermostatically controlled blower must be provided for eliminating excessive heat dissipated by the engine within the container. Suitable

continuous on line Temperature Monitoring and Control System with Alarm and Shut down Mechanism should be provided.

- i) When the concentration of gas inside the container reaches 10 % of LEL of gas, audio visual alarm should activate and automatic preventive measure should activate to reduce the concentration of leakage gas. These preventive measures include switching on the thermostatically controlled blower/exhaust fan to disperse leakage gas or stoppage of gas leakage itself.
  - ii) When the concentration of gas inside the container reaches 15% of LEL of gas (or any other suitable rating), the alternator main circuit breaker should trip automatically and subsequently the engine should be shut down instantaneously by automatic device (i.e., cutting off power supply to the fuel solenoid valve.)
- f. A separate exhaust fan of suitable size may be provided which can be manually switched on even if the thermostatically controlled blower stops / fails.
  - g. There shall be a provision of emergency shutdown of the generating set (Prime Mover) from outside the enclosure.
  - h. The enclosure should have the sufficient space in and around the generating set to facilitate maintenance and operation of the set.
  - i. A panel viewing window should be provided to facilitate visual monitoring of the equipment from outside.

## **B.0 OTHER SYTEM OF THE POWER PLANT :**

### **B.1 Fire Protection System**

#### **Introduction**

The fire protection system for the proposed power plant is to provide for early detection, alarm, containment and suppression of fires. An adequate fire protection system has been planned to meet the above objective and all statutory and insurance requirement of LPA. A multitude of systems will be provided to combat various types of fires in different areas of the plant and all such systems for various areas will form a part of a centralised protection system for the entire power plant. The complete fire protection system will comprise of the following.

- Fire hydrant system (External and Internal)
- Portable fire extinguishers
- Gas leak detectors

### **Design Criteria**

The fire protection system will be designed to satisfy the following.

- To provide facilities for fighting all types of fires that can occur in the plant.
- To equip the plant for fighting at least two simultaneous fires.
- To meet the basic minimum requirements of TAC/NFPA

### **Codes & Standards**

The Fire Protection System will generally be designed in conformance with TAC/NFPA.

### **System Description**

The various types of fire protection systems envisaged and the areas covered are as follows:

Hydrant System	:	Entire Power Plant
Automatic Fire Detection &	:	Control & Switchgear room, UPS room, battery room and other office rooms.

Manual break glass fire alarm will be provided at strategic areas of the plant.

**Note:** (i) A ring line is to be constructed all around the periphery of the plant, from which water for fire-fighting can be drawn in case of fire. The hydrants are to be placed in this ring line. The ring line is to under pressure round the clock. For this adequate water storage arrangement for at least two hours of firefighting is to be arranged. A firefighting pump is to be provided near the entrance gate of the plant for energizing the ring line in case of fire.

## **B.2 Effluent Collection and Disposal System:**

### **General**

The waste collection and treatment system receives, segregates, and transfers all liquid waste streams to plant water management and ensures conformance to the statutory government guidelines prevailing in the state.

The power plant effluents are of the following two kinds. They are:

- Water Waste
- Sanitary waste

The effluent disposal system will consist of trenches, sumps/pit and pumps to collect the plant wastes and transport them for off-site disposal. In general, sump pumps will be submersible centrifugal type with adequate capacity as required.

### **Water Waste**

The plant water waste effluents are generated from the Service water shall be collected in a local pit before disposal through a dispersion trench. The pit should be constructed in such way that all the water including the rain water are drawn to the sump for further disposal.

### **Sanitary Waste**

Sanitary waste from plant sewage and canteen will be allowed to soak in a septic tank and the overflow will be disposed off through a dispersion trench.

### **B.3 Sewage Disposal**

The Sanitary Sewage system will be conveyed through underground pipe lines by gravity and designed accordingly. Manholes will be provided at all bends, intersections and in straight stretches for more than 100 metres long. Sanitary system within the buildings will be provided as per standards and connected to common sanitary sewage system.

### **B.4 Air Pollution**

As per the Environmental Protection Act, stipulated by the central pollution control board, the criteria prescribed are:

- i) Nitrogen oxides (NO<sub>x</sub>) emissions : 100PPMV @15%O<sub>2</sub>dry  
(Adherence with Nox levels mandated by the statutory authority shall be ensured)
- ii) Stack height : As per CPCB norms
- iii) Green belt area : 10 feet through the periphery of the project site

All the conditions mentioned above will be satisfied. The proposed power plant would use natural gas (NG) which is a clean fuel; it does not contain sulphur also. Also there would not be any particulate matter in the flue gas. In case of gas firing, there would not be any emission of sulphur dioxide and the only pollutants in the flue gas would be oxides of Nitrogen (NO<sub>x</sub>) and carbon monoxide. The typical values of NO<sub>x</sub> in the flue gas with natural gas firing shall be 100 ppmv (15% O<sub>2</sub> volume dry basis ) and shall be achieved by means of fine adjustment of air fuel ratio and combustion in the engines, through sophisticated PLC based control system .Adherence with Nox levels stipulated by the Statutory authority shall be ensured.

Stacks as per CPCB norms have to be provided. The fuel fired (natural gas) does not have any sulphur content and hence no sulphur pollutants will be present in the flue gas coming out of the stack.

Adequate area for the green belt is provided in the power plant.

Regular monitoring will be employed to constantly monitor the CO<sub>2</sub> NO<sub>x</sub> and SO<sub>x</sub> constituents in the flue gas and in case of excess amount of any pollutant, the plant will be shut down.

#### **B.5) Water Pollution**

The effluents from the gas engine based power plant would be from sanitary waste water. Notification issued by the Ministry of Environment and Forests department dated 19.5.1993 specifies the quality of effluents permitted to be discharged from the plant. For Gas Engine based Power Plant, the category to be considered would be under Inland Surface Water and the limiting values of the major effluents are:

Suspended solids	-	100	mg/l
Dissolved solids	-	2100	mg/l
pH	-	5.5 to 9.0	
Oil and grease	-	10	mg/l

The sewage / sanitary waste water will be led to a septic tank provided with a soak pit / dispersion trench. The treated water from ETP would be used for gardening and the sludge will be disposed as land fill.

The quality of effluents would be such as to fully meet the requirements of Central Board for Prevention and Control of Water Pollution as well as Local Pollution Control Board's regulations.

#### **B.6) Noise Abatement**

The stipulations of environment protection Act 1986 and state pollution control board to be followed strictly.

The gas engine intake and exhaust systems will be provided with silencers for abating the noise. The gas engines will be housed in acoustic container, which would considerably reduce the transmission of noise to the outside environment. Generally there would not be any operators near the gas engines on a continuous basis. However, maintenance personnel working within the gas engine building would be provided with adequate protection against noise.

#### **B.7) Pollution Monitoring & Surveillance System**

A well – defined environmental monitoring program would be employed with trained and qualified staff who will monitor the ambient air as well as stack gas quality to ensure that the quality of effluent is maintained within the permissible levels.

The main stacks of the engines would be provided with suitable provisions in terms of sampling cocks for installation of on-line monitors for NO<sub>x</sub>, SO<sub>x</sub> and CO to monitor the flue gas quality from them on a periodical basis.

The quality of water effluents from the plant would be periodically analysed to ensure that effluents are maintained within the permissible levels of the minimum National Standards (MINAS) and the State and Central Pollution Control Boards regulations.

**C.0) CIVIL JOB:**

The following Civil Jobs shall be required to be carried out by the Contractor:

1. Necessary Earth Filling at the proposed site. The indicative earth filling quantity may be taken from the contour map of the site. It may be noted that the Contour map is enclosed for a guideline only, the actual quantity of earth filling is to be calculated by the Contractor depending on the site condition.
2. Construction of Boundary wall {3.6 meter brick wall + 0.6 meter overhang (Concertina coil)} around the periphery of the site with provision of Gate.
3. Construction of Security Control Room with four (4) nos. of Security Watch Tower at the corners of the site.
4. Construction of Approach Road with necessary Peripheral Road inside the Power Plant.
5. Necessary RCC Pad Casting/ CC matting for placement of Gen Set and other equipments.
6. Construction of Shed over Gen Set and other equipments. The size of the shed should be designed to place all the Generating Sets inside the shed. The Gap between the generating sets should be sufficient to maneuver for working around the individual Generating Sets. The length of the shed should also be sufficient to prevent rain water from entering the shed. The capacity of the Plant shall be upgraded to atleast 10 MW in near future, therefore the Generating Shed should also have a provision for expansion.
7. Construction of Modular Houses for operators with provision of Latrine & Urinal.
8. Providing Drinking Water facility.

**BROAD GUIDELINES FOR CIVIL & STRUCTURAL WORKS**

- A.** Planning & detailed design of all civil works shall be done as per relevant IS codes applicable for the site & area of the plant. Architectural, detailed structural and working drawings for the purpose of construction; detailed drawings for internal/external electrification & plumbing; detailed planning of internal roads &

landscaping shall be submitted by the contractor for OIL's approval prior to execution.

**B. Structures, facility supports, painting etc.**

1. Wind Load :  
Design of structures & buildings for wind load shall be as per relevant IS & other codes.
2. Seismic Load :  
Design of structures for seismic load shall be as per IS:1893 part I 2004.
3. Soil Data :  
Bearing capacity of soil shall be considered as per Geotechnical report of Soil Investigation already furnished.
4. Design and construction of pile foundations if required shall be carried out as per relevant IS & other codes.
5. Minimum depth of foundation for all structures shall be from the Finished Grade Level (FGL) where cutting has been done and shall be from the Natural Grade Level (NGL) where filling has been done at respective location, for achieving the required FGL.
6. The effect of ground water table shall be duly considered while designing the structures.
7. Minimum grade of concrete used for various types of structures, shall be M20.
8. Finished floor level should be 450mm above the Finish Grade Level(FGL) which is 200mm above existing plant level i.e. caller top level of well-59 (water disposal well).
9. The cement to be used shall be Ordinary Portland Cement (OPC) conforming to IS:269 or Portland slag cement conforming to IS:455.
10. Usage of in-house developed software packages shall not be permitted. Only STAAD-III/ STAAD PRO or any other standard software shall be used for analysis and design of the structures.
11. Overhead tanks shall rest on independent stagings.
12. All bricks shall be kiln burnt of class designation 75.
13. All steel structures etc. shall be constructed & fabricated in accordance with relevant IS codes.
14. All structures shall be thoroughly cleaned of all dirt, grease, rust and mill scale as per IS:1477 (Part-I) - 1971. Removal of rust and scale shall be preferably by power driven wire brushes. Area, which become inaccessible after assembly, shall be painted before assembly after cleaning the surfaces as described above. The surfaces shall be perfectly dry before painting.

Wherever shop primer painting is damaged, the surfaces shall be thoroughly cleaned and touched up with the

corresponding primer. Site painting shall not be done in frosty or foggy weather or when humidity is such as to cause condensation on the surface to be painted.

Unless otherwise specified, all structures shall be painted with one coat of red oxide zinc chromate conforming to IS:2074-1979 as primer to be applied at shop. For all structure second coat of primer shall be applied at site after erection. All structures shall be given two coats of finishing paints of approved quality and colour over primer. The under coat shall have different tint to distinguish from the finishing coats.

15. A note shall be mentioned in all the relevant drawings, clearly specifying that the foundations and supporting structures have been designed considering the Hydro-test weight of the Vessels/ Facilities / Equipment.

## **C.2) Equipment foundations**

### **C.2.1 RCC foundations for vibrating equipment e.g. Gensets, engines, pumps shall satisfy the following requirements:**

1. The minimum grade of concrete to be used shall be M20.
2. Minimum reinforcement as per requirements of IS:2974 shall be provided unless required otherwise by design.
3. The soil stress below foundations under dead loads shall not exceed 80% of the allowable soil bearing capacity for static loading.
4. Foundations shall be so designed that natural frequency of the foundation system shall not resonate with the following:
  - Operating speed of the motor / engine
  - 2 x Operating speed of the motor / engine
  - Critical speed of the motor (for centrifugal pumps).
5. Natural frequency of the foundations shall preferably be +/- 20% away from the above mentioned frequencies. However, amplitudes of vibration of the foundation block shall always be checked to be within permissible limits.
6. Amplitudes of vibration shall be less than values specified by the equipment manufacturer. If not specified, provisions of IS:2974 shall be followed.
7. The foundation and its superstructure shall be separated from adjacent foundations and platforms. Clear air gap shall be provided in superstructure to avoid transmission of vibrations to

adjacent structures. Special note shall be given on the drawing in this respect and suitable details shall be shown as required.

8. Foundations shall not rest on previously back-filled or sensitive soils.
9. When several foundations for similar equipment need to be seated on a common raft, the computation for vibration shall proceed assuming that each machine foundation is independent of others by breaking up the raft into sections corresponding to separate foundations. The design value for the permissible amplitude of vibrations may be increased by 30 percent.

### **C.2.2 Civil Finishing Work**

1. All the exposed surface of the RCC work viz. column, beam, slab, terrace (chhajja) etc. shall be plastered with 6 mm thick 1:4 cement mortar.
2. All the internal brick work shall be plastered with 15 mm thick 1:5 cement mortar.
3. All the external work shall be plastered with 20 mm thick 1:5 cement mortar.
4. Rolling shutters, wherever required, shall be used 18 SWG rolling shutter with adequate locking arrangement.
5. Steel window shall be provided as per IS specification.
6. Standard steel/ decorative fluse doors shall be provided to meet the specific requirement.
7. All internal plastered surfaces shall be distempered with oil-bound distempers (two coats) on top of priming coat with cement primer. Before distempering, surfaces shall be smoothed with plaster of Paris.
8. All external plastered surfaces shall be painted with three coats of water-proof cement paint (considering the first coat as a primer coat).
9. All the steel & wooden surface shall be painted with two coats of synthetic enamel paint over a coat of primer.
10. Floors of buildings for Installation Manager, Plant Management Control Room and Administrative building shall be of marble tiles.

### **C.2.3 Site Grading**

1. Actual site grading layout shall be developed by the contractor based on the levelling philosophy. Site grading shall also include micro grading after erection/construction of equipments and structures. All the trees, tree roots and vegetation etc. shall be grubbed up and removed from the site. However, all benchmarks established by OIL, if any, shall be protected. All statutory requirements shall be complied before clearing the vegetation/trees. All the unwanted existing structures, if any, shall also be dismantled/demolished.
2. If required, the borrow earth for filling up of site shall be arranged by the contractor anywhere outside the terminal limits at his own cost. The right of way, cost of royalties etc. for the borrow areas shall be taken care of by the contractor himself. The contractor shall furnish the characteristics of the good earth to be utilized for filling and the location of the borrow areas for OIL's review and approval. Quality and characteristic of soil shall be as per standard specification.
3. All unpaved open areas shall be suitably graded and sloped towards the drains. Grading the area shall be done by cutting and filling based on the relevant survey details, indicative layout and the leveling philosophy.
4. Cutting area :  
Thoroughly rolled and compacted as per standard practice.
5. Filling area :  
Compacted in layers not exceeding 30 cm doosey to achieve minimum 90% of max. laboratory dry density as per IS:2720.
6. Grading shall be done with the following slopes :  
General site grading :
  - i) 1 in 500 - In the areas where facilities are located
  - ii) 1 in 1600 - Open area.
  - iii) 1 in 200 - During micro-grading
7. The slope of earth beyond the grading plant shall be 1.5 (H) : 1 (V). The Finished Grade Level (FGL) shall be at least 200 mm above existing plant level ic caller top level of well-59( water disposal well).

### **C.2.4 Roads, shoulders & site finish and Pavements**

1. Roads shall be provided as per approved general arrangement and at other places wherever required for movement of vehicles, access of trucks/tenders, approach to storage, plant and loading gantry areas and various units/facilities, unloading area, product

movement etc. The road layout shall be developed indicating the road top levels, road width etc. keeping in view heavy vehicle forward/backward movement and placement. The carriageway width of all the roads shall be 4.5 M. The roadway width shall be 6.5 M which includes side berm of 1M width on either side.

2. Specifications of roads shall be
  - 150 mm thick granular materials (compacted)
  - 150 mm thick W.B.M. with 65 mm graded stone (compacted)
  - 40 mm thick bituminous surface with 25 mm down graded broken stone.
3. Roads shall be designed considering the following required :
  - \* Camber 1 in 50
  - \* Radius of Curve 12 meters wherever possible.
  - \* Ruling gradient 1:30
4. Road cross-sections shall be designed based on the maximum load envisaged and based on the filled up soil. Characteristics and the design calculations shall be furnished for review by OIL. The sides of the road embankments shall have either brick pitching with cement mortar or turfing as per directive of OIL representatives.
5. RCC/CC/Bituminous pavements shall be provided wherever required within the plant area. RCC pavements shall be in panels of 150 mm thick of grade M20 concrete. If demanded ramp on both sides for entry and exit should be provided.

#### **C.2.5 Storm Water Drainage**

Storm water drainage system in the plant shall consist of a well designed open surface drain network so that all the storm water from the plant is efficiently drained off without any water logging. The storm water drainage shall be designed for uncontaminated surface water run off. The pavement in the unit/ equipment area shall be suitably sloped towards drain for collection of rainwater in the drains around the equipment area. The entire storm water network shall be so designed to discharge the entire storm water of the plant to the nearby drain/nallah running outside the plant area. The bed level of the drain at the disposal point from the terminal shall be fixed such so that there is no back flow from main drain.

