

# **KAMARAJAR PORT LIMITED**

(Formerly known as Ennore Port Limited)

[A Mini Ratna Government of India Undertaking]



Vallur (Post), Chennai – 600 120 India

## **BID DOCUMENT**

**Engineering, Procurement and Construction (EPC) contract of 25(±5%) MW capacity Wind Energy Project at suitable site in any wind potential State in India with its Comprehensive Operation & Maintenance for 20 years.**



**Tender No: KPL /OP / ELE / 04 / 2016**

(Volume I)

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## **BID DOCUMENT**

**Engineering, Procurement and Construction (EPC) contract of 25(±5%) MW capacity Wind Energy Project at suitable site in any wind potential State in India with its Comprehensive Operation & Maintenance for 20 years.**

## **VOLUME I**



**Tender No: KPL /OP / ELE / 04 / 2016**

# KAMARAJAR PORT LIMITED

Vallur (Post), Chennai – 600 120 India

## Request for Proposal (RFP)

Ref: **KPL /OP / ELE / 04 / 2016**

Date:

To

### Prospective Bidder

**Sub:** Tender for Engineering, Procurement and Construction (EPC) contract of 25(±5%) MW capacity Wind Energy Project at suitable site in any wind potential State in India with its Comprehensive Operation & Maintenance for 20 years.

Dear Sir,

Kamarajar Port Limited invites bids from Bidders for the subject item under "two part system" complete in accordance with the following details and enclosed Tender Document:

### 1. BRIEF DETAILS :

Sl. No.	Description of Item	Particulars
1	Supply, Installation and Commissioning of 25(±5%) MW Capacity Wind Power Project on turnkey basis at suitable site in any of the wind potential State in India with its comprehensive Operation & Maintenance for 20 years	At suitable site in any wind potential State in India
2	Completion Period	By 31 <sup>st</sup> March 2017
3	Mode of tendering	Domestic Open tender in single stage two part bidding
4	Tender Fee (non-refundable)	Rs.10,000/- (Rupees Five Thousand only)
5	Earnest Money Deposit (EMD) (bid security)	Rs. 3.25 Crores (Rupee Three Crores and Twenty Five Lakhs only) in the form of Bank Guarantee
6	Duration of Contract	a) Project Completion: by 31 <sup>st</sup> March, 2017. b) O&M contract for 20 years from the date of stabilization of the complete project.

<b>Sl.No.</b>	<b>Description of Item</b>	<b>Particulars</b>
7	Tender documents available for download	<b>From 04/08/2016 to 31/08/2016</b> For download refer Clause 2 (submission of bids)
8	Date and time of pre-bid meeting	<b>Date: 17/08/2016</b> <b>Time: 11AM i.e.11:00 Hrs (IST)</b>
9	Last date, time for submission of bid	<b>Date: 31/08/2016</b> <b>Time: 3.00 PM i.e. 15:00 Hrs (IST)</b>
10	Date & time of opening of un-priced bid	<b>Date: 31/08/2016</b> <b>Time: 4.00 PM i.e. 16:00 Hrs (IST)</b>
11	Venue for pre-bid meeting, submission & Opening of bids	Kamarajar Port Limited, Vallur (Post), Chennai – 600 120
12	Alternate contact person(s)	Deputy General Manager (Civil) Phone :+91-4427950029 Fax: +91-4427950002 E-mail : radha@epl.gov.in
13	Technical Specification of WEG Equipment	As given in Section VII of volume-I.
14	Location of Project	At suitable site In any wind potential State in India
15	Currency of Offer	All the orders / contract agreement has to be quoted and operated in Indian Rupees (INR) only
16	Payment Terms	Payments shall be released against milestones as mentioned in Special Conditions of Contract.
17	Payment for Operation & Maintenance of Wind Power Project	On quarterly basis of annual contract price after expiry of Guarantee / Warranty period on furnishing of Performance Bank Guarantee for contract performance for O&M period.
18	Contract Security cum Performance Bank Guarantee	The successful bidder shall submit Contract Security cum Performance Bank Guarantee for an amount equivalent to 10% of Contract Value (except O&M) within 15 days of issue of Award of Contract in the Proforma as per Annexure-III of Volume-I.