#### **C.2.6 Ditches & drains**

Contractor shall select various types of ditches in the plant so as to have an economical ditch layout, based on the guidelines given below. Drains shall be provided along the roadside. In any block normally three sides should have rectangular drain and one side trapezoidal main drain. Secondary drains if required shall also be provided and connected to the main drain along the roadside. The drains shall be covered with suitable

cover/grating wherever required for safety/statutory or operational requirement.

#### Construction

Rectangular Ditches: Brick masonry with cement plaster/ RCC  
M15 Trapezoidal:PCC M15/RCC M15 in Cement mortar

#### Sizing of Ditch

Design of drain shall be done as per Manning's formula

*	Minimum velocity in ditch	:	0.6 m/Sec.
*	Maximum velocity in ditch	:	2.5 m/Sec.
*	Minimum depth	:	200 mm
*	Minimum rectangular drain width	:	300 mm
*	Main rectangular drain width	:	500 mm
*	Main Trapezoidal drains Top width (min)	:	750 mm
	Bottom width (min.)	:	500 mm

#### Slops

*	Trapezoidal drains	:	1:1000 min
*	Rectangular drain	:	1:500 min

### **C.2.9 Culverts**

Storm water drains, pipes, cables etc. shall cross the road by suitable pipe culverts or box culverts. Selection of the type of culverts and signing of culverts shall be carried out by the Contractor. Material of construction of culverts shall be as below :

Pipe culverts	:	RCC pipe class NP3 as per IS:458 enclosed in PCC/ RCC as per strength requirement (Min. size – 350 MM)
Box Culverts	:	RCC construction (Min. M20)

Contractor shall furnish the design calculations for the storm water drainage. While furnishing the layout of storm water drainage contractor shall also furnish the flow diagram for indicating the flow in drains, culverts etc. Excess serviceable/unserviceable material after utilizing the above stated work shall be disposed off by the contractor to locations outside the terminal battery limits after obtaining all necessary approvals from Govt./Local authorities.

### **C.2.10 Electrical/ Instrumentation Trenches, Cables and Road Crossings**

The contractor shall identify the requirement of

- RCC cable trenches to be provided in the plant area.
- Buried/brick masonry cable trenches
- Cable crossing at roads.

RCC/brick masonry cable trenches shall be with pre-cast cover designed to sustain the maximum load envisaged. Buried cable trenches shall be constructed as per sound Industrial practice/ standards. At crossings, electrical trenches shall be constructed below the instrumental trenches wherever, storm water drains crossing (if unavoidable) cabling has to be taken preferably above the drain with suitable arrangement/over cable tray. Cable crossing at roads shall be either with group of RCC pipes (minimum dia 150 mm class NP-2 conforming to IS:458 encased with PCC M15). Clear cover over top of crossing to FGL shall be 600 mm. In case of less cover RCC encasement shall be provided.

#### **C.2.11 Electrical Cable Trenches**

These shall be made in RCC leak proof type construction, with pre-cast covers adequately designed against loads as envisaged at respective location, suitable provisions shall be kept for insert, sleeves, slope etc. Entry and exit points shall be sealed to prevent rodent and animal entry.

**D.0) Construction Facilities::** The following construction facilities are to be arranged by the Contractor during the construction of the plant :

#### **Construction Water**

During Construction the water required for construction purposes and also for domestic consumption shall be organized by the bidder.

#### **Construction Power**

During construction activities at site, power supply at 415V and 240 V have to be organized by the bidder.

Temporary facility will be used for construction stores/offices and will be constructed by Bidder. Detail layout of the construction facility will be decided based on the construction plan of the plant area.

#### **Roads and Drainage**

Within plant area, two types of roads will be constructed – one for double lane traffic and the other for single lane traffic. The road around the Main Plant area will be of the double lane traffic, while the rest of the Plant area / Switchyard roads will be of the single lane traffic. Roads having double lane will be designed for medium traffic density and those with single lane will be designed for light density traffic. During the construction phase of the plant, road would be built with crushed aggregate base over granular sub base. Two layers of bituminous concrete would be laid on top of base course at the completion stage of the plant. All roads within the plant area will be provided with precast concrete kerbs on both sides and the top will be 100mm above road level. All roads, pavements and parking areas will be provided with cross and longitudinal slope to convey surface run off.

A network of open drains will be provided to carry the surface runoff which would run along the sides of the roads and lead to main storm

water pipe line made with precast R.C. concrete pipe. Final discharge will be done to nearby natural drain.

Size of drains will be designed to cater surface runoff corresponding to maximum intensity of rainfall expected during the life of the project, and slopes will be determined to avoid any silting.

Reinforced concrete culverts or concrete pipe culverts will be provided at rail / road crossings.

All buildings will be provided with plinth protection all around with slope towards side drains beside it. Building side drains will be connected to area drains by either open drains or combination of open drain and underground pipes.

Note : The above are the salient point of requirement during the construction phase. In general all the requisite including manpower and materials required during the construction of the plant are to be arranged by the Contractor at his own cost. The security of the man and equipments including Company's material if any deployed during the construction phase of the plant shall be Contractor's responsibilities. The accommodation of the manpower deployed during the construction phase of the plant shall be arranged by the Contractor at his own cost.

#### **E.0) QUALITY CONTROL**

In order to ensure that the power plant is completed in time and performs at the expected level throughout its operating life, adherence to a high standard of quality will be ensured during all phases of project execution from the initial design stage till commissioning and take over. All necessary features required for trouble free operation and convenience of maintenance would be taken into account at the initial stages itself in the respective Contractor/EPC Contractor's basic engineering, detailed designs and drawings. During the engineering stage, the Contractor/EPC Contractor's design and drawings will be checked by the Owner's Engineer in order to ensure compliance with the specified quality requirements and good engineering practice. The Contractor/EPC Contractor will also be required to submit an overall quality plan covering specified quality requirements, manufacturer's standard quality assurance procedures and statutory requirements. Separate quality plans will be finalised with the respective Contractor/EPC Contractor for both shop manufacturing activities and site activities.

In order to physically ensure that the quality of equipment and systems supplied to the project are as per the approved quality plans, critical items of plant will be inspected by the Owner's Engineer and / or the Project Company both at the manufacturing stage (stage inspection) and at the time of final shop performance tests, where applicable. For other

items, the suppliers will be required to submit shop test certificates, which will be reviewed by the Owner's Engineer to ensure compliance with stipulated technical requirements.

All site works will be subjected to quality surveillance in order to ensure high standard of quality of the complete power plant. The quality control measures proposed to be adopted by the Project Company /Owner's Engineer would include:

- Establishing procedures for quality control including non-destructive testing requirements at site, monitoring and ensuring quality assurance of site works.
- Ensuring adherence to codes governing site work.
- Ensuring that the materials used for site works comply with the required technical specifications and that they have undergone the requisite shop tests and have been found fit for use.
- Overseeing the respective Contractor/EPC Contractor's work in ensuring that the plant is constructed/ erected design alignments and grades are in accordance with the drawings and specifications.
- Approving corrective actions taken by the respective Contractor/EPC Contractor in case any of the works are not in accordance with approved designs and specifications.
- Ensuring modifications, design, construction erection procedures required to be changed due to unforeseen conditions at site, are resolved expeditiously with the respective Contractor/EPC Contractor by sound technical solutions.

#### **INSPECTION AND TESTING FOR Equipment:**

##### **a) Generating set**

All the routine tests as per IS and load tests of the alternator and the control panel shall be witnessed by OIL's Engineer at OEM works. The routine test of the alternator will include the following minimum tests/measurements:

1. Measurement of winding resistances for generator armature, field, exciter armature and exciter field.
2. Measurement of insulation resistance (before and after HV tests) for generator armature and field, exciter armature and field.
3. High voltage (HV) test.
4. Phase sequence test.
5. Voltage regulation test.

6. Vibration measurement.
7. Measurement of noise level.
8. Overload test.
9. Measurement of open circuit and short circuit characteristics.

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

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

The complete unit of alternator along with control panel shall be inspected and tested at manufacturer's works / factory by a team of OIL's Engineers prior to dispatch. Amongst others, all routine tests of the alternator and control panel shall be witnessed during the inspection. Intimation for inspection of complete unit must be sent to OIL at least 30 days in advance.

All routine tests of the alternator and control panel shall be witness during the inspection at respective manufacturer's works. Prior information is to be given to OIL.

Any modification suggested during inspection shall be carried out by supplier at no additional cost. Supplier shall affect dispatch of the unit to OIL, Duliajan only on receipt of OIL's dispatch advice.

Inspection/testing charges, if any, shall be quoted separately which shall be considered for evaluation of the offers. To and fro fares, boarding/ lodging and other en-route expenses of OIL's Inspection team for carrying our inspection shall be borne by OIL.

**b) Other Equipments :**

All tests and inspections will be carried out at OEM works according to the approved quality assurance plan unless otherwise instructed by the company (OIL)

**ERECTION, TESTING AND COMMISSIONING OF THE POWER PLANT:**

11.0 **INTENT OF SPECIFICATION**

**This specification is intended to cover the broad scope and the minimum technical requirement of the system/ equipment.**

12.0 **Scope of services**

**Contractor's scope shall cover furnishing of all labour, supervision, consumable materials, tools & tackle and services necessary for receiving, unloading, unpacking, storing, in-plant transportation, intermediate handling, preassembly/assembly at site as required, complete erection, testing and commissioning of all items included in the entire power plant as specified in this Bid Document along with their associated various ancillary and auxiliary equipments, vessels, pumps, drives, lubrication system, associated tanks, integral system piping, fittings, valve accessories, electrical, instrumentation and control etc.**

**Equipment, Material and Services to be provided by Contractor**

- 12.1.1 **Receiving of materials.**
- 12.1.2 **Unloading of materials from ships, rails, trucks and other means of transport carriages, clearing from port and customs, transportation from port to site.**
- 12.1.3 **In plant transportation/shifting of unloaded materials to storage area.**
- 12.1.4 **Proper stacking and storing of materials under Contractor's custody. Manufacturer's specific recommendation, if any, shall be followed during stacking and storing.**
- 12.1.5 **Checking of all materials with shipment list/consignment note, reporting for missing or damaged items, repairing damages & cleaning before erection.**
- 12.1.6 **Maintaining proper record of the materials and place of storage for quick identification as and when required.**
- 12.1.7 **Issue of materials from stores and maintaining detail account of the same as required.**
- 12.1.8 **In plant transportation/shifting of material from stores to erection site including intermediate handling.**
- 12.1.9 **Final adjustment of foundation levels of chipping and dressing, checking location, elevation etc. of anchor bolts and grouting of anchor bolts and base-plates.**
- 12.1.10 **Watch and ward to ensure security and safety of materials under the contractor's custody.**
- 12.1.11 **Furnishing of residential accommodation to all personnel including erection labourer of the Contractor.**
- 12.1.12 **Daily transport for his erection personnel to and from site.**
- 12.1.13 **Construction of site offices and covered storages as required**

- 12.1.14 **Cleaning up of site during and after erection.**
- 12.1.15 **Pre-assembly at site after proper checking/overhauling, as required.**
- 12.1.16 **Erection and subsequent clearing/flushing as required, pre-commissioning checking to ensure correctness of erection.**
- 12.1.17 **Testing and commissioning services as required.**
- 12.1.18 **The scope of work shall include all activities at site including, equipment foundation, placing of equipment on foundation, levelling & alignment, grouting of foundation, spacers, other miscellaneous minor civil work such as dressing/chipping of foundation surfaces as required, scraping, edge preparation, assembly & pre-assembly, inspection & testing by inspecting authority wherever required, refractories and insulation works, minor rectification, welding, grinding, cutting, site adjustments, ducting work and all other incidental activities.**
- 12.1.19 **The Contractor shall furnish all labour (supervisory, skilled, unskilled and administrative), all consumable materials, including all special electrodes/filters etc., transport vehicles, mobile cranes, hydraulic jacks, riggers etc. as necessary, all erection tools, tackle and equipment, precision levels including micro levels, dial and other gauges, surface plates, straight edges, special tools like vacuum cleaners, blowers, radiography and stress relieving equipment, pumps and other equipment necessary for hydro testing, compressed air testing and all other necessary implements in sufficient numbers as may be required for timely and efficient execution of the contract. The materials supplied shall be of the best quality, the specification and quality of which have to be approved by the Company (OIL)/Company (OIL)'s Engineer.**
- 12.1.20 **All skilled, unskilled labourers and supervisors during system cleaning operation, start-up, testing, commissioning of equipment and system shall be supplied by the Contractor.**

**Supervision During Erection**

- 12.1.21 **The Contractor shall work as per guidance and directives from manufacturers/equipment supplier. The Contractor shall place sufficient number of competent supervisory personnel at the disposal of above erection engineers who shall work in close co-operation and co-ordination with manufacturer's/equipment suppliers' engineers as applicable. No erection work by the Contractor shall be deemed to have been completed by them unless it has been approved by Company (OIL)/Engineer. However, approval shall not relieve the Contractor of his responsibility of correctness and soundness of workmanship and of other obligation under the contract.**

12.1.22 **Notwithstanding that the contractor will work under the guidance of manufacturer's/equipment supplier's erection engineers, the Contractor shall have the overall responsibility in the supervision of Contractor's work. However, no work shall be started unless it is approved by the Engineer and/or waived by the Engineer.**

12.1.23 **The Contractor shall be required to provide, at proper time, the necessary supervisory engineers, supervisors and other supervisory personnel duly qualified and in sufficient number for transportation, erection, pre-commissioning and post commissioning check up, start-up, testing and trial operation of plants and equipment.**

The Contractor shall keep a competent representative who will be Resident Engineer and shall remain as 'In-charge' of contractor's worksite and also remain answerable to the Company (OIL) for all activities of the Contractor at site. Before his placement at site, the Contractor shall submit his bio-data to the Company (OIL) for his approval. After the Company (OIL) has given his approval in writing, the contractor should send the approved person to site without delay. Contractor's representative now designated as Resident Engineer shall receive and comply with the directive from Company (OIL)'s Engineer.

He must not absent himself from site without obtaining permission from Company (OIL)'s engineer or his representative. The Resident Engineer, shall supervise the work of all men of the contractor working at site. He shall work in complete harmony and co-operation with Company (OIL)'s engineers and manufacturer's engineers working at site. All statutory rules and labour laws prevailing in the area must be observed by the Contractor. All safety measures against occurrence of accidents must be taken effectively. Resident Engineer or any of the Contractor's supervisory personnel shall not be withdrawn without written permission of the Company (OIL). If any of the contractor's personnel is found unsuitable for the job, the contractor shall remove him forthwith and a suitable replacement shall be posted to site within a reasonable time. No compensation for withdrawal of unsuitable or unqualified person(s) from site or for posting suitable person(s) to site at any stage of the project shall be allowed by the Company (OIL). So the Contractor shall be selective in posting suitable persons.

#### **Sequence of Erection Work**

12.1.24 **All packing cases and packages shall be opened in presence of the Engineer or his authorised representative. Timber packing**

**cases shall be carefully opened to avoid damage to materials or timber. Nails and packing strips should be pulled out with suitable appliances and kept separately in a container and not thrown away at random. All timber of packing cases shall have to be sorted out and stored properly at a suitable place as directed by the Engineer. From time to time, packing materials, timber, nails and strips shall be delivered back to the Company (OIL) or otherwise disposed of as directed by the Engineer.**

The timber reclaimed from the packing cases or any other material shall not be used by the contractor for rendering facility in the erection work or any other job without prior permission of the Company (OIL). All timber and packing materials shall remain the property of the Company (OIL).

- 12.1.25 Each material after stripping from boxes or received loose, shall be carefully inspected, checked with shipping list and identified with erection drawing if necessary. Any short supply and/or damaged part shall be reported forthwith to the Company (OIL) in writing. The Contractor shall be completely responsible to make all necessary arrangements, application, and follow procedure to process claim on underwriters, obtain replacement repair/rectify and modify as required on all such damaged/defective/lost equipment and material at no extra cost to the Company (OIL) in order to execute the work to the satisfaction of the Company (OIL)/Engineer within the stipulated contract time.**

The parts shall be thoroughly cleaned, all rust removed, surface polished where required. Cleaned and polished surfaces shall be coated with approved anticorrosive medium where found necessary and stored with care ready for erection. Once the materials are inspected, the same shall be stored adequately protected from theft and deterioration or damage by rain, storm, dust, water, tampering by casual visitors or workers. The Contractor shall prepare and maintain stores, ledgers and bin cards for all materials in his custody.

- 12.1.26 Carrying out all repairs to damages that might have occurred during transit and in subsequent storage and modifications & rectification work and replacement of all defective/lost parts, are under the Contractor's scope.**

- 12.1.27 Materials are to be handled either manually or with the help of Contractor's erection equipment and actually erected on foundation base as guided by manufacturer's site representative or as shown in their drawing. All the clearances are to be carefully maintained and the final alignment checks are to be properly recorded. Two such copies including the hand sketches are to be given to the Engineer for his check up**

**and record. All hand machining or portable tool machining jobs as are found necessary for this work are to be carried out by the Contractor. All pre-assembly and sub-assembly work are to be carried out by the Contractor. All bolting and tightening, doweling and/or any other work e.g. welding, gas cutting, testing including non-destructive testing are within the scope of this sequence so that the erection of plant is completed and made ready for start up and initial operation in all respects. Relevant ISI & other National/International Codes are applicable in all these jobs.**

### **Erection**

- 12.1.28 Erection work shall be carried out in the manner and sequence as may be directed by respective equipment manufacturer and the Company (OIL)'s engineer.**
- 12.1.29 As erection proceeds, each assembled part before being boxed up with a view to erecting it finally, shall be inspected and approved by the concerned supervisor. Should any defect be found out during such inspection, the contractor shall make it good as per directives from manufacturer and/or Company (OIL)'s engineer.**
- 12.1.30 Welding, post weld heat treatment & other non-destructive testing will be conducted by the Contractor as required by the code and as instructed by the Engineer. Contractor shall arrange suitable stress relieving equipment with automatic recording device.**
- 12.1.31 All necessary radiography will be included in the scope of work of the Contractor. Contractor shall furnish all instruments, isotopes, films, chemicals etc. for conducting radiography and other non-destructive tests. Necessary operators of all testing equipment shall be provided by the Contractor. Dark-room facilities with air-conditioners for storing and processing radiography film equipment, as necessary, shall have to be arranged by the Contractor.**
- 12.1.32 The equipment shall be placed on respective foundation or support, levelled and aligned with precision measuring instruments, checked for proper clearance between moving & stationary parts wherever applicable and grouted on the foundation. Final levelling and alignment shall be done after curing of grouting.**
- 12.1.33 All fabrication and engineering work incidental to erection, like scaffolding, structural framing for pre-assembly, transport and erection etc. shall have to be done by the Contractor at his own cost. The structural steel required for such work shall be arranged by the Contractor. Also, any fabrication work like cutting, grinding, welding, straightening, reaming, drilling,**

**threading, fitting up etc. which in the opinion of the Engineer are incidental to the erection site shall have to be done by the Contractor. Any defect in the fabrication shall have to be rectified by the Contractor at his cost.**

- 12.1.34 All piping work shall be done as per certified drawings. The items of work to be done in piping erection have been detailed in specification for piping, valves and specialties.**

**Inspection of plant**

- 12.1.35 After completion of erection and/or installations and before start-up, each plant and equipment and all its appurtenances shall be thoroughly cleaned and then, inspected in the presence of Company (OIL)'s engineer for correctness, soundness and completeness of installation and acceptability for start up.**
- 12.1.36 All works to be carried out by the contractor and his sub-contractors, if any, shall be subject to inspection by the Engineer as well as equipment manufacturers/supplier's representative. The work shall be carried out as per applicable specifications, codes of practice, drawings & instructions of Engineer/Equipment manufacture's representatives , where applicable. The Contractor shall provide necessary facilities, instrument, personnel etc., for carrying out the inspection as above and shall comply with the instructions given. Any work carried out by the contractor which does not conform to the specifications/ drawings/instructions of Engineer/equipment manufacturer's representative will be liable for rejection and the Contractor shall rectify/replace such work at his cost.**
- 12.1.37 A check list in triplicate will be furnished by the Contractor in advance wherein all items to be checked and necessary instructions will be listed. This list will be reviewed and approved by the Engineer. Inspection and checking shall strictly follow this final approved check list. On completion of the inspection and checking two (2) copies of the check list will have to be handed over to the Engineer. The check list after checking will have to be jointly signed by the Contractor's supervisor and the Engineer to ensure that all inspection and checking have been properly carried out. However, such endorsement shall not relieve the Contractor from the responsibility in ensuring proper erection and cleaning.**
- 12.1.38 During inspection all clearance, alignment and important measurements and adjustments as may be directed shall be noted by the Contractor for future reference and guidance. Two (2) copies of such notes shall be delivered to the Engineer.**

### Cleaning

- 12.1.39 **The Contractor shall observe strict cleanliness during execution of the work and shall be in possession of vacuum cleaner for cleaning the internals of machinery under installation. They shall check that all the finished surfaces are greased and covered, all pipes and duct ends are covered with plastic or suitable type of cap during storage.**
- 12.1.40 **The inside of all equipment shall be thoroughly cleaned before they are installed.**
- 12.1.41 **Before boxing up, the Contractor shall examine carefully to ensure that no foreign material, such as welding rod ends, welding beds, metal chips, rope, working tools, etc. has been left inside any equipment or piping or duct. After installation of the complete plant, all pressure parts shall be flushed with steam, oil, or air as necessary and ducts will be cleaned manually.**

### Pre-commissioning Testing

- 12.1.42 **After alignment of all equipments, alignment tests shall be carried out by the contractor to check levelling, clearance, eccentricity etc. Measurement will be witnessed and acceptance will be certified by the Engineer.**
- 12.1.43 **Hydro-testing shall be conducted for all pressure parts after installation at required pressure. All necessary blanking arrangement necessary for such hydro-testing shall be furnished by the Contractor.**
- 12.4.44 **After the hydrostatic test, the contractor shall carry out thorough flushing of all lines with water to ensure removal of foreign materials like welding rods, metal chips etc. to the satisfaction of Engineer. After the flushing of the lines, all the water shall be drained and the piping shall be blown with air for drying the cleaned surface.**
- 12.1.45 **Cleaning sequences and the temporary arrangements for the same shall be developed by the Contractor. All the materials like piping, valves etc. shall be provided by the Contractor and also the installation and dismantling of the temporary arrangements shall be carried out by him.**
- 12.1.46 **All instruments necessary for these tests shall be supplied by the Contractor and calibrated before test as per code.**
- 12.1.47 **The Contractor shall make necessary changes & corrections without any extra cost as may be felt by the Company (OIL)/Engineer to meet the guarantee & other technical particulars.**

- 12.1.48 **All electrical actuators and pneumatic/hydraulic actuator shall be erected, aligned, adjusted and finally set to the satisfaction of the Company (OIL). This include adjustment and setting of torque and limit switches.**

**Start Up, Initial Operation**

- 12.1.49 **Following the satisfactory completion of inspection, checking and cleaning of a unit, the plant will be placed in test run. During this period, all adjustments and repairs, as required, shall be made by the Contractor as per the instruction of Company (OIL)/Equipment supplier. The plant may be shutdown, if necessary, to carry out such adjustments and repairs. On completion of satisfactory Start up & Initial operation, the plant will be placed under Reliability Run.**

On completion of erection and pre-commissioning checking and cleaning, each equipment and sub-system will be sequentially placed on trial run along with protective and safety provisions in service.

- 12.1.50 **Prior to Operability Run, checks will be carried out for ascertaining the following:-**

**Proper installation of the drive & equipment on the foundation.**

**Proper alignment of drive and the equipment.**

**Proper connection of piping, valves, instruments and other fittings to the equipment.**

**Freeness of the rotors of drives & equipment.**

**The healthiness of interlocks & protections for the equipment.**

**Any other feature applicable to the equipment.**

**All labours for starting, trial operation, repairs and adjustments shall be supplied by the Contractor.**

**Checking & testing of equipment shall be done as per manufacturer's instruction manuals.**

**All valve/damper drive motors shall be thoroughly checked and tested. These checks shall include:-**

**Insulation resistance.**

**Rotating parts to be turned by hand to see that they are free.**

**Checking, filling and charging of lubricants.**

**After installation of the drive motors in position, all the necessary adjustments for torque switch, limit switch, position indicators shall be carried out.**

**After completion of erection, all checks and trial runs as specified elsewhere in this specification shall be carried out.**

13.0 **SAFETY REGULATIONS**

13.1 ***Safety to Man & Machine is of paramount importance to the company (OIL). Hence utmost care has to be taken for safety while carrying out any job by the LSTK Contractor. A Health, safety & Environment (HSE) Policy is already in place with the Company (OIL) which is followed in all activities of OIL. A copy of Company's HSE policy will be handed over to the LSTK Contract for under-standing and guidance during execution of the Contract. The Contractor shall ensure that all International & local safety regulations are complied with during construction & commissioning activities at site. All necessary preventive measures & adequate first aid facilities shall be provided by the Contractor.***

All safety norms as specified by the relevant regulation should be strictly followed. All equipment to be used in the specified hazardous zones shall be suitable for use in such zones. LSTK contractor shall be solely responsible for obtaining permission /cleared from statutory authority. All applicable approval should be obtained solely by the LSTK contractor in consultation with OIL. NOC from state Pollution control Board shall be obtained by the contractor on behalf of Company (OIL).

- 13.2 ***When going to or from the place of work in the plant, only the prescribed walkways, paths or cross-overs shall be used. Railroad crossing warnings shall be heeded.***
- 13.3 ***Crawling on, over or under movable equipment shall generally be prohibited.***
- 13.4 ***All persons are to stay clear of lifts being made by overhead cranes.***
- 13.5 ***For overhead work, proper signs shall be placed below and, when conditions justify, a watchman shall be stationed to warn employees in the vicinity.***
- 13.6 ***Work on or about crane runways shall not be undertaken without the Engineer's permission. Whenever it is necessary to do any work on or above the crane runways, the Contractor shall furnish a lookout man to ride each adjacent crane cab with the operator and an additional flag man stationed on the floor.***
- 13.7 ***Only scaffolds which meet the requirements of any governing laws shall be used in the project.***
- 13.8 ***All necessary protections shall be taken while working on electrical equipment.***
- 13.9 ***All burning and welding equipment shall conform to, and be used in accordance with, regulations governing such equipment. No burning or welding shall be done at any place***

***on the site until the location where such work is to be done, is approved.***

- 13.10 ***Good housekeeping conditions shall be observed at all times.***
  - 13.11 ***All excavations shall be guarded with guard rails or be securely covered to prevent anyone from falling into them.***
  - 13.12 ***Adequate fire protection shall be available before work proceeds.***
  - 13.13 ***All warning signs shall be observed.***
  - 13.14 ***Use of explosives shall comply with all regulations.***
  - 13.15 ***Proper care shall be taken in the use of compressed air.***
  - 13.16 ***The Contractor shall require his employees to wear hard hats at all times within the construction area and when they are in an area where they are in danger from falling objects.***
  - 13.17 ***Goggles shall be worn whenever there is a possibility of flying particles or splashing corrosive fluid.***
  - 13.18 ***When working around caustic or acid solutions, workmen shall wear gloves, goggles and protective shoes.***
  - 13.19 ***The use of barrels, boxes, stacked tile or any other unstable support for working platforms is prohibited.***
  - 13.20 ***When ladders are the means of access to a platform, they shall be firmly secured at top and bottom and the ladder rails shall extend at least one meter above the top landing. When a ladder cannot be secured, a man shall be stationed at the base.***
  - 13.21 ***The contractor shall provide all the above personal protective equipment (PPE) to his personnel at site & shall ensure that the same are used by them. Otherwise, the Company (OIL)'s engineer shall not allow the contractor's personnel to work at site and the contractor shall be considered to be responsible for stoppage of work due to his people not using PPE. The cost of the P.P.E.s shall be borne by the contractor.***
  - 13.22 ***Safety belts shall be used by men working in high places where no handrails or other guards are in place.***
  - 13.23 ***Trenches shall be shored whenever sand or loose soil is encountered. Piled dirt shall be kept well away from the edges to reduce surcharge.***
- a) All NEAR MISS incidents or accidents shall be dealt promptly as per the procedure given in **ANNEXURE-C, FORM-A** at last part of this section.

13.24 **Proper Treatment of the Injured**

- a) All employees shall be instructed by the Contractor to report immediately for treatment in case of any injury, no matter how trivial.
- b) The Contractor shall ensure that proper treatment of injuries is immediately available either at work site or in the form of constantly available transportation to a source of such treatment.
- c) The Contractor shall ensure that stretchers are available near all areas where men are working and that the location of stretchers is well marked.
- d) The contractor shall do all arrangement towards medical treatment owing to any accident or illness of the employees of the contractor. Expense towards the same shall also be borne by the contractor.

13.25 ***The Contractor shall be solely responsible for the dissemination of all safety regulations including those written here, those promulgated by the Company (OIL) and those dictated by good practice, and shall ensure that all his employees and those of his sub-contractors are conversant with same.***

13.26 ***Safety audits during construction stage shall be conducted by a team comprising of the site Engineer of the contractor, safety officer of the Company (OIL). Any recommendations of the safety audit team have to be implemented immediately by the contractor.***

13.27 ***All lighting circuits (except office lighting) shall be fed from a transformer of appropriate rating having 230 volts AC (ph to ph) as per DGMS guidelines.***

13.28 ***The Contractor shall accept that the Company (OIL) shall not be liable or responsible in any manner for compensation or otherwise for injury to or death of any workman engaged/employed by the Contractor and liability and responsibility shall rest solely with the Contractor.***

14.0 **OPERABILITY RUN & PERFORMANCE TESTS**

14.1 **Operability Run**

**The duration of operability Run of the complete Plant in the automatic position of control system under varying load shall be forty five (45) days .**

**The plant will be put on reliability run for one year when the Company (OIL) is fully satisfied that the offered Plant has been proven with regard to its safety.**

**The total outage during the Reliability Run should not be more than twenty (48) hours with a single outage of maximum duration of six (6) hours.**

**If the above limitation is not met, the entire Reliability Run Test shall be repeated. The test may also be terminated and rescheduled at the insistence of the Company (OIL), if in the Company (OIL)'s opinion, the nature or cause of a shutdown does not warrant continued testing. Similarly, the Company (OIL) may elect to accept a Test of shorter duration if, in the opinion of the Company (OIL), reliability has been adequately proven prior to a shutdown. If the Reliability Run is interrupted by shut down, the cause of which, in the opinion of the Company (OIL)/ Engineer, are not within the scope of the Contractor, the test shall be resumed at the earliest, and the delivery dates and penalties provided for in this Contract shall be adjusted to the components for the delay.**

If the Reliability Run is interrupted by shutdown, the cause of which, in the opinion of the Company (OIL)/Engineer, are within the scope of the Contractor, the Contractor shall be allowed to resume the test under the same conditions and limitations specified above. However, no time extension shall be allowed in the delivery dates and penalties provided for in this Contract.

#### 14.2 **Performance Guarantee and Acceptance Tests**

**After completion of satisfactory Reliability Run, the Contractor shall prepare the units for Performance/Acceptance Tests. The test shall be carried out as soon as possible on a mutually agreed date after successful completion of reliability run within which period no derating of the equipment performance will be permitted.**

**These tests shall be carried out by the Contractor to meet the stipulated requirements in the specification as per the performance test procedure approved by the Company (OIL).**

**In case of delay in carrying out the performance/acceptance test for reasons not attributable to the Company (OIL), the Contractor shall be required to prove the specified performance guarantee without any derating/aging factor.**

**The performance tests will be conducted in accordance with the ASME PTC code or any other international standard offered by the Contractor and accepted by the Company (OIL).**

#### 15.00

##### **CDM project:**

- Assessment of CDM eligibility based on the revised guidelines of UNFCCC.

- Preparation of Project Concept Note (PCN) and Project Design Document (PDD) applying the latest methodology of UNFCCC as applicable for the project activity.
- Approval of Project Concept Note and Project Design Document, and registration with UNFCCC
- Scrutinizing of monitoring data and reports submitted with supporting evidence prior to submission to DOE for verification
- Validation & Certification by Designated Operational Entity (DOE) and Endorsement by Indian Designated National Authority (DNA).
- Transaction of CERs
- Making a presentation of the project with Ministry of Environment and Forest (MOEF)-Govt of India New Delhi & UNFCCC as and when required.
- Any other information / documentation required for successful completion of the CDM project

#### **16.0 Details Scope Of Work During Phase – II of the Contract:**

**Phase II is for Operation and Maintenance of the power plant set up as per phase I above: Operation & Maintenance of the Installed Power House for the next Ten (10) years. The Operation and Maintenance of the Power Plant shall start immediately on commissioning of the Power Plant.**

For the purposes of this Agreement, the following words and terms shall have the meanings specified below (other words and abbreviations that have well known technical or trade meanings are used in this Agreement in accordance with such recognized meanings):

##### **Annual Maintenance Plan:**

Each Annual Maintenance Plan shall show in as much detail, mutually discussed and acceptable to the Owner and the Contractor all relevant information relating to the anticipated maintenance of the Plant, on a month by month basis, during the relevant Maintenance Year including:

- (i) Overall Budget statement;
- (ii) Routine maintenance and / or repair activities;
- (iii) Routine maintenance information, general maintenance data and other Plant data;
- (iv) Information regarding the inventory and proposed procurement of spares, consumable items, chemicals etc., for maintenance of the Plant;
- (v) Monthly and annual spares plan as per maintenance regime for meeting guaranteed performance;

- (vi) Staffing plans indicating the number and specialisation of various Service Engineers and other maintenance crew to be deployed at the Plant;
- (vii) Planned maintenance / repairs of pipe racks, supports, cable trays and their supports and platforms;
- (viii) Training programs, if any;
- (ix) Administrative activities with respect to maintenance of the plant including security ;
- (x) Maintenance strategy and a description of various material sub-contracts proposed to be entered into;
- (xii) A description of any Change in Law affecting the performance of the Plant together with a breakup of any incremental costs associated therewith;
- (xiii) The Contractor's recommendations describing the actions necessary to ensure that the Plant comply with all applicable laws, Directives and Governmental Authorizations;
- (xiv) Such other works and activities as are necessary for the Contractor to comply with its obligations under this Agreement.

**Bankruptcy:**

The occurrence of any of the following events:

- (a) the passing of a resolution by the shareholders of the Owner or the shareholders of the Contractor for the winding up of the Owner or the Contractor, respectively;
- (b) the admission in writing by the Owner or the Contractor to the Competent Authority, respectively, of its inability generally to pay its debts as they become due;
- (c) the appointment of a liquidator by Competent Authority in a winding up proceeding after notice to the Owner or the Contractor, as appropriate, and due hearing; or
- (d) the making by a court of competent jurisdiction of an order winding up the Owner or the Contractor, respectively.