Sl.No.	Description of Item	Particulars
19	O&M Performance Guarantee	The Bidder shall submit a Bank Guarantee one month prior to completion of free O&M period, for an amount equivalent to 10% (ten percent) of annual O&M charges for the year. Every year a fresh bank guarantee shall be submitted by the Bidder, having validity of 13 months, one month prior to expiry of earlier Bank Guarantee or the existing bank guarantee can be extended suitably every year till O&M contract remains with the Bidder. Such Bank Guarantee shall be furnished in the Proforma as per Annexure-V of volume I.
20	Evaluation of Bids	Evaluation of Bids of eligible bidders shall be done as per details in Methodology for Bid Evaluation.
21	Validity of Offer	Offers shall be valid for a period of <b>6 months</b> from bid due date or extension if any
22	Quotation to be on 'Firm' price basis	Prices quoted as per price schedule of Prices I, II, III & IV by the bidders shall remain 'Firm' during the bidder's Performance of the contract and not subject to variation on any account. Quotation submitted with variable price will be treated as non-responsive and the same shall be rejected.
23	Custom Duty, CVD, etc.	For goods offered from abroad Custom Duty, CVD and other applicable levies, etc, if payable, will be paid directly by the bidder and shall be included in the tender price only.
24	Taxes, duties, levies etc	In case bidder offering goods manufactured in India, ED/ VAT/ CST & Service Tax and other statutory levies solely in respect of transaction between the Owner and the supplier under the contract, shall be included in the tender price only.
25	Project Consultant	Mr. Hemendra Singh Chauhan has been appointed as consultant for bid evaluation and site supervision. Contact Person: Mr. H S Chauhan Contact no. +91 9910800132 e-mail : <a href="mailto:moswindipa@gmail.com">moswindipa@gmail.com</a>
26	Queries regarding Pre-Bid conference	Any queries regarding pre bid conference may be forwarded to Kamarajar Port Limited and our Consultant.

## 2. **SUBMISSION OF BIDS**

All documents shall be submitted in 1 (one) original plus 2 (two) copies in the following manner:

Bid shall be submitted in three separate sealed envelopes viz. Envelope-I (EMD & Tender Fee), Envelope-II (Un-priced bid) & Envelope-III (price bid)

a) **Envelope-I: Earnest Money Deposit (EMD) and Tender Fee**

The Earnest Money Deposit (EMD) in the form of Bank Guarantee and non-refundable Tender Fee in the form of account payee Demand Draft/ Bankers Cheque in favour of **Kamarajar Port Limited** payable at **Chennai**, shall be placed in a sealed Envelope marked as "EMD & Tender Fee" and Tender No.:

b) **Envelope-II: Un-priced / Techno-commercial Bid: PART-I**

The Un-priced bid shall contain one duly signed and stamped on each and every page of tender document & addenda, if any.

Price Schedule format with prices kept blanked shall be submitted as a token of acceptance of the same.

Necessary documents complete in all respect in support of meeting with Bid Eligibility Criteria shall be furnished.

All Bid Response Sheets (BRS01 to BRS21) duly filled in and signed shall be submitted along with documents as required.

c) **Envelope-III Price Bid [Price Schedule]: PART II**

(i) The priced bid shall be placed in a separate sealed envelope marked as "PRICE BID" and Tender No and super-scribed as "Not to be opened with other envelopes".

(ii) It should contain only the "Price Schedule" complete with rates / prices filled in it. The "Price Schedule" shall be free from any terms and conditions. " Price Bid" containing any new / fresh condition shall be liable for rejection.

The respective envelopes are to be super scribed as EMD, Un-priced Bid (PART I) and Priced Bid (PART II). All the above three envelopes i.e. EMD, priced bid and Un-priced shall be put inside one single envelope, sealed and clearly super scribed on the envelope.

### **ITB DOCUMENT– DO NOT OPEN**

25(±5%) MW WINDFARM

TENDER NO: **KPL /OP / ELE / 04 / 2016**

DUE DATE: 31/08/2016

Kamarajar Port Limited assumes no responsibility for inability of a bidder to submit bids on account of delay in submission at bidder's end. Bidder shall ensure that they submit the bid well before the "Due Date & Time of Bid-Submission".

Any bidder who wishes to quote against this Tender may download the Tender Document from the website of Kamarajar Port Limited [www.ennoreport.gov.in](http://www.ennoreport.gov.in); [www.ipa.nic.in](http://www.ipa.nic.in) or [www.eprocure.gov.in](http://www.eprocure.gov.in).

Request for sending the tender documents by post, courier or any other mode shall not be entertained.

The bid is to be submitted complete in all respect as per terms and conditions of the Tender document.

### **3. SUBMISSION COPIES OF CERTIFICATES / DOCUMENTARY PROOFS**

Bidders are required to submit copies of all certificates / documentary evidences towards proof of meeting the stated "BEC" along with the other requisite documents. Non-submission of copies of requisite certificates / documents shall render the bid non-responsive, and shall be liable for rejection.

### **4. PRE-BID MEETING**

- 4.1. Bidders, desirous of attending the Pre-Bid Meeting, must submit authorization letter (Bid Response Sheet No 4) at the time of Pre-Bid Meeting.
- 4.2. The bidder is requested to submit any queries / questions by email/courier/fax so as to reach Kamarajar Port Limited / Consultant at least **five (05) days** before the pre-bid meeting. These questions shall be replied during the pre-bid meeting.

□ **NOTE:**

1. Bidders are requested to fill all "Bid Response Sheets, & Annexures" as enclosed in the Bid Documents. Bidders must sign all the attachments of the Bidding Documents.
2. Bidders are advised, in their own interest, to ensure that their bids are submitted well before the "Due Date & Time of Bid-Submission" of the bid document.
3. Bidders are required to submit their bids along with a covering letter under the firm's / company's letterhead specifying the name and designation of the authorized person signing the bid, complete postal address of firm / company, telephone no., fax no., e-mail ID, etc.
4. The tender documents consist of volume I: RFP only. The list of approved banks will be as given in volume I.