**Change of Law:**

Means the entering in force of any applicable law which has been promulgated after the date of the signature of this Agreement; or any reform, modification or revocation of any applicable law, in force on the

date of signature of this Agreement; or the adoption of a new official interpretation of any applicable law, including rules and regulations, in force on the date of the signature of this Agreement, which has been promulgated after such date. or the reform, modification or revocation of any official interpretation of any applicable law, including rules and regulations, in force on the date of the signature of this Agreement, which has been promulgated after such date; or the issuance of resolutions or other administrative acts by a competent Governmental Authority.

**Competent Authority:**

Authority which has jurisdiction for appointment of liquidator in case of bankruptcy

**Confidential Information:**

As defined in this Agreement.

**Contractor's Invoice:**

A written document, the format of which will be mutually agreed upon, provided by Contractor to Owner for payment of the Maintenance Fee and any Extraordinary Expenses (All extra ordinary expenses have to have the prior approval of the Owner in writing) incurred by Contractor.

**Day:**

The 24-hour period beginning and ending at 06:00 hours 1ST.

**Deemed Availability (refer Exhibit C):** In case the Owner advises the Contractor to shut down fully / partially any of the engine(s)

- (a) due to any reason attributable to the Owner or
- (b) due to a condition of force majeure or
- (c) due to warranty or insurance repairs and

the engine so effected shall be deemed to have run during the affected hours at its Guaranteed Operational Level.

In addition to above, hours of non-operation of the plant due to grid failure effecting evacuation of power from the plant, would be accounted as Deemed Generation.

**Effective Date:** "Effective Date" means the date on which the plant is handed over to the Contractor for the purpose of this agreement.

**Environmental Laws:**

All applicable codes, laws, rules and regulations relating to actual or potential effect of the activities on and at the Plant contemplated by

this Agreement on the environment, the disposal of materials, the discharge of waste water and chemicals, gases or other substances or materials into the environment, or the presence of such materials, chemicals, gases or other substance in or on the Plant

**Extraordinary Expense:**

Any expense or expenditure, incurred by Contractor in the performance of the Work and not covered in a budget that has been approved in advance by Owner, including but not limited to, (i) provision of additional maintenance services requested by Owner not covered by this agreement, (ii) the direct cost of subcontract labor, materials or maintenance services needed to perform the services under (i) above, (iii) expenses incurred under Change of Law (iv) expenses towards technical upgradation as advised by OEMs, and (v) any other item of expense occasioned by an approved directive from Owner.

**Euro:**

The lawful currency of European Union.

**Force Majeure:**

As defined here in.

**Fuel:**

Shall mean natural gas and start up fuel as may be required for the plant.

**Generation:**

Generation means Actual Units Generated + Deemed Generation

**Guaranteed Operational Level:**

Guaranteed operational level shall mean that the power plant shall be available for a minimum period of 8100 hours in a year @ 95% average minimum loading of each of the Gas Gensets at 49 Hz, so as to deliver 131.6817 Million kWh per annum at the switch yard inlet subject to the site conditions.

**Hazardous Substances:**

"Hazardous substance" or "pollutant" or "contaminant" as defined in applicable Environmental Laws, including but not limited to any material designated as a "hazardous substance", "hazardous waste" or "waste" pursuant to the Governmental Rules or the regulations promulgated there under, or any other pollutant or substance which may be the subject of liability for costs of response or remediation.

**Machinery Breakdown (MBD):**

Machinery Breakdown shall mean and include breakdown of Crank Shaft, Engine Block, Connecting rod, Piston, Liner, Cylinder head,

Flywheel, Coupling, Turbochargers, Alternators and Station Transformers, Power Evacuation Transformer(s) and associated equipment thereof, excluding civil works and piping.

**Mobilization Plan:**

A written plan, setting forth, among other things, anticipated staffing requirements and organization chart, purchases training, objectives and required actions by Contractor necessary to assist with plant startup and preparation for various maintenance schedules / repairs, purchases etc.

**Month:**

A calendar Month according to the Gregorian calendar beginning at 06:00 hours IST on the first Day of the Month and ending at 06:00 hours IST on the first Day of the next Month.

**Maintenance Report:**

Report prepared by Contractor on daily and monthly for submission to Owner which shall include:

- (i) Plant and equipment availability status;
- (ii) Extraordinary Expenses incurred in the year-to-date and for the preceding Month;
- (iii) The Contractor's Invoice;
- (iv) An accident/incident report;
- (v) Plant safety status;
- (vi) Plant fire equipment availability and status of compliance with requirements;
- (vii) Plant Environmental Compliance status;
- (viii) A labor status report;
- (ix) Equipment maintenance status including any planned or unplanned stoppages;
- (x) Spare parts, lube oil and consumables inventory levels;
- (xi) Monthly Maintenance Logs (maintained at site and reported on need basis);
- (xii) Monthly reconciliation statements for the maintenance of the plant

- (xiii) Account of fuel, lube oil, spares and consumables quantity receipt and consumption for the purpose of MIS and inventory keeping.
- (xiv) Any other known / foreseen equipment condition which may adversely affect the technical and financial performance of the Plant as requested by the Owner. The report shall include supporting documentation and graphs (vibration analysis / condition monitoring reports etc)

The formats for the reports shall be mutually discussed and agreed by Owner and Contractor within 15 days from the effective date.

**Maintenance Year or Year:**

The period from Effective date of the plant as defined in this agreement till the next 365 days (both days inclusive) or 366 days in case of a leap year and is concurrent with Operations Agreement signed on the even date.

**Maintenance Fee or Contractor's Fee:**

The fee, which Owner shall pay to Contractor for maintaining the Plant as detailed in Article 4 herein.

**Operator:**

Operator shall mean appointed by the contractor, to operate the Plant in terms of the Operations Agreement of even date.

**Owner's claims:**

The claims, which the Owner can make on the Contractor pursuant to this agreement

**Owner's invoice:**

A written document, the format of which will be mutually agreed upon, provided by Owner to Contractor exhibiting its claims on the Contractor, pursuant to this agreement, requesting payment.

**Owner's Representative:**

The individual designated by the Owner, who shall have the responsibility and authority specifically delegated to such individual by Owner and made known in writing to the Contractor.

**Plant Manager:**

Contractor's representative at the site who shall have the requisite level of managerial and maintenance skill to lead a team of skilled / semiskilled personnel in maintenance of the Plant and with authority to direct and perform of the Work by Contractor.

**Prudent Utility Practice:**

means the practices, methods, equipment, specifications, and standards of safety and performance, as the same may change from time to time, as are commonly adopted by a significant portion of the independent power facilities in India similar to the Plant and which, in the exercise of reasonable judgment and in light of the facts known at the time the decision was made, are considered good, safe and prudent practice in connection with the maintenance of such facilities and the applicable Laws and Permits.

**Rupee:**

The lawful currency of India.

**SBI PLR:**

Primer Lending Rate of the State Bank of India for Medium Term Lending as notified from time to time.

**Term of the Agreement:**

The period from the Effective Date through the remaining term of this Agreement.

**Unit of Electrical Energy:**

Kilowatt hour.

**1.1 Rules of Interpretation.**

- (i) Defined terms include the plural as well as the singular.
- (ii) Any reference to an Article or Exhibit shall be deemed to refer to an Article or Exhibit of this Agreement unless otherwise specified.
- (iii) The terms "hereof," "herein," "hereunder" refer to the entire Agreement and not to any particular Article or other subdivision hereof.
- (iv) A reference to any Person or party includes its permitted successors and permitted assigns.
- (v) A reference to any governmental agency or authority shall include any agency or authority succeeding to such agency's or authority's functions and capabilities.
- (vi) The words "include," "includes" and "including" are not limiting.

## **ARTICLE 2: CONTRACTOR'S RESPONSIBILITIES**

### **2.1 General**

Contractor shall carry out all day-to-day as well as periodic scheduled and unscheduled maintenance activities for the Plant as set forth hereunder and ensure that the manpower deployed performs the Work, in all material respects, in a prudent and efficient manner and in accordance with

- (1) Manufacturers' and systems designers' specifications, the Annual Maintenance Plan for the Plant, the Maintenance Manuals and Administrative Procedure Manual.
- (2) Prudent Utility Practices
- (3) Contractor shall use all reasonable and practical efforts (a) to reduce Plant down time, (b) to optimize the useful life of the equipment of the Plant, (c) to comply with all applicable laws and permits as applicable to the Contractor under this agreement for maintenance of the plant and (d) cause its subcontractors to comply with applicable labour laws and permits.
- (4) Schedule and carry out such maintenance as may be authorised by the Plant Manager, in co-ordination with Owner.

### **2.2 Maintenance services:**

Contractor shall, for efficient maintenance of the Plant, inter-alia, provide the following routine, scheduled and unscheduled maintenance services:

- 2.2.1 Establish a system for recording an inventory of spare parts, tools and tackles, equipments, consumables and supplies for the Plant maintenance.
- 2.2.2 Prepare and submit to Owner the Annual Maintenance Plan for next year at least 60 (sixty) days before the end of each year.
- 2.2.3 Prepare and record at the Plant accurate and up-to-date maintenance logs, records and Monthly reports regarding the maintenance of the Plant, which Monthly reports shall detail repairs performed and status of equipments. All such records are to be kept for a minimum of sixty (60) months after the creation of such record or data and for any additional length of time required by regulatory agencies having jurisdiction over the Parties. Upon the expiration of such period, neither Party shall dispose of or destroy any such records without thirty (30) Days prior notice to the other Party. The Party receiving such notice may receive such records in lieu of such disposal or destruction by giving the

notifying Party notice ten (10) Days prior to the expiration of the thirty (30) Day period.

- 2.2.4 Recommend Plant modifications, capital repairs, replacements and improvements under change of law or otherwise and, at Owner's written direction, implement the same as an Extraordinary Expense, if not covered otherwise.
- 2.2.5 Perform periodic overhauls or maintenance required for the Plant in accordance with the recommendations of the manufacturers.
- 2.2.6 Regularly update and implement an equipment repair and preventive maintenance program that meets the specifications of the equipment manufacturers and the recommendations of the equipment suppliers.
- 2.2.7 Collect all Hazardous substance, contamination, discharge and wastes as per the requirements under the Environment Laws and place the Hazardous substance, contamination, discharge and waste at the earmarked place inside the Plant as per prudent utility practice.
- 2.2.8 Perform duties as per Article 8.2.
- 2.2.9 Assist the Owner to procure all requisite spare parts.
- 2.2.10 Cause to handover the used parts / spares to the Owner. The owner will have ownership on such parts.
- 2.2.11 Mobilise requisite skilled / unskilled manpower for routine, scheduled and unscheduled maintenance, if any.
- 2.2.12 Employ and train personnel who will be qualified and experienced for maintenance of the Plant.
- 2.2.13 Meet expenses and comply with all requirements under the Labour Laws, statues with regard to its employees.
- 2.2.14 Appoint Power Plant Manager with requisite qualification and expertise as per the terms of this agreement.
- 2.2.15 Provide necessary administrative support for maintenance of the plant.
- 2.2.16 Develop and maintain training programs to train qualified persons for positions, if any, requiring special labor skills for maintaining the Plant.
- 2.2.17 Take such other actions as are necessary to enable Contractor to timely perform its obligations.

- 2.2.18 Carry out such other activity as be necessary or advisable to efficiently maintain the Plant.
- 2.2.19 Liaison with Government / Municipal Authorities for Contractor's scope of services under this Agreement
- 2.2.20 Provide technical engineering support for solving maintenance problems.
- 2221 Cooperate in the provision of information to authorized representatives of Owner.
- 2.2.22 Prepare and submit daily / monthly Maintenance Report as per terms of this Agreement.
- 2.2.23 Maintain and Repair Mechanical, Electrical installation of the Plant and Structural repairs, including painting. Painting would mean minor painting of steel structures and painting of top portion of stack and its supporting structure to the extent required by present regulation of naval air base in the vicinity of the plant.
- 2.2.24 Coordinate and manage procurement of spares from respective spare parts suppliers from Indian as well as foreign origin and arrange on behalf of the owner, clearances (including customs clearances), all payment towards applicable duties and taxes, transportation, transit insurance, reimbursable by owner at actual, for such spare parts.
- 2.2.25 Ensure timely delivery/ receipt of spares of required specification and quantity from domestic and imported origin.. Arrange unloading of spare parts within plant premises.
- 2.2.26 Coordinate with the fuel supplier for Fuel Supply for timely delivery and receive at site fuel of required specification and quantity. Cost of fuel shall be to Owner's account.
- 2.2.27 Raise indent for lube oil requirement with sufficient advance notice to the Owner, coordinate with lube oil supplier, based on the purchase order released by the Owner for Lube Oil Supply, for timely delivery and receive at site the lube oil of required specification and quantity. Cost of lube oil shall be to Owner's account. Arrange unloading of lube oil within plant premises.
- 2.2.28 Receipt, storage, issue and accounts at General Stores. Issue receipt, provide storage, record re-conciliation with budget and provide adequate security.

- 2.2.29 Account of fuel, lube oil quantity and spares receipt for the purpose of MIS. This shall also include reconciliation of receipt & consumption of fuel, Lube oil and spares and other consumables.
- 2.2.30 Inform the owner, at least 60 days prior to expiry of any license, permits approval to maintain the Plant, copies of which have been provided to the Contractor.
- 2.2.31 Arrange to procure, store and provide chemicals & consumables as required for maintenance of the plant. Cost of the same is included in Maintenance Fee.
- 2.2.32 Arrange to provide / bring required tooling for maintenance. Cost of the same is included in Maintenance Fee.
- 2.2.33 Meet necessary office and allied expenses of the Contractor. Cost of the same is included in Maintenance Fee.
- 2.2.34 Arrange gardening including the maintenance of green belt.
- 2.2.35 Provide security for the Plant.
- 2.2.36 Provide housekeeping of the Plant.
- 2.2.37 Provide training to employees of Owner at plant site during the last 90 days prior to the expiry or prior termination of this agreement in day-today maintenance of the Plant, subject to the cap of 5 employees.
- 2.2.38 Use the resources, procedures regarding know how, software in maintenance of the Plant (wherever required), soft and management skills for efficient maintenance of the plant and benchmarking of best practices with other similar installations in India and abroad.
- 2.2.39 Maintain the office furniture, fixtures & office equipments as per prudent utility practice.
- 2.2.40 Maintain the switchyard as per prudent utility practice.
- 2.2.41 Provide minor repairs to the Plant civil works.
- 2.2.42 Provide and maintain insurance in accordance with Articles 10.
- 2.2.43 Assist in conducting Performance Guarantee tests as may be required for the plant every quarter of the maintenance Year as well as on expiry / termination of this agreement to establish the guaranteed Plant output level at switchyard input, Gross Heat Rate, and Specific Lube Oil Consumption.

2.2.44 Act upon the requests by the owner, from time to time, with respect to the plant maintenance, as the situation warrants.

2.2.45 Adhere to any instructions by Owner, if any, to comply with applicable laws, rules and regulations, as may be required for maintenance of the plant.

2.2.46 Carry out functions more specifically:

For any additional scope of work (such work shall be based on mutually agreed terms and conditions, and such terms & conditions shall be decided prior to actual execution of work) other than mentioned above which is added to Contractor's responsibility, Owner shall compensate Contractor with additional fee for such additional scope, as may be mutually agreed upon.

2.3 The Contractor shall settle claims made by Owner as per provisions of this agreement.

2.4 The Contractor shall indemnify the Owner.

2.5 Amongst / Apart from other exclusions as outlined in various parts of this Agreement, following are excluded from Contractor's scope:

(a) Supply of natural gas and start up fuel for the plant.

(b) Procurement / supply of fuel, lube oil, spares, raw water and drinking water.

(c) Reimbursement of expenses towards Fuel/ Lube / Water analysis / stack emission analysis / noise level measurement.

(d) Liaising with Governmental/Municipal authorities for Owner's responsibilities under this Agreement.

### **ARTICLE 3: OWNER'S RESPONSIBILITIES**

#### **3.1 Owner's Responsibilities:**

Owner shall be responsible for the following activities, each to be at Owner's expense unless otherwise expressly provided herein.

3.1.1 Make payments to Contractor in accordance with Article 4 of this Agreement.

3.1.2 Make payments to the Contractor towards the Extraordinary Expenses incurred and invoiced by the Contractor and as already agreed by the Owner as defined in Article 1.

- 3.1.3 Hand over the Plant to the Contractor for maintenance by the Contractor and continue to ensure access to the Plant without any hindrance for the period of this Agreement.
- 3.1.4 Provide Contractor with policy directives from time to time;
- 3.1.5 Provide drawings, specifications, diagrams and other information, as available, regarding the Plant that are required for the maintenance of the Plant including those furnished to Owner under Contracts by the Supply Contractor (s) who have supplied equipments for the plant.
- 3.1.6 Be responsible, obtain and maintain in effect all government licenses, permits and approvals under statutory regulations necessary to maintain the Plant other than those permits required to be held by Contractor to permit it to perform its obligations and comply with all such statutory compliance as may be required for Contractor to carry out the maintenance of the above Plant.
- 3.1.7 Dispose off all Hazardous Substance, contamination, discharge and waste generated by the Plant in accordance with applicable regulations and law from the earmarked location / place, where the Contractor has placed such material;
- 3.1.8 Indemnify the Contractor as per Article 7.
- 3.1.9 Pay all taxes related to the Plant, such as sales tax, service tax, works contract tax import and customs duties, if any, except for any taxes imposed on Contractor's net income and payroll taxes imposed on Contractor's personnel.
- 3.1.10 Provide internal communications lines and other existing support facilities to the Contractor; if and as available;
- 3.1.11 Designate Owner's Representative.
- 3.1.12 Review in a timely fashion and not unreasonably withhold its approval of all items submitted by Contractor to Owner for its approval.
- 3.1.13 Provide and maintain insurance in accordance with Article 10 hereof.