Best regards,

For & on behalf of,  
Kamarajar Port Limited,

**Deputy General Manager (Civil)**

Phone: 044-27950030-40; Fax: 044-27950002

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**SECTION-I**  
**REQUEST FOR PROPOSAL**

## **SECTION-I**

### **REQUEST FOR PROPOSAL**

**Kamarajar Port Limited (KPL) invites tenders in two part basis for establishment of 25(±5%) MW capacity Wind Power Project on turnkey basis including supply, erection and commissioning and comprehensive operation and maintenance for a period of 20 years in any of the Wind Potential state of India.**

## **SECTION-II**

### **PREAMBLE**

## **SECTION-II**

### **PREAMBLE**

Kamarajar Port, located on the Coromandel Coast about 24 km north of Chennai Port, Chennai, it is the 12th major port of India, and the first port in India which is a public company. The port was declared as a major port under the Indian Ports Act, 1908 in March 1999 and incorporated as Ennore Port Limited under the Companies Act, 1956 in October 1999. The Kamarajar Port is the only corporatized major port and is registered as a company. Kamarajar Port, designed as Asia's energy port and envisaged being a satellite port to decongest and improve the environmental quality at the bustling Chennai Port.

Kamarajar Port designed as a world-class port, with two breakwaters—one in the north measuring 3,080 m and the other in the south measuring 1,070 m it has the capacity to develop 20 berths for handling a variety of bulk, liquid, automobile and container cargo. The port is an artificial port with features including all-weather, round-the-clock operations, a large back-up land, eco-friendly environment, state-of-the-art navigational facilities, well-organized logistics systems and transport interface

Ministry of shipping, Government of India has decided to install a total of 150 MW of power through use of renewable energy in the Major Ports. Kamrajjar Port has given its consent and commitment to install 25(±5%) MW wind power plant on EPC basis at any potential site in India.

# SECTION-III

## INSTRUCTIONS TO BIDDERS

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## **SECTION-III**

### **INSTRUCTIONS TO BIDDERS**

#### **3.1 BREAKUP OF PURCHASE ORDERS**

Owner may place three separate Purchase Orders (POs) / contract agreement and one wrap agreement for the entire scope of work for implementation of the project in the following manner:

- 3.1.1 Order / contract agreement for detailed engineering, manufacturing, in-house testing, supply and delivery of equipments at site.
- 3.1.2 Order / contract agreement for arranging required land for the project (either on outright purchase basis or long-term lease basis, as applicable), micro-siting, all approvals, all civil & construction works at site, laying internal & external evacuation system, erection & commissioning of WTGs and interconnection with State grid of wind farm project in all respect.
- 3.1.3 Order / contract agreement for comprehensive Operation & Maintenance (O&M) of the wind energy project for a period of 20 years from the date of stabilization. Initially the Order shall be for first 10 (ten) years including first two years free O&M period on the accepted rates. This O&M Contract shall be renewable for further term of 10 (ten) years on the same terms and conditions but at mutually agreed rates during 10<sup>th</sup> year of operation based on the conditions prevailing at that time. However the revised rates from 10<sup>th</sup> to 11<sup>th</sup> year should be in line with the rates in vogue at that time and is to be finalized in the first half of the 10<sup>th</sup> year. Further, the increase during 11<sup>th</sup> year is capped and shall not be more than 5%. The escalation from 12<sup>th</sup> year to 20<sup>th</sup> year will be considered same as that of quoted from 3<sup>rd</sup> year to 10<sup>th</sup> year.
- 3.1.4 Wrap agreement for covering the entire scope of work covered under the above mentioned three numbers order / contract agreement ascribed in clause 3.1.1, 3.1.2 and 3.1.3.

#### **3.2 INFORMATION TO BIDDER**

- 3.2.1 Bidders are required to furnish all information and documents as called for in this document in English language. Any printed literature furnished by the Bidder in another language will require to be accompanied by an English translation, which shall govern in case of any variation.
- 3.2.2 Pre-bid meeting shall be held on **17/08/2016 at 11.00 AM** at Kamarajar Port Limited, Vallur (Post) Chennai.
- 3.2.3 The bidder is requested to submit any questions by email/courier/fax so as to reach KPL at least three (3) days before the pre-bid meeting. These questions shall be replied during the pre-bid meeting.
- 3.2.4 Addenda to the tender document could be issued before one week prior to the date fixed for receiving the Bids to revise any of the tender condition.