## **EXHIBIT A - SCOPE OF WORK**

### **DIVISION 1**

#### **MOBILIZATION ACTIVITIES**

Contractor shall perform the tasks set forth in this Division 1 (the "Mobilisation Activities") prior to the effective date, or as otherwise required herein:

1. **Manuals.**

(a) **Maintenance Manual:** Within fifteen (15) days of Owner providing Contractor with drawings, design documents and required information, Contractor shall develop and submit for review by Owner an Contractor's standard maintenance manual setting forth written maintenance procedures for the Plant (the "Maintenance Manual")

(b) **Administrative Procedures Manual.** Within fifteen (15) days of Owner providing Contractor with drawings, design documents and required information, Contractor shall develop and submit for review by Owner an Contractor's standard Administrative Procedures Manual (the "Administrative Procedures Manual") providing such information as: (i) organization with respect to the plant and reporting procedures, (ii) correspondence and review procedures between the Owner and the Contractor, (iii) limits of authority, (iv) accounting, bookkeeping, and record keeping systems and practices with respect to inventories in the plant, (v) procedures for the issuance, implementation, and collection of Owner-issued directives relating to this Agreement and the Services, and (vi) procedures for maintaining a document control system.

2. **Organization and Recruiting:** Contractor shall develop organizational structures and prepare recruiting requirements for maintenance personnel, which are to be applied by Contractor during the Term of this agreement. Contractor shall implement the testing and selection of candidates and provide for the training of newly recruited personnel, so as to assure timely completion of the required training before the Effective Date.

3. **Designation of Power Plant Manager:** Contractor shall designate a Power Plant Manager in accordance with the terms of this Agreement.

4. **Spare Parts:** Within fifteen (15) days of Effective Date, Contractor shall deliver to Owner a spare parts list, required for the plant.

5. **First Year Maintenance Plan:** Within fifteen (15) days from the Effective Date, Contractor shall prepare and submit for Owner's approval an Annual Maintenance Plan for the first Maintenance Year. The first Annual Maintenance Plan shall be prepared in accordance with the terms and provisions of this Agreement and shall set forth the anticipated maintenance, repairs, capital improvements, routine maintenance, procurement, staffing, personnel and labor activities, administrative activities, scheduled outages and all other work proposed to be undertaken by Contractor during the first Maintenance Year.

6. **Power Generation Report:** Within fifteen (15) days from the Effective Date, Contractor shall develop and submit to Owner for its approval a power generation report form to be used in Contractor's daily *I* monthly *I* annual reporting to Owner. Owner shall promptly review Contractor's proposed form and may request in writing additions, modifications and deletions. The parties will then meet and agree upon a final power generation report form to be used by Contractor in its reporting procedures.
7. **Tools:** Within fifteen (15) days from the Effective Date, the Contractor shall bring any required tools, if necessary for maintenance of plant.
8. **Personnel Mobilization:** Personnel required for hiring, training, start-up and hand-over of the Plant shall be present at the Site at least ten (10) days prior to the Effective Date.
9. **Standard Maintenance Procedures and MIS:** Contractor shall establish Standard Maintenance Procedure within thirty (30) days from the Effective Date. Contractor shall establish management information system (MIS) that provides equipment history, inventory control of spare parts and consumables and routine maintenance aspects within thirty (30) days from the Effective Date.
10. **Performance Guarantee tests:** The Contractor will witness, assist and certify the Performance Guarantee Tests being conducted on the plant pursuant to the "Contracts" with suppliers of equipment.

## **DIVISION 2**

### **POST START-UP SERVICES**

Contractor shall perform the tasks set forth in this Division 2 throughout that portion of the Term of this agreement occurring after the Effective Date unless otherwise stated herein or in the Agreement:

#### 1. **Personnel:**

(a) **Personnel:** Contractor shall provide and make available as necessary, in accordance with the applicable Annual Maintenance Plan, all such personnel and supervisors necessary and sufficient to perform the Services in accordance with the standards of performance set forth in this Agreement. Contractor's Maintenance personnel shall be properly trained and qualified in Maintenance of gas engine facilities generally, and that all Contractor personnel shall be competent in the duties to which they are assigned hereunder.

(b) **Labor Laws:** Contractor shall comply with all applicable labor and employment Laws and shall exercise control over labor relations in a

reasonable manner consistent with the intent and purpose of this Agreement.

(c) **Collective Bargaining Agreements.** Contractor shall retain sole authority, control, and responsibility with respect to labor matters in connection with the performance of the Services. Notwithstanding the foregoing, Contractor acknowledges and agrees that it does not have the authority to, and shall not, enter into any contracts or collective bargaining agreements with respect to labor matters which purport to bind or otherwise obligate Owner or any successor of Owner.

2. **Plant Maintenance:** Contractor shall be responsible for the overall maintenance of the Plant in accordance with the standards of performance set forth in this Agreement. Contractor's responsibilities shall include, but not be limited to the following:

(a) **Hours of Operation:** Contractor shall maintain and staff the Plant, twenty-four (24) hours a day, seven (7) days a week, in accordance with the Maintenance Manual, Administrative Procedures Manual and the Agreement.

(b) **Interface with Supply Contractors:** Contractor acknowledges that for a period of time after the Effective Date, Supply Contractor's personnel may be present at the Plant to perform punch-list or warranty work or to continue to work to achieve Supply Contractors' performance guarantees. Contractor agrees to cooperate with Supply Contractors and to allow the Supply Contractors to schedule such work to the extent it does not interfere with Contractor's performance of the Services hereunder.

(c) **Troubleshooting:** Contractor shall identify and troubleshoot all problems attendant to Plant equipment and ancillary systems and shall promptly take appropriate corrective action as is reasonably necessary.

(d) **Technical Information:** Contractor shall promptly provide all pertinent technical information and documentation on Plant equipment and ancillary systems to Owner as requested.

(e) **Implement standard Maintenance procedures and MIS:** Contractor shall implement standard maintenance procedure and MIS as per the requirements.

(f) **Safety:** Contractor shall perform the Services hereunder and conduct its maintenance at the Plant in compliance with all applicable Laws governing safety, and in compliance with a safety program to be submitted by Contractor for review by Owner within thirty (30) days after the Effective Date. Contractor shall designate an individual to implement its safety program.

(g) Tools: Contractor will bring tools required for maintenance of the plant as and when required during the term of this agreement.

(h) Warranty and insurance Claims:

(i) Contractor shall promptly notify Owner, in writing, of any defect or other deficiencies in the Plant discovered by Contractor and, if requested by Owner, Contractor shall assist Owner in connection with asserting and prosecuting warranty claims against suppliers or vendors of parts, equipment, materials and services for the Plant. In addition, Contractor shall assist Owner in connection with any related claims against insurance companies for liabilities, or losses incurred in connection with the Plant or maintenance including, but not limited to, any warranty claims against Supply Contractor or any of its subcontractors, suppliers or vendors.

(ii) Contractor shall promptly notify Owner, in writing, if Contractor becomes aware of any conditions at the Plant which might reasonably be the basis for a claim or warranty enforcement action by Owner. In the event Contractor determines that any repair required to be made to any equipment or other materials at the Plant may be subject to a warranty claim against a vendor or supplier of such equipment or materials, Contractor shall notify Owner in writing thereof and shall make necessary repairs or otherwise proceed in accordance with Owner's instructions (or, in cases of an Emergency where Owner is not reasonably available to provide instructions, in accordance with Prudent Utility Practices).

(iii) Any costs incurred by Contractor in connection with any (i) warranty work (ii) works/repairs covered by insurance, shall be reimbursed to the Contractor.

### 3. **Record Keeping and Reporting**

(e) Records and Logs. Contractor shall maintain and retain at the Plant all Plant Maintenance records, logs, maintenance reports and metering data. Such records shall include, but not be limited to, daily Contractor's logs, a record of all maintenance and repairs performed, emissions and compliance reports, equipment and instrument calibration records, Fuel/lube / spares consumption records, and electricity production, consumption and "delivery records, as desired under prudent utility practice. Contractor shall also cooperate with Owner's accountants and auditors in the preparation of Owner's annual audited financial statements and the income tax returns of Owner and its shareholders.

(f) Annual Maintenance Plan. Contractor shall prepare and submit to Owner an Annual Maintenance Plan as set forth in this Agreement.

(g) Daily /Monthly /Annual Reports. Contractor shall prepare and submit to Owner a daily / monthly / annual report in accordance with the terms of this Agreement.

4. Maintenance of the plant within the norms stipulated under environmental and pollution control guidelines, from time to time.

5. Other works and services as mentioned in this agreement.

### **EXHIBITE**

#### **PLANT DEFINITION**

The Plant consists of the following, including:

- Equipments, tools, apparatus, machines, supplied under the "Contract", at Site and within the premise of Boundary wall and the approach road from NH49 to boundary walls.
- Complete Civil, architectural, structural, superstructures, roads, boundary wall with gates, company name board and buildings construction and the green belt developed.
- GEG sets and all allied auxiliary systems of the plant including but not limited to combustion exhaust system, Generator Control system, Fuel system , Radiator cooling system, Raw Water I Cooling supply system, Water treatment plant, Compressed Air system, Lubricating Oil system, Service and Portable Water system, Water treatment - RO plant, Effluent system, Fire protection system, Power House Ventilation system, Ventilation system in other buildings, Air conditioning systems, Lube oil storage and handling system, Chimneys with silencers and other mechanical systems within plant boundary walls.
- Complete Controls and Instrumentation and Electrical system including but not limited to Medium Voltage System (11 KV), Low Voltage system (415V), High Voltage System (11 OKV), Balance of Plant Control system, Switchyard and Interconnection (110 KV) to TNEB line, Miscellaneous Electrical, LV and MV Switchgear, Generator Transformer, auxiliary transformer, Battery, Battery charger, all equipments located within switchyard, cable and cable trenches, GEG control system in control room and other electrical systems within plant boundary walls.

#### **PERSONNEL TO BE DEPLOYED DURING PHASE II OF THE CONTRACT:**

i) The Contractor will have to deploy adequate manpower to carry out the required operations. The deployment pattern will be as per the contractor's discretion for all the required services except for the for the

Operation and Maintenance of the Power house during which the deployment pattern has to be as per the following norm with the indicated key personnel :

Minimum Numbers of Key Personnel Number on location per shift  
Working Hours

1. Plant Manager : 1 : On call 24 Hrs
  2. Mechanical Engr.: 3 Numbers: 1 number for maintenance crew  
:On call 24 Hrs  
: 2 Numbers for Operation crew  
on shift basis
  3. Electrical Engr.: 3 Numbers : 1 number for maintenance crew  
:On call 24 Hrs  
: 2 Numbers for Operation crew  
on shift basis
  4. Electrician : 3 Numbers :1 number for maintenance crew  
On call 24 Hrs  
:2 Numbers for Operation crew  
on shift basis.
  5. Mechanic : 3 Numbers : 1 number for maintenance crew On  
call 24 Hrs  
: 2 Numbers for Operation crew on  
shift basis.
  6. Electrical safety officer: 1 number for ensuring observance  
of safety measures specified as  
per CEA Regulations, 2010, on  
call, 24 Hrs.
- i) The Plant Manager has to be present at site all the times and should report to Designated OIL's office as and when asked for to receive instruction /resolving any issue on contractual obligation.
  - ii) The Plant shall be in operation 24 hrs a day all throughout the Contract Period. The personnel should be deployed in shift basis. The maximum hours a personnel can be deployed for works shall be 8 hours to maximum of 12 hours in a day only. The Contractor should plan their deployment pattern accordingly.

The deployment pattern of the manpower for operation and maintenance section of the plant should be separate. The deployment pattern in a day in the plant should consist of minimum of two crews for operation of the plant (Operation Crew)

in shift basis and minimum one crew for maintenance of the plant (Maintenance Crew) in general shift basis. The duration of a shift should be for a maximum of 12 hours in a day.

(iii) Minimum number of key personnel in an Operation crew shall consist of the following:

- One number Electrical Engineer.
- One Number Mechanical Engineer.
- One number Electrician.
- One number Mechanic.

Minimum number of key personnel in a Maintenance crew shall consist of the following :

- One number Electrical Engineer.
- One Number Mechanical Engineer.
- One number Electrician.
- One number Mechanic.
- One number Electrical Safety Officer.

The above is the minimum number of key personnel only in an Operation crew and a Maintenance Crew. The Contractor shall deploy additional skilled/semi skilled/unskilled personnel in addition to the above to carry out other works.

In addition to the above crews, the Contractor should plan and deploy additional crews for top overhauling/major overhauling works/breakdown jobs etc. as and when required

iii) KEY PERSONNEL: The qualification and experience of the key personnel are to be as under:

a. **Plant Manager:**

Should be of sound health and have at least 10 years work experience in Operation and maintenance of a Power Generation Plant. Out of these 10 years, at least 5 years should be in management level.

Should be conversant with all aspects of Operation and Maintenance of a Engine Driven Power Generation Plant and should be capable to take independent decisions in case of emergencies. Plant Manager shall be responsible for operation and maintenance of the Power Plant.

Qualification: Must be Engineering Graduate either in a Mechanical or Electrical Engineering Discipline.

- b. **MECHANICAL ENGINEER:** Should have a degree in Mechanical Engineering or Diploma in Mechanical Engineer with minimum 3 years/ 8 years experience respectively in an Engine Driven Power Generation Plant.
- c. **MECHANIC**  
Should have sufficient knowledge of operation and maintenance of a Engine Driven Power Generation Plant and its components viz. engines, and all other mechanical items/engines operating in an engine Driven Power generation Plant.

Qualification: ITI or equivalent with 3 years experience as Mechanic in an Engine Driven Power Generation Plant.

- d. **ELECTRICAL ENGINEER:** Should have Degree in Electrical Engineering with minimum 3 years experience in an Engine Driven Power Generation Plant . He should be confident in independently carrying out the fault finding analysis, rectification of fault, operation and maintenance of all the electrical items of an Engine Driven Power Generation Plant including the air conditioners. He must possess valid Electrical Supervisor's Certificate of Competency issued by State Licensing Board and should be conversant with Central Electricity Authority Regulation'2010.
- e. **ELECTRICIAN:** Must be diploma / ITI in Electrical discipline with minimum 5 yrs. / 8 yrs. Experience respectively in the operation and maintenance of an Engine Driven Power Generation Plant. He should be able to read circuit drawing, communicate, detect and rectify faults. He must possess valid electrical workman permit issued by State Licensing Board. Having Electrical Supervisor's Certificate of competency will be an added qualification.
- f. **Electrical safety officer:** Shall be an Electrical engineering degree/diploma holder with at least ten/fifteen years (respectively) of experience in Operation & Maintenance of electricity generating plants. He must possess valid Electrical Supervisor's Certificate of Competency issued by State Licensing Board and should be conversant with Central Electricity Authority Regulation'2010.

**Note:**

- a) An undertaking from all the personnel as per Proforma "Undertaking from the Personnel" should be forwarded after deployment of manpower prior to mobilization.

- b) The personnel deployed by the contractor should comply with all the safety norms applicable during operation.
- c) **Medical Fitness :**
  - i) The Contractor shall ensure that all of the Contractor Personnel shall have had a full medical examination prior to commencement of the operation of the Power House.
  - ii) A qualified and registered doctor shall conduct all such medical examinations in accordance with accepted medical standards.
- d) **Training Courses :**
  - i) The Contractor shall ensure that all of the Contractor Personnel performing services hereunder shall have attended all statutory safety and operational training courses required by applicable law and as is generally consistent with international industry practice and/or as otherwise required by the Company.
  - ii) The Contractor shall, if requested, forthwith produce valid and current certificates of completion or attendance for the Company's inspection.
- e) Personnel should be well versed and trained in fire fighting, first aid administration, gas testing etc.  
(In case, the above training course for contractor's personnel is to be arranged by OIL, the contractor will be charged accordingly).
- f) Plant Manager will operate normally from the Power House Complex only.
- g) The entire skilled / semi skilled workman involved in carrying out electrical jobs should have valid electrical workman permit issued by state licensing board.
- h) Contractor shall furnish bio-data of key personnel along with all supporting documents, certificates etc. for Company's approval prior to deployment of Manpower for operation and maintenance of the Power house. The Bio-data should be as per Profoma "BIO-DATA OF PERSONNEL"
- i) The key personnel indicated above is the minimum number of required personnel only. Employment of personnel other than key persons shall be at the discretion of the contractor in line with normal Operation and Maintenance practices of an Engine Driven Power Generation Plant. Contractor shall forward a complete list of all the persons with their job

descriptions that they shall deploy to run all operations and maintenance of the Power house successfully.