- 3.2.5 All addenda are to be considered an integral part of the tender document which will be web hosted and can be viewed in [www.ennoreport.gov.in](http://www.ennoreport.gov.in); [www.ipa.nic.in](http://www.ipa.nic.in) or [www.eprocure.gov.in](http://www.eprocure.gov.in)
- 3.2.6 Bidder is required to take into account all addenda in his Bid received during the bid period and to confirm / attach the same in the Bid.
- 3.2.7 Bidder is required to submit offer for a single site of 25(±5%) MW capacity with a comprehensive O&M for 20 years in any wind potential state of India.
- 3.2.8 Bid should be filled in only with ink or typed. Any bid filled in by pencil or otherwise shall not be considered.
- 3.2.9 All additions, alterations, and over-writings in the bid or accompanying documents must be clearly signed and stamped by the authorized signatory to the bid.
- 3.2.10 The bidder is intended to be selected through single stage two part system which shall be; Part-I Un-priced bid (Techno-commercial bid including Pre-qualification document) and Part-II, the Priced bid fulfilling the qualifying criteria as mentioned below:

### **3.3 CONSORTIUM / JOINTVENTURE**

3.3.1 Bids may be submitted by:

- a) Single person/ entity (called sole bidder);
- b) Newly formed incorporated joint venture (JV) company.
- c) Consortium (to be incorporated as JV) having a maximum of three members;
- d) An Indian arm of a foreign company.

3.3.2 Bids may be submitted by:

Fulfillment of Eligibility criteria and certain additional conditions in respect of each of the above 4 types of bidders are stated below, respectively:

- a) The sole bidder shall fulfill each eligibility criteria.
- b) In case the bidder is a newly formed incorporated joint venture and which has not completed three financial years from the date of commencement of business, then either the said JV shall fulfill each eligibility criteria or the lead constituent member / promoter of such a JV shall fulfill each eligibility criteria.

If the bid is received with the proposal that the lead constituent member/ promoter fulfills each eligibility criteria, then this member / promoter shall be clearly identified and he/ it shall assume all obligations under the contract and provide such comfort letter / guarantees as may be required by Owner. The guarantees shall cover inter alia the commitment of the lead member / promoter to complete the entire work (land, supply, erection commissioning, O&M) in all respects and in a timely fashion, being bound by all the obligations under the contract, an undertaking to provide all necessary technical and

financial support to the JV to ensure completion of the contract when awarded, an undertaking not to withdraw from the JV till completion of all obligations under the contract.

The lead member would be the technology supplier and manufacturer of the WEG.

A copy of the JV agreement is to be submitted along with the bid.

- c) In case the bidders are bidding as a consortium (to be incorporated as JV), then the following conditions shall apply:
- (i) Each member in a consortium should only be a legal entity and not an individual Person. Two or maximum three such members can form a consortium for the purpose of bidding only.
  - (ii) The Bid shall specifically identify and describe each member of the consortium.
  - (iii) The consortium member descriptions shall indicate what type of legal entity the Member is and its jurisdiction of incorporation (or of establishment as a legal entity other than as a corporation) and provide evidence by a copy of the articles of incorporation (or equivalent documents).
  - (iv) **The lead member would be the technology supplier and manufacturer of the WEG.**
  - (v) This lead member shall be solely responsible for all aspects of the Bid/Proposal including the execution of all tasks and performance of all consortium obligations.
  - (vi) All the bid documents are to be signed by the lead member who should be duly authorized for this purpose by other consortium members. A copy of such authorization is to be submitted along with the bid.
  - (vii) The lead member shall fulfill each eligibility criteria and shall submit the EMD as well as Security Deposit Cum Performance Bank Guarantee (SPBG).
  - (viii) A commitment shall be given from each of the consortium members in the form of a letter signed by a duly authorized officer clearly identifying the role of the member in the Bid and the member's commitment to perform all relevant tasks and obligations in support of the lead / lead member of the Consortium and a commitment not to withdraw from the consortium.
  - (ix) No change shall be permitted in the number, nature or share holding pattern of the Consortium members after pre-qualification, without the prior written permission of the Owner.
  - (x) No change in project plans, timetables or pricing will be permitted as a Consequence of any withdrawal or failure to perform by a consortium member.
  - (xi) **No consortium member shall hold less than 25% stake in a consortium.**
  - (xii) Any person or entity can bid either singly or as a member of only one consortium.

(xiii) If the consortium wins the contract then the consortium has to be incorporated as a JV before award of the work. After incorporation as JV the lead member will be jointly and severally responsible for all contractual obligations of the contract.

The copy of the JV agreement is to be submitted to the owner before award of work.

- d) In case the bidder is an Indian arm (subsidiary, authorized agent, branch office or affiliate) of a foreign principal, then the foreign principal shall have to fulfill each eligibility criteria. If such foreign principal desires that the contract be entered into with the Indian arm, then a proper back to back continuing guarantee shall be provided by the foreign principal, clearly stating that in case of failure of any supply or performance of the equipment, machinery, material or plant or completion of the work in all respects and as per the warranties/guarantees that may have been given, then the foreign principal shall assume all obligations under the contract.

Towards this purpose, it shall provide such comfort letter / guarantees as may be required by Owner. The guarantees shall cover inter alia the commitment of the foreign principal to complete the entire work (*land*, supply, erection commissioning and O&M) in all respects and in a timely fashion, being bound by all the obligations under the contract, an undertaking to provide all necessary technical and financial support to the Indian arm. The foreign principal would ensure completion of the contract in the event of any failure of Indian arm and also undertake not to withdraw from the contract till completion of the work.

### **3.4 BIDDER'S ELIGIBILITY CRITERIA**

- 3.4.1 Bidders intending to participate in this tender shall fulfill the Eligibility Criteria as given in Schedule ITB-1 of this Section

### **3.5 SUBMISSION OF BIDS**

- 3.5.1 All documents shall be submitted in 1 (one) original plus 2 (two) copies in the following manner:

- 3.5.2 Bid shall be submitted in three separate sealed envelopes viz. Envelope I (EMD.), Envelope II (Un-priced bid) & Envelope III (price bid)

- a) Envelope - I: Earnest Money Deposit (EMD) and Tender Fee

The Earnest Money Deposit (EMD) and non-refundable Tender Fee shall be placed in a separate sealed Envelope marked as "EMD & Tender Fee" and Tender No.

- b) Envelope - II: Un-priced / Techno-commercial Bid

The Un-priced bid shall contain one duly signed and stamped on each and every page of tender document & addenda, if any.

Price Schedule format with prices kept blanked shall be submitted as a token of acceptance of the same.

Necessary documents complete in all respect in support of meeting with Bid Eligibility Criteria shall be furnished.

All Bid Response Sheets (BRS 01 to BRS 21) duly filled in and signed shall be submitted along with documents as required.

c) Envelope – III: Price Bid [Price Schedule]

- (i) The priced bid shall be placed in a separate sealed envelope marked as “PRICE BID”, Tender No and super-scribed as “Not to be opened with other envelopes”.
- (ii) It should contain only the “Price Schedule” complete with rates / prices filled in it. The “Price Schedule” shall be free from any terms and conditions. "Price Bid" containing any new / fresh condition shall be liable for rejection.

3.5.3 The respective envelopes are to be super scribed as EMD, Unpriced Bid (PART I) and Priced Bid (PART II).

All the above three envelopes containing EMD, Un-priced bid & Priced bid shall be put inside one single envelope, sealed and clearly superscripted on the envelope.

ITB DOCUMENT– DO NOT OPEN

25 (±5%) MW WIND ENERGY PROJECT

TENDER NO.: KPL/OP/ELE/04/2016

DUE DATE: **31/08/2016**

3.5.4 In case price bid is received in open condition and / or contained/ mentioned anywhere else the offer will be rejected.

3.5.5 Bids shall be accompanied by Earnest Money Deposit (EMD) amounting to Rs.3,25,00,000/- (Rs. Three Crores and Twenty Five Lakhs only) in the form of Bank Draft or original non-revocable Bank Guarantee of equivalent amount as per Annexure-II of volume I issued by approved Bank listed at Annexure-VI of volume I in favour of Kamarajar Port Limited valid for a period of 6 months from the due date of the submission of the bid.

3.5.5.1 EMD shall be non-interest bearing. Any bid, not accompanied with requisite EMD shall be summarily rejected.

3.5.5.2 Bids completed in all respect shall be delivered at the following address on or before the bid submission due date / time.

**Deputy General Manager(Civil),  
Kamarajar Port Limited,  
Vallur (Post), Chennai – 600 120. Tamilnadu, India.**

3.5.6 Owner shall not be responsible for any delay, loss or non-receipt of bids sent through post/courier/ or other means/ reasons, whatsoever.

- 3.5.7 Envelope-I & Envelope-II of the Bids submitted by due date and time at the above address shall be opened on the same day at the same office at Vallur (Post), Chennai – 600120 India
- 3.5.8 Bidder or any authorized representative of the bidders may attend the opening.
- 3.5.9 Owner may at its sole discretion, extend the bid submission due date/ time.
- 3.5.10 Bid document may be checked before submission to ensure that all information/ Documents required for qualification are included.
- 3.5.11 Transfer of bid document issued to one prospective Bidder to any other party is not permissible.
- 3.5.12 Intending Bidders are required to carefully go through the instructions included in the bid document and furnish complete information, necessary documents and schedules.
- 3.5.13 The Bidder will be deemed to have independently obtained all the necessary information for the purpose of preparing his bid.
- 3.5.14 It should be clearly noted that under no circumstances any time extension or any financial or any other kind of adjustment would be permitted for want of non- familiarity of work or worksite.
- 3.5.15 All costs towards site visit(s), conference(s), preparation and submission of bids shall be borne by the Bidders themselves.
- 3.5.16 At any time prior to opening of bids, Owner either on its own initiative or in response to clarifications requested by a prospective Bidder, may modify the bid document by issuing an amendment by courier/fax/ e-mail, etc. to all Bidders.
- 3.5.17 After opening of proposal and till final selection of successful Bidder(s), no correspondence of any type will be entertained, unless called for by Owner. Any type of uncalled for clarifications on prices and or rebates shall not be accepted.
- 3.5.18 Bidders are advised to submit offers strictly based on the terms and conditions and specifications contained in the bid documents. For any terms and conditions and for absolutely unavoidable reasons, the Bidder may indicate deviations only in the format provided for the purpose. (Ref: Bid Response Sheet 5) Deviations mentioned anywhere else would simply be ignored without any consequences.
- 3.5.19 The Bidder must quote the prices in line with the formats provided in the document. Quoted rate/cost shall be entered in words as well as in figures. These should not contain any additions, alterations, over-writings, cuttings or corrections and any other markings, which leave any room for doubt. In case of difference in figures and words, the amount written in words shall prevail and shall be considered for evaluation.
- 3.5.20 A single authorized representative of the Bidder should sign and affix seal on each page of the bid document. Proof for authorization for signing the document shall be furnished by the Bidder.