- j) On/off duty details of personnel should be submitted to the Company on quarterly basis.
- k) The age of key personnel except Plant Manager should not be more than 50(fifty) years. However, OIL deserves the right to accept the personnel of above 50 years with good health conditions.
- l) The contractor shall be responsible for arranging relief of personnel during vacation, statutory off days, sickness, leave etc. entirely at their cost. However, the relief personnel also must have the qualification and experience as indicated above. Moreover, the contractor will have to obtain prior approval from Company for the relief personnel of the contractor.
- m) Company reserves the right to instruct for removal of any Contractor's personnel who in the opinion of company is technically not competent or not rendering the services faithfully, or due to other reasons. The replacement of such personnel will also be fully at cost of the Contractor and the Contractor shall have to replace within Ten (10) days of such instruction.
- n) During currency of the Contract, if the Contractor replaces his personnel prior approval is to be taken from the Company. The deployed personnel should have the qualification and experience as indicated above.
- o) All charges for personnel are included in schedule of rates. No. separate charges shall be payable for the personnel deployed.
- p) Contractor should employ adequate number of authorised supervisors as per rule 110 of Indian Electricity rules, 1956 having relevant experience of minimum 5 years and possess appropriate license(s).

J. **SECURITY SERVICES:** Security and safety of Contractors employees and Company's property under this Contract shall be the responsibility of the Contractor. Contractor shall deploy adequate security personnel to safe guard the Power House Complex. Company may instruct deployment pattern of the Security Guards time to time in accordance with advise/direction from different statutory bodies/ govt agencies or organizations/Company's policy time to time, which Contractor should

follow. In addition to the above, Company may also advise the Contractor for following norms for safety and security aspects, which the Contractor should follow.

k. **CONTRACTOR'S PERSONNEL**

- 1 Except as otherwise hereinafter provided, the selection, replacement, and remuneration of contractor's personnel shall be determined by the Contractor. Such employees shall be employees solely of Contractor. Contractor shall ensure that its personnel will be competent and efficient. However, the contractor shall provide details of experience, qualification and other relevant data of the personnel to be deployed for scrutiny and clearance by the company before the actual deployment. The contractor shall not deploy its personnel unless cleared by the company.
- 2 The Contractor shall have a base office at Duliajan to be manned by competent personnel, who shall act for the Contractor in all matters relating to Contractor's obligations under the contract.
- 3 Contractor's Personnel: Contractor shall provide all manpower for necessary supervision and execution of all work under this contract to company's satisfaction except where otherwise stated. The minimum number of key personnel to be deployed is mentioned in this document.
- 4 Replacement of Contractor's Personnel: Contractor will immediately remove and replace any Contractor's personnel, who in the opinion of company, is incompetent, or negligent or of unacceptable behavior or whose employment is otherwise considered by company to be undesirable.
- 5 In case Contractor replaces their manpower deployed under this Contract, prior approval for replacement is to be taken from the Company for their deployment. The experience and qualification of the key personnel shall be as per the clauses of this Contract.
7. Contractor shall deploy on regular basis, all category of their employee required for economic and efficient operations and maintenance of the Power House in all aspects.

L. **FOOD, ACCOMMODATION, TRANSPORTATION AND MEDICAL FACILITY OF THE CONTRACTOR'S PERSONNEL/EMPLOYEES:**

- 1 Food and Accommodation of the Contractors personnel shall be arranged by the Contractor at their own cost.
- 2 Transportation of Contractor's personnel will be arranged by the Contractor at their own cost.
- 3 Medical Facilities: The Contractor shall arrange for medical facilities for their employees/personnel at Contractor's cost.

**Note :**

**i) The power plant shall be upgraded to 10 MW in future. All the equipment / civil works / electrical works etc required for up gradation of the power plant shall have to be executed by the contractors at the same rate, terms & conditions of the contract. The additional cost to be borne by the company (OIL).**

**ii) O & M of the power plant after up gradation to 10 MW the contractor shall have to operate and maintain the plant without any additional financial implication to the company (OIL).**

**4.0 DOCUMENTARY EVIDENCES TO BE SUBMITTED BY THE BIDDERS IN SUPPORT OF THEIR BIDS:**

The following documents are to be submitted by the bidders in support of their bids:

**i) In support of the satisfactory service record of the offered model of the generating sets in power generation application in Central/State PSUs or Govt organisation or Public/Private Limited and having logged minimum 3000 hours ( cumulative) or six months of operation from its date of commissioning prior to the bid closing date of the tender : Relevant documentary evidence from the end user in support of the conditions mentioned should be enclosed with the bid failing which the bid shall be summarily rejected.**

**ii) In support of the average Annual financial turnover of minimum Rs. 23.42 Crores or USD 3.86 Million during the last 3(three) years ending 31.03.13(for Accounting Year April-March) and 31.12.12(for calendar Year Accounting year), documentary evidence in the form of Audited Balance Sheet and Profit & Loss Account for the last three years ending 31.03.13 or 31.12.12 as applicable should be submitted along with the technical bid.**

**(ii.a) In case the Audited Balance Sheet and Profit Loss Account are in currencies other than INR or USD, the bidder shall have to convert the figures in equivalent INR or USD considering the prevailing conversion**

**rate on the date on which the Audited Balance sheet and Profit and Loss Account is signed.**

Note: Relevant documentary evidence from the end user in support of the above should be enclosed with the bid failing which the bid shall be summarily rejected.

***END OF SECTION-II***  
**&&&&**

## SECTION - III

### SPECIAL CONDITIONS OF CONTRACT

1.0 **DEFINITIONS:**

1.1 In this CONTRACT the following words and expressions shall have the meanings hereby assigned to them, except where the context otherwise requires.

1.2 “**THE COMPANY/OWNER/OIL**” means Oil India Limited, a Government of India Undertaking having its registered office at Duliajan, Assam.

1.3 The “**ENGINEER/ENGINEER-IN-CHARGE (EIC)**” means the person designated from time to time for supervision and liaison with the CONTRACTOR by OIL and includes those who are expressly authorised to perform on his behalf for operation of this CONTRACT.

1.4 “**CONTRACTOR**” means \_\_\_\_\_.

1.5 The “**WORK**” mean and include all items to be supplied, things to be done and services to be provided and activities to be performed by the CONTRACTOR, pursuant to and in accordance with the CONTRACT, or part thereof, as the case may be, and shall include all extra, additional, altered or substituted items/things/activities/services as required for purpose of the CONTRACT.

1.6 The “**PERMANENT WORK**” means works, which will be incorporated in, and form a part of the WORK to be handed over to the OWNER by the CONTRACTOR on successful completion of the CONTRACT.

1.7 “**TEMPORARY WORKS**” means all works of temporary nature required in or execution, completion or maintenance of WORKS.

1.8 “**CONSTRUCTION EQUIPMENT**” means all appliances/equipment and things that are used in for the execution, operation and maintenance of the WORK or TEMPORARY WORKS.

- 1.9 **“CONTRACT DOCUMENTS”** means collectively the Tender Document with Designs, Drawings, Specification, Condition, Schedule of Quantities and Rates, Letter of Acceptance and agreed variations if any, and such other documents constituting the tender and acceptance thereof.
- 1.10 The **“SPECIFICATION”** means all directions, the various technical specifications, provisions attached and referred to in the Tender Document, which pertain to the method and manner of performing the works, to the quantities and qualities of the works and the materials to be supplied under the CONTRACT for the WORKS, as may be amplified or modified by the OIL during the performance of CONTRACT in order to provide the unforeseen conditions or in the best interests of the WORKS. It shall also include the latest edition of relevant Standard Specifications including all addenda/corrigenda published before entering into CONTRACT.
- 1.11 The **“DRAWINGS”** means maps plans and tracings or prints or sketches thereof with any modifications approved in writing by the ENGINEER-IN-CHARGE and such other drawing as may, from time to time, be furnished to or approved in writing by the ENGINEER-IN-CHARGE in connection with execution of the CONTRACT.
- 1.12 The **“TENDER”** means the proposal along with supporting documents submitted by the CONTRACTOR for consideration by the OWNER.
- 1.13 The **“PERIOD OF LIABILITY/PERFORMANCE LIABILITY PERIOD”** in relation to a WORK means the specified period of 1 (One) year from the date of COMPLETION CERTIFICATE up to the date of issue of FINAL CERTIFICATE during which the CONTRACTOR stands responsible for rectifying all defects that may appear in the WORKS executed by the CONTRACTOR in pursuance of the CONTRACT and includes warranties against Manufacturing/Fabrication/Construction defects covering all materials plants, equipment, components supplied by the CONTRACTOR and WORKS.
- 1.14 **“SITE”** means the lands and other places on, under, in or through which the PERMANENT WORKS are to be carried out and any other lands or places provided by the OWNER for the purpose of the CONTRACT.
- 1.15 **“NOTICE IN WRITING OR WRITTEN NOTICE”** means a notice in written typed or printed characters sent (unless delivered personally or otherwise proved to have been received by the addressee) by registered

post to the latest known private or business address or registered office of the address and shall be deemed to have been delivered.

- 1.16 **“DAY”** means a day of 24 hours from midnight to next consecutive midnight, irrespective of the number of hours worked in that day.
- 1.17 **“WORKING DAY”** means any DAY, which is not declared to be holiday or rest day by the OWNER.
- 1.18 **“WEEK”** means a period of any consecutive seven days.
- 1.19 The **“CONTRACT PRICE /VALUE OF CONTRACT”** means the sum accepted or the sum calculated in accordance with the prices accepted in the BID and/or the CONTRACT rates as payable to the CONTRACTOR for the full and proper performance of their contractual obligations.
- 1.20 **“PLANT”** means all the facilities; infrastructure and works that are stipulated for creation/setting up/construction/laying/ completion/integration vide Section-II) of this tender document.
- 1.21 **“COMPLETION OF THE PROJECT”** shall mean putting the entire “PLANT” into operation.
- 1.22 Subject to sub-clause 1.23 below, **“COMMISSIONING OF THE PROJECT / THE PLANT”** shall mean “COMPLETION OF THE PROJECT” plus successful Operability Run/Performance Guarantee Test Run of the plant with ‘DESIRED PERFORMANCE LEVEL” from the day of its being put into operation / “DATE OF COMPLETION OF THE PROJECT”. In the event of malfunctioning/defects during the Operability Run / Performance Guarantee Test Run of the plant with its “DESIRED PERFORMANCE LEVEL”, the “DATE OF COMPLETION OF THE PROJECT” shall mean the day of rectification of such malfunctioning/defects etc. and “COMMISSIONING OF THE PLANT” shall mean successful Operability Run / Performance Guarantee Test Run with its “DESIRED PERFORMANCE LEVEL” post the day of rectification of such malfunctioning/defects.
- 1.23 **“DESIRED PERFORMANCE LEVEL” of the PLANT means successful Operability Run.**

## **2.0 STATUTORY NOTIFICATIONS /PERMISSIONS /APPROVALS /CLEARANCES /CERTIFICATIONS :**

- 2.1 The Contractor shall be responsible for notifying and obtaining permissions / approvals / clearances from such statutory authorities / Govt. agencies / Govt. departments as stipulated vide prevailing acts/

laws/bye-laws/rules/regulations, for setting up the plant / execution of the project and movement of his men, material & equipment.

- 2.2 The Contractor shall be responsible for obtaining Central Mining Research Institute's (CMRI's) certification of all electrical items for use in hazardous areas/zones and approval of the same from Directorate General of Mines Safety (DGMS). The Contractor shall also be responsible for obtaining such necessary certification and approval of all other items/equipment as may be required vide provisions of prevailing acts/laws/bye-laws/rules/regulations or otherwise, in absence of such provisions; to cater to sound industry norms.
- 2.3 The Company shall issue all necessary letters & guarantees. If required, the Company's representative shall accompany/assist the Contractor for facilitating the process. The ultimate responsibility of completing the process and obtaining the permissions/approvals/clearances in time, subject to fulfilment of prevailing laws, shall however rest with the Contractor.
- 2.4 Any delay in obtaining statutory permission / approval / clearances / certification or any social/socio-political factor shall not form a basis for extension in completion period. The Company shall not be responsible for any hindrance in the day-to-day work for such delay.
- 2.5 Inspection and acceptance of the equipment/facility/work or a part thereof shall not relieve the Contractor from any of his responsibilities under the Contract.

### **3.0 LABOUR LICENSE**

- 3.1 The Contractor, before starting the work shall obtain a license from concerned authorities under the Contract Labour (Abolition and Regulation) Act 1970, and furnish a copy of the same to the Company. Contractor shall also be responsible for its validity and for complying with provisions of all applicable Act, Rules and Regulation in force at the locations of the site.

### **4.0 LUMP SUM TURNKEY (LSTK) CONTRACT WITH OPERATION & MAINTENANCE (O&M) OF THE PLANT**

- 4.1 The entire work as per Scope of Work covered under Terms of Reference & Technical Specifications (Section-Ii) of this tender document shall be treated as "LUMP SUM TURNKEY CONTRACT WITH OPERATION & MAINTENANCE OF THE PLANT" for the specified period.

### **5.0 RESPONSIBILITY OF THE CONTRACTOR**

- 5.1 The contractor shall be responsible for all that are covered in Terms of Reference & Technical Specifications (Section-II), Schedule of Rates (Section-IV), General Conditions of Contract (Section-I), Special Conditions of Contract (Section-III) and elsewhere expressed in this

tender document and subsequently, stipulations of the contract agreement to be entered into between the Company & the Contractor.

- 5.2 The Contractor shall bear all the cost in his quoted price towards mobilisation at site and demobilisation including bringing in equipment, work force, materials, dismantling the equipment and clearing the site etc.
- 5.3 The Contractor shall be solely responsible for making available all requisite construction equipment, special aids, cranes, transport facilities, tools, tackle and testing equipment and appliances for successful execution of the work.
- 5.4 Preparing approaches and working areas for the movement and operation of the equipment, levelling the areas for assembly and erection shall also be the responsibility of the Contractor. The Contractor shall acquaint himself with access availability, facilities, local labour etc. to provide suitable allowances in his quotation. The Contractor may have to build temporary access roads to aid his own work. Contractor shall not use materials issued by OIL, if any, for installation purposes for laying temporary lines, erection etc. Misuse of materials will be seriously viewed and deductions at penal rates of landed cost of materials as purchased by the Company and all additional overheads will be made from the Contractor's bills for such quantities that are misused.
- 5.5 The Contractor shall take utmost care for not damaging or interfering with any Public Utility System, OIL's benchmarks, proximate facilities & operations during execution of the project. Any inadvertent damage / interference caused however shall be expressly repaired / restored to the original state by the Contractor at his own cost.
- 5.6 The Contractor shall have to make his own arrangements for water, electricity etc required for construction & commissioning at his own cost.
- 6.0 **CONTRACTOR'S ITEMS**
- 6.1 Contractor shall provide contractor's items and personnel to perform the services under the contract as specified in this document.
- 6.2 Contractor shall be responsible for maintaining at his cost adequate stock levels of contractor's items including spares and replenishing them as necessary.
- 6.3 Contractor shall be responsible for the maintenance and repair of all contractors' items and will provide all spare parts, materials, consumables etc. during the entire period of the contractual period

- 7.0 **SET-OFF**: Any sum of money due and payable to the Contractor (including Performance Security refundable to them) under this or any other Contract may be appropriated by OIL and set-off against any claim of OIL (or such other person or persons contracting through OIL) for payment of a sum of money arising out of this contract or under any other contract made by the Contractor with OIL (or such other person or persons contracting through OIL).
- 8.0 **OIL'S EQUIPMENT**: Contractor shall assume the risk of and shall be solely responsible for, damage to and loss or destruction of materials and equipment or supplies furnished by OIL. In case there is a loss or damage to OIL's equipment for causes attributable to contractor, the contractor shall compensate OIL.
- 9.0 **WAIVERS AND AMENDMENTS**:  
It is fully understood and agreed that none of the terms and conditions of the contract shall be deemed waived or amended by either party unless such waiver or amendment is executed in writing by the duly authorized agents or representatives of such party. The failure of either party to execute any right of termination shall not act as a waiver or amendment of any right of such party provided hereunder.
- 10.0 **WORK IN MONSOON & DEWATERING**
- 10.1 The execution of the work may entail working in the monsoon also. The Contractor must therefore cater adequately for such situations as may be required for the job and plan and execute the project in strict adherence to Implementation Schedule and according to the term and condition of the Contract. No extra rate shall be considered for such work in monsoon.
- 10.2 During monsoon and other period, it shall be the responsibility of the Contractor to keep the work site free from water at his own cost.
- 11.0 **Nil Custom Duty shall not be applicable against this tender. Indigineous bidders are to quote their Non-Deemed Export prices.**
- 12.0 **CONFIDENTIALLY**:  
Contractor agrees to be bound by professional secrecy and undertake to keep confidential any information obtained during the conduct of well operations, including, but not limited to, formations encountered, testing and surveying of the well. And to take all-reasonable steps to ensure the contractor's personnel likewise keep such information confidential.
- 12.1 This obligation shall keep in force even after the termination date and until such information will be disclosed by company.

- 12.2 Contractor shall handover to company all company's documents or drafts concerning operations carried out and which are still in its possession before transferring the Work over Unit to another sphere.
- 12.3 Contractor shall forbid access to the Drilling/ Work over Unit to any people not involved in the well operations or not authorised by the company to have access to the Drilling / Work over Unit, however, this provision is not applicable to any Government and/or police representative on duty.