- 3.5.21 Successful Bidder/ Bidders will be required to execute a Contract Agreement in the prescribed format. In the event of failure of Bidder to execute the contract agreement within specified period from the date of receipt of acceptance of the bid, the full earnest money deposited shall be forfeited.
- 3.5.22 Bid proposal preparation is the responsibility of the Bidder and no relief or consideration will be given for errors and omissions.
- 3.5.23 Purchase Preference or any other benefits available to any entities/sectors as per directives of Government of India from time to time, shall be considered.
- 3.5.24 Bidders shall declare that they have not been banned by any Government or quasi Government agency. If yes, details to be given. (Bid response sheet 6)
- 3.5.25 Bidder to note that appropriate Grievance Redressing Mechanism is available for all such bidders participating in the tender.
- 3.5.26 Bidders are advised to submit offers in accordance with the terms & conditions and specifications contained in the tender document.
- 3.5.27 Bidders are required to give a declaration giving the names of other firms/agencies/ partnership firm/ wholly owned or partly owned subsidiary etc. where they are having financial/professional stakes and also give a certificate, if any such firm agency is participating in this tender.

**3.5.28 Immunity to Government of India**

It is expressly understood and agreed to by and between the bidder and Kamarajar Port Limited that Kamarajar Port Limited is entering into this contract solely on its own behalf and not on behalf of any other person or entity. In particular, it is expressly understood and agreed that the Government of India is not a party to this contract and has no liabilities, obligations or rights hereunder. It is expressly understood and agreed that Kamarajar Port Limited is an independent legal entity with power and authority to enter into contracts solely in its own behalf under the applicable laws of India and general principles of contract law. The bidder expressly agrees, acknowledges and understands that Kamarajar Port Limited is not an agent, representative or delegate of the Govt. of India. It is further understood and agreed that the Govt. of India is not and shall not be liable for any acts, omissions and commissions, breaches or other wrong arising out of the contract. Accordingly, the bidder hereby expressly waives, release and forgoes any and all actions or claims including cross, impleader claims or counter claims against the Govt. of India arising out of this contract and covenants not to sue the Govt. of India as to any manner, claim cause of action or thing what so ever arising of or under this Agreement.

**3.6 METHODOLOGY OF BID EVALULATION**

Evaluation of both un-priced bids and priced bids shall be done separately.

- a) Techno-commercial evaluation of the un-priced bids shall be carried out first. This will be done on the basis of Eligibility Criteria documents furnished by the bidder and completeness & conformity of the bids with respect to the ITB requirement
- b) Price bids of only techno-commercial acceptable bidders shall be opened

- c) Financial evaluation of acceptable bids shall be done as per the Methodology of Bid Evaluation given in Schedule ITB-2 of this Section.
- d) Order shall be placed on the bidder whose IRR is found to be the highest based on the rankings of Highest IRR for the tendered capacity of 25(±5%) MW.

### **3.7 RIGHTS OF OWNER**

- 3.7.1 Bidders are informed that Owner is neither under any obligation to select any bidder nor to assign any reason for either qualifying or disqualifying any bidder. Owner is also not under any obligation to proceed with the project or any part thereof.
- 3.7.2 At any time prior to opening of price proposals, either on its own initiative or in response to clarifications requested by any prospective bidder, Owner may modify the document by issuing an amendment by courier/fax / e-mail, etc. to all bidders.
- 3.7.3 Owner reserves the right to reject any or all proposals without assigning any reason thereto.

### **3.8 BID FORM**

Bidders are required to sign the Bid Form enclosed as per Annexure-I with the tender document, failing which their bid shall be liable for rejection.

### **3.9 VALIDITY**

The bid shall be valid for 6 months from the bid due date or extension if any without any change in the quoted price and all terms & conditions.

### **3.10 DISQUALIFICATIONS**

Owner reserves the right at its sole discretion to disqualify any Bidder on, *inter alia*, any of the following grounds:-

- 3.10.1 Found having indulged in corrupt or fraudulent practices in any prior bid process in the past 5 years.
- 3.10.2 The Bid not being accompanied by any supporting documents or Annexures required to be submitted in accordance with the ITB.
- 3.10.3 Submission by a Bidder more than one Bid. Any Bidder, who submits more than one Bid in respect of the Project, shall render the Bids submitted by such Bidder (individually or as a consortium) subject to rejection.
- 3.10.4 Failure to comply with the requirements of ITB or the Bid being non responsive to the requirements of ITB
- 3.10.5 If the Bid is not signed, sealed and marked as stipulated in the ITB or does not contain all the information as requested in this ITB or in the formats specified in the ITB, Owner may reject the Bid as non-responsive

- 3.10.6 Any Bid not accompanied by a Bid Security / EMD shall be rejected by Owner as non-responsive.
- 3.10.7 Any Bid received after the “Due Date” mentioned in the relevant Clause shall be rejected by Owner.
- 3.10.8 Failure to submit reply in specified time for the queries/ clarifications/ documents requested after bid opening by Owner/ Consultants.
- 3.10.9 Any other reason as may be deemed fit at the discretion of Owner.

### **3.11 REJECTION OF BID**

- 3.11.1 No correspondence by any bidder shall be entertained till such time decision in the matter is taken unless otherwise specifically asked for by Owner.
- 3.11.2 The bidder must quote the prices in line with the formats provided in the document, failing which tender is liable for rejection. The rate/ cost shall be entered in words as well as in figures. These should not contain any additions, alterations, over-writings, cuttings or corrections and any other markings, which may leave any room for doubt.

### **3.12 CONFIDENTIALITY**

Bidder shall treat NIT documents and contents therein as private and confidential. If at any time during bid preparation, bidder decides to decline the invitation to bid; all documents must be immediately returned.

### **3.13 FORCE MAJEURE**

Any delays in or failure of the performance of either parties thereto shall not constitute default hereunder or give rise to any claims for damages, if any, to the extent such delays or failure of performance caused by occurrences such as acts of God or the public enemy, expropriation or confiscation of facilities by Government authority, compliance with any order or request of any Governmental authorities, acts or war rebellion, sabotage, fire, floods, explosions riots or illegal strikes, provided always that such occurrences result in impossibility of performances of the contract.

Only events of Force Majeure which impedes the execution of the contract at the time of its occurrence shall be taken into cognizance.

### **3.14 RIGHT OF WAY**

It shall be the responsibility of the Bidder to make arrangements for Right of Way (ROW), easement rights and such other access rights to ensure timely completion of the project and also un-obstructed Operation & Maintenance (O & M) of the wind power project.

Any effect of ROW problem (except Force Majeure conditions) will be to Bidder's account during project execution as well as O&M period. In the event of ROW problem due to Force Majeure conditions the details / documents will have to be submitted to Kamarajar

Port Limited & it will at the discretion of Kamarajar Port Limited to consider the ROW problem on its merits.

Bidder shall be responsible for obtaining any and all authorizations required for use of public facilities and infrastructure in connection with the performance of the work, wherever applicable.

### **3.15 ARBITRATION**

All disputes or differences whatsoever which shall at any time arise between the parties hereto touching or concerning the works or the execution or maintenance thereof of the contract or the rights touching or concerning the works or the execution or maintenance thereof of this contract or the construction meaning operation or effect thereof or to the rights or liabilities of the parties or arising out of or in relation thereto whether during or after completion of the contract or whether before or after determination, fore closure or breach of the contract (other than those in respect of which the decision of any person is by the contract expressed to be final and binding shall after written notice by either party to the contract to the other of them and to the Appointing Authority hereinafter mentioned be referred for adjudication to a sole Arbitrator to be appointed as hereinafter provided.

For the purpose of appointing the sole Arbitrator referred to above, the Appointing Authority will send within thirty days of receipt of the notice, to the contractor a panel of three names of persons.

The contractor shall on receipt of the names as referred selected any one of the person names to be appointed as a sole Arbitrator and communicate his name to the Appointing Authority within thirty days of receipt of the names. The appointing Authority shall there upon without any delay appoint the said person as the sole Arbitrator. If the contractor fails to communicate such selection as provided above within the period specified, the Appointing Authority shall make the selection and appoint the selected person as the sole Arbitrator.

If the Arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacate his office due to any reason whatsoever sole Arbitrators shall be appointed as aforesaid. The work under the contract shall, however continue during the arbitration proceedings.

The Arbitrator shall be deemed to have entered on the reference on the date he issues notices to both the parties fixing the date of the first hearing.

The Arbitrator may, from time to time, with the consent of the parties, enlarge the time for making and publishing the award.

The Arbitrator shall give a separate award in respect of each dispute or difference and shall give a reasoned and speaking award/ awards.

The venue of arbitration shall be at Chennai. However, if the situation so warrants, it may, as and when required, be held at the place where the site of work is situated.

The fees, if any, of the Arbitrator shall, if required to be paid before the award is made and published be paid half and half by each of the parties. The costs of the reference and of the award including the fees, if any of the Arbitrator shall be in the discretion of the Arbitrator who may direct to and by whom and in what manner, such costs or any part thereof shall be paid may fix or settle the amount of costs to be so paid.

The award of the arbitrator shall be final and binding on both the parties.

Subject to aforesaid, the provisions of the Indian Arbitration & Conciliation Act 1996 or any statutory modification or re-enactment thereof and the rules made there under, and for the time being in force shall apply to the arbitration proceeding under this clause.

For Public Sector Enterprises guidelines as per the circular of BPE No. 15/9/86-BPE (FIN) dated 30.03.89 as amended time to time will be followed.

### **3.16 JURISDICTION/ GOVERNING LAWS**

#### **3.16.1 Jurisdiction:**

For all disputes arising of this contract, the jurisdiction shall lie under the jurisdiction of courts in city of Chennai (India) only.