**13.0 PATENTS, RIGHTS, LIABILITY AND COMPLIANCE OF REGULATION:**

- 13.1 Contractor hereby warrants that the use or sale of the goods delivered hereunder will not infringe claims of any patent covering of such goods and Contractor agrees to be responsible for and to defend at his sole expense all suits and proceedings against COMPANY based on any such alleged patent infringement and to pay all costs, expenses and damages which COMPANY may have to pay or incur by reason of any such suit or proceedings. Final payment to the Contractor by the Company will not be made while any such suits or claim remains unsettled.
- 13.2 The Contractor shall indemnify COMPANY against all third party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof.
- 13.3 For this purpose, the Company shall enter into a license agreement, if required, with the Contractor separately covering the forgoing over the period the equipment, software etc. are in actual use in the operations of the Company.
- 13.4 The bidder shall submit format of such agreement envisaged in sub-clause 13.3 hereof along with the bid.
- 13.5 Contractor shall also protect and fully indemnify COMPANY from any claims from Contractor's workman/employees or their heirs, dependants, representatives etc. or from any other person/ persons or bodies/companies etc. for any acts of commissions or omission while executing the Contract.
- 13.6 Contractor shall be responsible for compliance with all requirements under the laws and shall protect and indemnify completely COMPANY from any claims/penalties arising out of any infringements.

**14.0 DEFICIENCY:** The following penalties shall be applicable in this Contract:

- i) **FAILURE PENALTY:** In the event of the contractor failure to strictly adhere in providing the minimum requirements of key personnel as set out in the Contract, the penalty shall be levied at the following rates.
- a) Failure to provide Plant Manager at the rate of 8% of the operating and maintenance day rate for each day of non-availability of the Plant Manager.
  - b) At the rate of 5% of the Operation and maintenance day rate for each day of non-availability of the either Mechanical Engineer or Electrical engineer or Electrical Safety Officer.
  - c) At the rate of 3% of the Operation and Maintenance day rate for the period of non-availability of each of the other key personnel apart from those mentioned above.

**NOTE:**

1. The above penalty rates are applicable for the first seven days. In case more than one key personnel are not available at a time, penalties applicable for such personnel will be levied simultaneously.
2. Beyond seven days, the penalty will be levied at double the rates mentioned above for each day for non-availability of any key personnel.
3. Contractor will be paid for zero rates if operation is suspended any reason attributable to the Contractor.
4. For the purpose of levying of failure penalty, the operation and maintenance day rate shall be calculated by dividing the Operation and maintenance cost of the corresponding year by the factor of 365 (Three sixty five).

- ii) **LIQUIDATED DAMAGE FOR DELAY IN COMPLETION OF THE POWER HOUSE:** For delay in completion of the power house beyond the period as mentioned in the Contract, LIQUIDATED DAMAGE will be applicable @0.5% per week of Total Capital Cost subject to maximum value of 7.5% of Total capital Cost. (excluding O&M )
- iii) **LIQUIDATED DAMAGE FOR FAILURE TO GENERATE POWER:** OIL shall enter into a Power Purchase agreement with a customer for selling of Power generated from this power house. In the power purchase agreement, tariff for the unit of power to be supplied to the customer shall be applicable. For failure to transfer power from the power house to the customer due to the reason attributable to the Contractor liquidated damage shall be levied on the Contractor. This Liquidated damage shall be equal to the total tariff for the total unit of electrical energy not generated from the power house for the corresponding period for the reason attributable to the Contractor. The total unit of electrical energy not transferred from the power house to the customer for this period shall be the average of the electrical energy uplifted from the power house for the previous seven days. This total unit of electrical energy not generated from the power house shall be multiplied by the applicable tariff to arrive at the applicable liquidated damage for failure to transfer power.

**If the Contractor fails to generate power as per OIL's requirement of minimum 5 MW capacity for which there shall be loss of revenue to the Company, the loss to the Company shall be recovered from the Contractor.**

If Power cannot be produced from the power house for any reason attributable to the Company during currency of the Contract, the Contractor should immediately notify the Company in writing.

- v) **PENALTY FOR DEFICIENCY IN MAINTENANCE OF THE PLANT :** The Contractor should strictly adhere to Maintenance schedule of the Plant. In case of deficiency in Maintenance schedule of the plant shall attract the following penalty:
- In case of delay in carrying out the scheduled Maintenance of the Plant upto 6 (Six) months shall attract penalty @ 10% of the Maintenance Cost of the Plant for that year.

- In case of delay in carrying out the scheduled Maintenance of the Plant between 6 (Six) months to 12 (Twelve) months, shall attract additional penalty @ 10% of the Maintenance Cost of the Plant for that year.
- In case of delay in carrying out the scheduled Maintenance of the Plant beyond 12 (Twelve) months the Maintenance Cost of the Plant for that year shall be forfeited. This shall be in addition to the penalty @ 10% of the Maintenance Cost for that year

15.0 **DURATION:**

The rates, terms and conditions as incorporated in this Contract shall be applicable during the tenure of the Contract and will continue till the termination/completion the Contract.

***END OF SECTION-III***

**&&&&**

**SECTION - IV**

**SCHEDULE OF RATES & PAYMENT**

**Schedule of Rate: The Schedule of rate applicable in this Contract shall be as below:**

**Progressive Payment Schedule:**

**I . Payment Upon Mobilisation:**

10 % of the Total Capital Cost subjected to furnishing equivalent bank guarantee as per the terms & conditions specified in the tender.

**II . Progressive payments against completion of project milestone:**

Progressive payments shall be upto a maximum limit of 70 % of the quoted price.

<b>Sl No</b>	<b>Work</b>	Progressive payment to be released ( percentage of quoted price against individual item)	
		<b>Maximum limit of 70 % of the quoted price ( excluding O &amp; M charge)</b>	
01	<b><i>Procurement of Natural Gas Engine Driven Generating set</i></b>		
	<b><i>A</i></b>	<b><i>Upon receipt of 01 no 2 MW Gas engine driven generating set at site</i></b>	12.5%
	<b><i>B</i></b>	<b><i>Upon receipt of 01 no 2 MW Gas engine driven generating set at site</i></b>	12.5%
	<b><i>C</i></b>	<b><i>Upon receipt of 01 no 2 MW Gas engine driven generating set at site</i></b>	12.5%
	<b><i>D</i></b>	<b><i>Upon receipt of 01 no 1 MW Gas engine driven generating set at site</i></b>	12.5%
	<b><i>E</i></b>	<b><i>Upon erection/installation of 01 no 2 MW Gas engine driven generating set at site</i></b>	5%
	<b><i>F</i></b>	<b><i>Upon erection/installation of 01 no 2 MW Gas engine driven generating set at site</i></b>	5%
	<b><i>G</i></b>	<b><i>Upon erection/installation of 01 no 2 MW Gas engine driven generating set at site</i></b>	5%
	<b><i>H</i></b>	<b><i>Upon erection/installation of 01 no 2 MW Gas engine driven generating set at site</i></b>	5%

<b>Sl No</b>	<b>Work</b>		Progressive payment to be released ( percentage of quoted price against individual item) <b>Maximum limit of 70 % of the quoted price ( excluding O &amp; M charge)</b>
02	<b>Electrical Items &amp; Illumination</b>		
	<b>A</b>	<b>Upon receipt of all materials &amp; accessories at site</b>	60%
	<b>B</b>	<b>Upon Erection / installation</b>	10%
03	<b>Piping work</b>		
	<b>A</b>	<b>Upon Progressive completion of all piping work</b>	70%
04	<b>Misc Mechanical Equipment</b>		
	<b>A</b>	<b>Upon receipt of all materials &amp; accessories at site ( e. g Compressor , Gas dryer/ booster plant , gas purification plant etc)</b>	60%
	<b>B</b>	<b>Upon Erection / installation</b>	10%
05	<b>Firefighting system</b>		
	<b>A</b>	<b>Upon receipt of all materials &amp; accessories at site</b>	60 %
	<b>B</b>	<b>Upon Erection / installation</b>	10%
06	<b>Black start Generating Set</b>		
	<b>A</b>	<b>Upon receipt of 01 no 125 KVA Gas Engine driven generating set at site</b>	60 %
	<b>B</b>	<b>Upon Erection / installation</b>	10%
07	<b>Construction of water &amp; effluent disposal system</b>		
	<b>A</b>	<b>Upon receipt of all the materials related to water &amp; effluent / sanitary disposal system</b>	60 %
	<b>B</b>	<b>Upon Erection / installation</b>	10%

<b>Work</b>		Progressive payment to be released (percentage of quoted price against individual item)	
		<b>Maximum limit of 70 % of the quoted price (excluding O &amp; M charge)</b>	
<b>Implementation of CDM project</b>			
A	<b>Competition of work related to CDM project</b>	70 %	
<b>Painting of entire plant</b>			
A	<b>Upon competition of work in all respects</b>	70 %	
08	<b>Fitting of Lifting facilities</b>		
	<b>A</b>	<b>Upon receipt of all the materials related to overhead crane</b>	60 %
	<b>B</b>	<b>Upon Erection / installation</b>	10%

**III)** 10 % of the quoted Total Capital Cost (except Civil Cost) will be released after successful commissioning of the power project after forty five days of operability run without any interruption.

**IV) Payment on successful completion of reliability run:**

10 % of the quoted price (excluding O & M charges) subjected to successfully completed the reliability run for one year of the power project from the date of commissioning.

**V) Payment on successful completion of one year from completion of the reliability run:**

5% of the quoted price (excluding O & M charges) subjected to successfully completion of one year from completion of the reliability run.

**VI) Payment on successful completion of two years from completion of the reliability run**

5% of the quoted price (excluding O & M charges) subjected to successfully completion of two years from completion of the reliability run.

**VII) Progressive payment For CIVIL Cost:**

- a) Progressive payments shall be upto a maximum limit of 90 % of the quoted civil cost.

<b>Civil &amp; structural Work</b>		
<b>Sl No</b>	<b>Work</b>	<b>Progressive payment to be released (percentage of quoted price against individual item)</b>
<b>01</b>	<b>Upon land filling, development including grading &amp; leveling as per OIL map</b>	<b>15%</b>
<b>02</b>	<b>Construction of boundary wall</b>	<b>10%</b>
<b>03</b>	<b>Construction of Security Control Room with four (4) nos. of Security Watch Tower at the corners of the site.</b>	<b>10 %</b>
<b>04</b>	<b>Construction of Approach Road with necessary Peripheral Road inside the Power Plant</b>	<b>10 %</b>
<b>05</b>	<b>Construction of Shed with foundation over Gen Set and other equipments</b>	<b>15 %</b>
<b>06</b>	<b>Construction of control room for operators with provision of Latrine &amp; Urinal ( including fitting of A C )</b>	<b>10%</b>
<b>07</b>	<b>Providing Drinking Water &amp; industrial water facility(</b>	<b>10%</b>
<b>08</b>	<b>Development of Green belt area</b>	<b>5%</b>
<b>09</b>	<b>Mis Civil Work</b>	<b>5%</b>

- a) 10 % of the quoted civil cost will be released after one year from the date of successful commissioning power project including forty five days operability run.

VI) **Schedule of payment: O & M :**

Schedule payment of O & M of the plant shall be released monthly upon successful operation & maintenance of the plant in strict accordance with Scope of Work (O & M) , in the manner as quoted by the contractor and subsequent agreed upon between the company & the contractor .

The per day O & M payment will be calculated based rate quoted in schedule of rate per annum divided by 365 days ( 366 days for leap year) .The O & M charges shall be applicable immediately after completion of the operability run of The Power House as defined in the tender.

**Note :**

- i) **Force Meajure rate:** “force majeure” rate shall be 70 % of per day O & M Charge.
- ii) Receipt of an individual material shall be considered to be complete once the material is received at the Project site and all the relevant document as per terms & condition of the tender is submitted to the Company representative. Contractor to raise their invoices accordingly.
- iii) Commissioning of the plant will be considered to be complete when the plant shall successfully complete forty five days Operability Run without any interruption.
- iv) Reliability run of the plant will be start after successful competition of test run only.

**END OF SECTION - IV**

**&&&&**

**INTEGRITY PACT**

Between

Oil India Limited (OIL) hereinafter referred to as "The Principal"

And

( Name of the bidder ).....hereinafter referred to as  
"The Bidder/Contractor"

**Preamble :**

The Principal intends to award, under laid down organizational procedures, contract/s for -----. The Principal values full compliance with all relevant laws and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder/s and Contractor/s.

In order to achieve these goals, the Principal cooperates with the renowned international Non-Governmental Organisation "Transparency International" (TI). Following TI's national and international experience, the Principal will appoint an external independent Monitor who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

**Section 1 - Commitments of the Principal**

(1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

1. No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for him/herself or third person, any material or immaterial benefit which he/she is not legally entitled to.
2. The Principal will, during the tender process treat all Bidders with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidders the same information and will not provide to any Bidder confidential/additional information through which the Bidder could obtain an advantage in relation to the tender process or the contract execution.
3. The Principal will exclude from the process all known prejudiced persons.

(2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the relevant Anti-Corruption Laws of India, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

## **Section 2 - Commitments of the Bidder/Contractor**

(1) The Bidder/Contractor commits itself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

1. The Bidder/Contractor will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or immaterial benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
2. The Bidder/Contractor will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, Subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.
3. The Bidder/Contractor will not commit any offence under the relevant Anticorruption Laws of India; further the Bidder/Contractor will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
4. The Bidder/Contractor will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

(2) The Bidder/Contractor will not instigate third persons to commit offences outlined above or be an accessory to such offences.

### **Section 3 - Disqualification from tender process an exclusion from future Contracts**

If the Bidder, before contract award has committed a transgression through a violation of Section-2 or in any other form such as to put his reliability or risibility as Bidder into question, the Principal is entitled to disqualify the Bidder from the tender process or to terminate the contract, if already signed, for such reason.

1. If the Bidder/Contractor has committed a transgression through a violation of Section 2 such as to put his reliability or credibility into question, the Principal is entitled also to exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the circumstances of the case, in particular the number of transgressions, the position of the transgressions within the Company hierarchy of the Bidder and the amount of the damage. The exclusion will be imposed for a minimum of 6 months and maximum of 3 years.
2. The Bidder accepts and undertakes to respect and uphold the Principal's Absolute right to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.
3. If the Bidder/Contractor can prove that he has restored/recouped the Damage caused by him and has installed a suitable corruption prevention system, the Principal may revoke the exclusion prematurely.
4. A transgression is considered to have occurred if in light of available evidence no reasonable doubt is possible.

### **Section 4 - Compensation for Damages**

1. If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover from the Bidder liquidated damages equivalent to 3 % of the value of the offer or the amount equivalent to Earnest Money Deposit/Bid Security, whichever is higher.
2. If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

3. The bidder agrees and undertakes to pay the said amounts without protest or demur subject only to condition that if the Bidder/Contractor can prove and establish that the exclusion of the Bidder from the tender process or the termination of the contract after the contract award has caused no damage or less damage than the amount or the liquidated damages, the Bidder/Contractor shall compensate the Principal only to the extent of the damage in the amount proved.

#### **Section 5 - Previous transgression**

1. The Bidder declares that no previous transgression occurred in the last 3 years with any other Company in any country conforming to the TI approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

2. If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

#### **Section 6 - Equal treatment of all Bidders/ Contractor/ Subcontractors**

1. The Bidder/Contractor undertakes to demand from all subcontractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.

2. The Principal will enter into agreements with identical conditions as this one with all Bidders, Contractors and Subcontractors.

3. The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

#### **Section 7 - Criminal charges against violating Bidders/ Contractors/Subcontractors**

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor, which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

#### **Section 8 - External Independent Monitor/ Monitors (three in number depending on the size of the contract) (to be decided by the Chairperson of the Principal)**

1. The Principal appoints competent and credible external independent Monitor for this Pact. The task of the Monitor is to review independently

and objectively, whether and to what extent the parties comply with the obligations under this agreement.

2. The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the Chairperson of the Board of the Principal.

3. The Contractor accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder/ Contractor/Subcontractor with confidentiality.

4. The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

5. As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or heal the violation, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

6. The Monitor will submit a written report to the Chairperson of the Board of the Principal within 8 to 10 weeks from the date of reference or intimation to him by the 'Principal' and, should the occasion arise, submit proposals for correcting problematic situations.

7. If the Monitor has reported to the Chairperson of the Board a substantiated suspicion of an offence under relevant Anti-Corruption Laws of India, and the Chairperson has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8. The word 'Monitor' would include both singular and plural.

### **Section 9 - Pact Duration**

This Pact begins when both parties have legally signed it. It expires for the Contractor 12 months after the last payment under the respective

contract, and for all other Bidders 6 months after the contract has been awarded.

If any claim is made/ lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/determined by Chairperson of the Principal.

**Section 10 - Other provisions**

1. This agreement is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of the Principal, i.e. New Delhi.
2. Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
3. If the Contractor is a partnership or a consortium, this agreement must be, signed by all partners or consortium members.
4. Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

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For the Principal

-----  
For the Bidder/Contractor

Place : Duliajan

Witness1 : .....

Date :

Witness 2: .....

**&&&&**

**PRICE BID FORMAT**

**IFB No. CDG3685P15 for Supply, Installation and Commissioning of Natural Gas Engine Based Power Plant to be owned by Oil India Limited and subsequent Operation & Maintenance of the Plant for 10(Ten) years**

**SCHEDULE OF RATES:** The bidder is to quote their rates as per the schedule below:

A.0 **TOTAL CAPITAL COST:** The bidder is to quote for the total Capital Cost as per the schedule below:

Sl No	Description of work (inclusive of all that are covered item wise in scope of work under terms of reference & technical specification the tender document )	Quantity	Total Price	
			Rs in figure	Rs in words
01	Civil & Structural Work	LSM		
02	Natural Gas Engine Driven generating set	LSM		
03	Electrical Items & Illumination	LSM		
04	Piping work			
05	Misc Mechanical Equipment ( e. g Compressor , Gas dryer/ booster plant , gas purification plant etc)	LSM		
06	Firefighting system	LSM		
07	Black start Generating Set	LSM		
08	Construction of water & effluent disposal system	LSM		
09	Fitting of Lifting facilities	LSM		
10	Implementation of CDM project	LSM		
11	Painting of entire plant	LSM		
	<b>TOTAL CAPITAL COST : A</b>			

Bidder to provide Cost breakup for Item No 02 and Item No 03 in their bid. The break-up is to be shown separately.