#### **3.16.2 Governing Laws:**

The contract shall be governed by and constructed according to the laws in force in India.

### **3.17 SITE CONDITIONS**

3.17.1 Bidder shall satisfy himself of the site conditions and shall apprise himself of the procedure for engagement of agencies/ labour and shall collect other relevant information that may be required before submitting the bid. Claims and objections due to ignorance of site condition will not be considered after submission of the bid.

3.17.2 Bidder shall fully acquaint himself as to all conditions and matters, which may in any way affect the work or the cost thereof. The bidder shall be deemed to have himself independently obtained all necessary information for the purpose of preparing the bid and his bid as accepted shall be deemed to have taken into account all contingencies as may arise due to such information or lack of the same.

3.17.3 Bidder shall be deemed to have visited and carefully examined the site and surroundings to have satisfied himself about the nature of all existing facilities, infrastructure available for transport and communications and access to the site for developing the wind power project.

3.17.4 Bidder is deemed to have acquainted himself of Government taxes, laws structure, regulations, levies and other charges relating to the tendered work at site.

3.17.5 Bidder shall obtain all the necessary clearances / permission / NOCs etc. for development of the site for wind power project.

3.17.6 Any neglect or omission or failure on the part of the bidder in obtaining necessary clearances and reliable information upon the forgoing or any other matter affecting the bid shall not relieve him from any risks or liabilities or the entire responsibility for completion of the work in accordance with the bid.

### **3.18 LOCAL CONDITIONS**

3.18.1 It will be imperative on the part of each bidder to acquaint himself with all local laws, conditions and factors which may have any effect or bearing on the execution of works and supplies under the scope of this tender. In their own interest, the bidders are required to familiarise themselves with (but not limited to) the Indian Income Tax Act, Indian Companies Act, Indian Customs Act, Factories and Boiler Act, Contract Labour (regulation and abolition) Act, Arbitration Act, PF Act and other related Acts and Laws and Regulations of India with their latest amendments as applicable. The Owner shall not entertain any clarification from the Bidder(s) regarding such local condition

3.18.2 It shall be understood & agreed that above factors have been properly investigated and considered while submitting the offer. No claim for financial or any other adjustments to contract price or completion time on account of lack of clarity of such factors shall be entertained.

### **3.19 SINGLE OFFER:**

Bidder can submit single offer for the project of maximum 25(±5%) MW capacity in any wind potential state of India. The offered site should be in a single state only.

### **3.20 GENERAL**

Although details presented in this NIT have been compiled with all reasonable care, it is Bidder's responsibility to satisfy itself that the information / documents are adequate and that there is no conflict between various documents/stipulations. No dispute or claims will be entertained on this account. Bid proposal preparation is the responsibility of the bidder and no relief or consideration can be given for errors and Omissions.

## BIDDER'S ELIGIBILITY CRITERIA

The bidder should meet the Eligibility Criteria / Requirements stipulated hereunder:-

### TECHNICAL CRITERIA

- (i) The bidder should be a manufacturer of wind energy generator. The offered model of WEG shall be of 1500 KW rating or above.
- (ii) **The bidder should have engineered, manufactured, supplied, erected and commissioned, on turnkey basis, Wind Power Project of aggregate capacity comprising of wind electric generators (WEGs) of unit rating of 1500 KW or above in any one year in the last seven years ending as on bid due date or extension if any as follows. The Global experience shall also be considered.**

**Development\* of at least one wind farm of capacity 20MW at a single location in one financial year during the last 7 years**

(Or)

**Development\* of at least Two wind farm of capacity each 13MW at a single location in one financial year during the last 7 years**

(Or)

**Development\* of at least Three wind farm of capacity each 10MW at a single location in one financial year during the last 7 years**

**\*Development means manufacture, assemble, inspection, supply, micro sitting, land facilitation, erection and commissioning of the wind farm**

- (iii) The model / type of WEG quoted should have been installed by the bidder and must have been working satisfactorily in a wind farm at single site of capacity not less than 20 MW at least for a period of one year as on bid due date or extension if any. Global experience will also be considered.
- (iv) The quoted model / type of WEG should have Type Certification from an accredited test house such as RISO Denmark, DEWI- Germany, Germanischer LLOYD- Germany, NIWE or any other agency approved by Ministry of New and Renewable Energy (MNRE), Government of India. Such Type Certificate should be valid as on the date of opening of the bid. Copy of Type Certificate along with copy of certified power curve shall be submitted with the bid. Copy of Thrust curve shall also be submitted. Power curve and thrust curve should be in graphics as well as tabular form.
- (v) The bidder should have its name & the offered model included in the latest list of "Manufacturers of Wind Electric Generators / Wind Turbine equipment" in Table A published by National Institute of Wind Energy (NIWE), Ministry of Non- conventional Energy Sources and Government of India.

- (vi) The bidder should be presently in the business of operation & maintenance (O&M) of wind farms and should have the experience of successful operation and maintenance of at least one wind farm of 20 MW capacity or above in India, having WEGs of 1500 KW capacity or above, for a period at least of one year as on bid due date or extension if any and during last 7 years period.