B.0 **TOTAL OPERATION & MAINTAINANCE COST:** The bidder is to quote for the Operation & Maintenance cost (O&M Cost) of the Power Plant as per below:

SI No	ITEM	CURRENCY	COST
<b>Operation &amp; Maintenance Cost Of the plant</b>		<b>Rs</b>	
1.	For The First Year		
2	For The Second Year		
3	For The Third Year		
4	For The Fourth Year		
5	For The Fifth Year		
6	For The Sixth Year		
7	For The Seventh Year		
8	For The Eighth Year		
9	For The Ninth Year		
10	For The Tenth Year		
TOTAL OPERATION & MAINTAINANCE COST : B			

**TOTAL COMMERCIAL QUOTE = Total Capital Cost “A” + Total Operational Cost “B”.**

Note: The followings should be taken note by the bidders while quoting for this tender:

1. The bid price should be inclusive of all taxes & levies but excluding Service Tax on “FOR Kumchai basis”.
2. Prices shall be quoted strictly as per the Price Schedule Format made available herein without altering any of the contents of the “ Price Schedule Format “.
3. Prices shall be quoted in Figures as well as in Words. 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.
4. Price quoted against the items shall be inclusive of all applicable Taxes & Duties but excluding and Service Tax.
5. There is an Arunachal Pradesh entry tax applicable on all the Goods & Services entering Arunachal Pradesh. Bidder to take note of this and forward their quote inclusive of the entry tax.
6. The operation & Maintenance Cost is to be inclusive of all types of spares. The bidder is to forward the list of tentative spares to be consumed for operation & maintenance of the plant on per year basis.

**BID FORM**

To  
M/s. Oil India Limited,  
P.O. Duliajan, Assam, India

**Sub: IFB No. CDG3685P15**

*Gentlemen,*

Having examined the General and Special Conditions of Contract and the Terms of Reference including all attachments thereto, the receipt of which is hereby duly acknowledged, we the undersigned offer to perform the services in conformity with the said conditions of Contract and Terms of Reference for the sum of \_\_\_\_\_ (Total Bid Amount in words and figures) or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Bid.

We undertake, if our Bid is accepted, to commence the work within (\_\_\_\_\_) days calculated from the date of issue of Letter of Award (LOA).

If our Bid is accepted, we will obtain the guarantee of a bank in a sum not exceeding \_\_\_\_\_ for the due performance of the Contract.

We agree to abide by this Bid for a period of 180 days from the date fixed for Bid closing and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof in your notification of award shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any Bid you may receive.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 2014.

**Authorised Person's Signature:** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Designation:** \_\_\_\_\_

**Seal of the Bidder:**

**STATEMENT OF NON-COMPLIANCE**  
**(Only exceptions/deviations to be rendered)**

1.0 The Bidder shall furnish detailed statement of **exceptions/deviations**, if any, to the tender stipulations, terms and conditions in respect of each Section of Bid Document in the following format:

<b>Section No.</b>	<b>Clause No. (Page No.)</b>	<b>Non-Compliance</b>	<b>Remarks</b>

2.0 In addition to the above the Bidder shall furnish detailed information pertaining to construction, operational requirements, velocity-pattern, added technical features, if any and limitations etc. of the Inspection Tool proposed to be deployed.

**Authorised Person's Signature:** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Designation:** \_\_\_\_\_

**Seal of the Bidder:**

**NOTE:** OIL INDIA LIMITED expects the bidders to fully accept the terms and conditions of the bid document. However, should the bidders still envisage some exceptions/deviations to the terms and conditions of the bid document, the same should be indicated as per above format and submit along with their bids. If the "**Statement of Compliance**" in the above Proforma is left blank (or not submitted along with the technical bid), then it would be construed that the bidder has not taken any exception/deviation to the tender requirements.

**PROFORMA-E**  
**FORM OF BID SECURITY (BANK GUARANTEE)**

To:  
M/s. OIL INDIA LIMITED,  
For Head (Contracts)  
Duliajan, Assam, India, Pin - 786 602

WHEREAS, (Name of Bidder) \_\_\_\_\_ (hereinafter called "the Bidder") has submitted their offer Dated \_\_\_\_\_ for the provision of certain oilfield services (hereinafter called "the Bid") against OIL INDIA LIMITED, Duliajan, Assam, India (hereinafter called the Company)'s IFB No. \_\_\_\_\_. KNOW ALL MEN BY these presents that we (Name of Bank) \_\_\_\_\_ of (Name of Country) \_\_\_\_\_ having our registered office at \_\_\_\_\_ (hereinafter called "Bank") are bound unto the Company in the sum of (\*) for which payment well and truly to be made to Company, the Bank binds itself, its successors and assignees by these presents. SEALED with the common seal of the said Bank this \_\_\_ day of \_\_\_ 2014.

THE CONDITIONS of these obligations are:

- (1) If the Bidder withdraws their Bid during the period of Bid validity specified by the Bidder; or
- (2) If the Bidder, having been notified of acceptance of their Bid by the Company during the period of Bid validity:
  - (a) Fails or refuses to execute the form of agreement in accordance with the Instructions to Bidders; or
  - (b) Fails or refuses to furnish the Performance Security in accordance with the Instructions to Bidders;

We undertake to pay to Company up to the above amount upon receipt of its first written demand (by way of letter/fax/cable), without Company having to substantiate its demand provided that in its demand Company will note that the amount claimed by it is due to it owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including the date(\*\*) and any demand in respect thereof should reach the Bank not later than the above date.

SIGNATURE AND SEAL OF THE GUARANTORS \_\_\_\_\_  
Name of Bank & Address \_\_\_\_\_

Witness \_\_\_\_\_  
Address \_\_\_\_\_

\_\_\_\_\_  
(Signature, Name and Address)

Date: \_\_\_\_\_  
Place: \_\_\_\_\_

- \* The Bidder should insert the amount of the guarantee in words and figures.  
\*\* Date of expiry of Bank Guarantee should be minimum 30 days after the end of the validity period of the Bid.

**FORM OF PERFORMANCE BANK GUARANTEE**

To:  
M/s. OIL INDIA LIMITED,  
**(HEAD-CONTRACTS)**  
Duliajan, Assam, India, Pin - 786 602.

WHEREAS \_\_\_\_\_ (Name and address of Contractor) (hereinafter called "Contractor") had undertaken, in pursuance of Contract No. \_\_\_\_\_ to execute (Name of Contract and Brief Description of the Work) \_\_\_\_\_ (hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee as security for compliance with Contractor's obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee; NOW THEREFORE we hereby affirm that we are Guarantors on behalf of the Contractor, up to a total of (Amount of Guarantee in figures) \_\_\_\_\_ (in words \_\_\_\_\_), such amount being payable in the types and proportions of currencies in which the Contract price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of guarantee sum as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein. We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or the work to be performed thereunder or of any of the Contract documents which may be made between you and the Contractor shall in any way cease us from any liability under this guarantee, and we hereby waive notice of such change, addition or modification.

This guarantee is valid until the date \_\_\_\_\_ .

SIGNATURE AND SEAL OF THE GUARANTORS \_\_\_\_\_

Designation \_\_\_\_\_

Name of Bank \_\_\_\_\_

Address \_\_\_\_\_

Witness \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

Date .....

Place \_\_\_\_\_

**AGREEMENT FORM**

This Agreement is made on \_\_\_ day of \_\_\_\_\_ between Oil India Limited, a Government of India Enterprise, incorporated under the Companies Act 1956, having its registered office at Duliajan in the State of Assam, hereinafter called the "Company" which expression unless repugnant to the context shall include executors, administrators and assignees on the one part, and M/s. \_\_\_\_\_ (Name and address of Contractor) hereinafter called the "Contractor" which expression unless repugnant to the context shall include executors, administrators and assignees on the other part,

WHEREAS the Company desires that Services \_\_\_\_\_ (brief description of services) should be provided by the Contractor as detailed hereinafter or as Company may requires;

WHEREAS, Contractor engaged themselves in the business of offering such services represents that they have adequate resources and equipment, material etc. in good working order and fully trained personnel capable of efficiently undertaking the operations and is ready, willing and able to carry out the said services for the Company as per Section-II attached herewith for this purpose and

WHEREAS, Company had issued a firm Letter of Award No. \_\_\_\_\_ dated \_\_\_\_\_ based on Offer No. \_\_\_\_\_ dated \_\_\_\_\_ submitted by the Contractor against Company's IFB No. \_\_\_\_\_. All these aforesaid documents shall be deemed to form and be read and construed as part of this agreement/contract. However, should there be any dispute arising out of interpretation of this contract in regard to the terms and conditions with those mentioned in Company's tender document and subsequent letters including the Letter of Intent and Contractor's offer and their subsequent letters, the terms and conditions attached hereto shall prevail. Changes, additions or deletions to the terms of the contract shall be authorized solely by an amendment to the contract executed in the same manner as this contract.

NOW WHEREAS, in consideration of the mutual covenants and agreements hereinafter contained, it is hereby agreed as follows -

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. In addition to documents herein above, the following Sections and Annexures attached herewith shall be deemed to form and be read and construed as part of this agreement viz.:

- (a) Section-I            indicating the General Conditions of this Contract;
- (b) Section-II         indicating the Terms of Reference;
- (c) Section-III        indicating the Special Terms & Condition;
- (d) Section-IV         indicating the Schedule of Rates.

3. In consideration of the payments to be made by the Company to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Company to provide the Services and to remedy defects therein in conformity in all respect with the provisions of this Contract.
4. The Company hereby covenants to pay the Contractor in consideration of the provision of the Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of this Contract at the times and in the manner prescribed by this Contract.

IN WITNESS thereof, each party has executed this contract at Duliajan, Assam as of the date shown above.

Signed, Sealed and Delivered,

For and on behalf of  
Company (Oil India Limited)

for and on behalf of Contractor  
(M/s. \_\_\_\_\_)

Name:

Name:

Status:

Status:

In presence of

In presence of

1.

1.

2.

2.

**PROFORMA LETTER OF AUTHORITY**

TO  
**HEAD (CONTRACTS)**  
Oil India Ltd.,  
P.O. Duliajan - 786 602  
Assam, India

Sir,

**Sub: OIL's IFB No. CDG3685P15**

We \_\_\_\_\_ confirm that Mr. \_\_\_\_\_ (Name and address) as authorised to represent us to Bid, negotiate and conclude the agreement on our behalf with you against Tender Invitation No. \_\_\_\_\_ for hiring of services for \_\_\_\_\_.

We confirm that we shall be bound by all and whatsoever our said representative shall commit.

Yours Faithfully,

**Authorised Person's Signature:** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Designation:** \_\_\_\_\_

**Seal of the Bidder:**

**Note:** This letter of authority shall be on printed letter head of the Bidder and shall be signed by a person competent and having the power of attorney (power of attorney shall be annexed) to bind such Bidder. If signed by a consortium, it shall be signed by members of the consortium.

**AUTHORISATION FOR ATTENDING BID OPENING**

TO  
**HEAD (CONTRACTS)**  
Oil India Ltd.,  
P.O. Duliajan - 786 602  
Assam, India

Date : \_\_\_\_\_

Sir,

**Sub : OIL's IFB No. CDG3685P15**

We authorise Mr. /Mrs. \_\_\_\_\_ (Name and address) to be present at the time of opening of the above IFB due on \_\_\_\_\_ at Duliajan on our behalf.

Yours Faithfully,

**Authorised Person's Signature:** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Designation:** \_\_\_\_\_

**Seal of the Bidder:**

**Note:** This letter of authority shall be on printed letter head of the Bidder and shall be signed by a person who signs the bid.

**LOCATIONS MAP**



**Procedure for reporting near Miss Incident/Accident  
for Contractor (LSTK) Personnel:**

<b>PROCESS</b>	<b>ACTION</b>		
A). REPORT: NEAR MISS INCIDENT OR ACCIDENT	<p>LSTK Contractor shall be solely responsible for work safety of all of his deputed personnel. However, the LSTK Contractor along with his appointed Safety officer shall be assigned with the responsibility for co-ordination of reporting of Near Miss incident/accident and investigation thereof. Arrangements will be established to ensure compliance with statutory incident reporting and investigation requirements as per the following details:</p> <table border="1" data-bbox="274 573 1538 1095"><tr><td data-bbox="274 573 692 1095">1). Open reporting is to be encouraged for any of the following incidents :<ul style="list-style-type: none"><li>• Injuries resulting from accidents (incidents resulting in man days loss, Medical and discharge, requiring first aid.);</li><li>• Medical emergencies and evacuations;</li><li>• Other loss events such as asset or environmental damage;</li><li>• Incidents of near misses;</li><li>• Potentially hazardous situation</li></ul></td><td data-bbox="692 573 1538 1095">2). All reports will be made using the standard report forms as mentioned below (<b>FORM-A for Report of Accident &amp; FORM -B for Report of Near miss Incident</b>). The information which needs to be reported and recorded, includes :<ul style="list-style-type: none"><li>• Details of the event;</li><li>• Description of the circumstances surrounding the event;</li><li>• Details of any injuries or illness and, actual or potential occupational exposure;</li><li>• Adverse effects on the environment;</li><li>• Details of involved persons, any casualties or witnesses, and their statement of events;</li><li>• Details of the outcomes and any recovery actions taken;</li><li>• Potential consequences;</li><li>• Any identified management system failures which contributed to the incident or the way it was damaged</li></ul></td></tr></table> <p>3). Each Near miss incident and potential hazardous situation will be categorized according to the severity of the actual outcome and the potential outcome in terms of damage to people, assets, the environment and company reputation in accordance with the Incident Reporting classification. Near Miss incidents will be reported forthwith through the management chain according to the actual or potential severity in accordance with the Incident Reporting guideline as mentioned in <b>FORM-B</b>. All near miss incidents and potentially hazardous situations will be recorded.</p>	1). Open reporting is to be encouraged for any of the following incidents : <ul style="list-style-type: none"><li>• Injuries resulting from accidents (incidents resulting in man days loss, Medical and discharge, requiring first aid.);</li><li>• Medical emergencies and evacuations;</li><li>• Other loss events such as asset or environmental damage;</li><li>• Incidents of near misses;</li><li>• Potentially hazardous situation</li></ul>	2). All reports will be made using the standard report forms as mentioned below ( <b>FORM-A for Report of Accident &amp; FORM -B for Report of Near miss Incident</b> ). The information which needs to be reported and recorded, includes : <ul style="list-style-type: none"><li>• Details of the event;</li><li>• Description of the circumstances surrounding the event;</li><li>• Details of any injuries or illness and, actual or potential occupational exposure;</li><li>• Adverse effects on the environment;</li><li>• Details of involved persons, any casualties or witnesses, and their statement of events;</li><li>• Details of the outcomes and any recovery actions taken;</li><li>• Potential consequences;</li><li>• Any identified management system failures which contributed to the incident or the way it was damaged</li></ul>
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B) INVESTIGATE INCIDENT CAUSE	<p>All near misses incidents and potential hazardous situations will be investigated to establish the immediate and underlying causes and to identify actions to :</p> <ul style="list-style-type: none"><li>• Restore compliance/correct situation as quickly as possible</li><li>• Prevent recurrence and improve performance.</li><li>• Assessing and limiting adverse HSSE effects.</li><li>• Ensuring planned actions integrate with other HSSE effects.</li></ul> <p>All investigations will be documented in detail with sketches and photographs. A copy of the investigation report shall be submitted to OIL</p>		
C) IMPLEMENT CORRECTIVE/ PREVENTIVE ACTIONS	<p>An action plan for the remedial measures identified in the investigation will be completed including responsibilities, completion dates and reporting requirements.</p>		
D) FOLLOW- UP	<p>Progress against the action plans will be reported in the joint monthly safety meeting held between LSTK personnel &amp; OIL. Critical recommendations to be highlighted in the safety meeting at the site level.</p>		
E) FEEDBACK	<p>Incident reports should be analyzed for trends in incident occurrence and actions taken to make improvements.</p>		

**REPORT OF ACCIDENT**

**(To be filled up forthwith)**

- 1.a **Name of the Injured** :
- 1.b **Code . No. of Injured** :
- 2.a **Event Date** :
- 2.b **Event Time** :
- 3.1 **Accident Place (Work Area)** :
- 3.2 **Exact Location** :
- 4 **Mine** :
- 5 **Nature and extent of injury** :
- 6 **Brief Description of the accident** :
- 7 **Cause of accident** :

( Examples: Lack of training/ Lack of Supervision/ Improper attitude towards the job/ Lack of co-ordination/ Improper use of tools/ Unsafe working condition/ Failure of equipment/ Environmental factor/ Negligence/ Non use of safety gears, other reason)

- 8 **Date of Birth** :
- 9 **Work Experience** :
- 10 **Who or What is Responsible for accident** :
- 11 **Name of the witness of the accident** :
- 12 **Person in direct charge at the time of accident** :
- 13 **How can a similar accident be prevented** :

Name & Signature of LSTK Contractor Date: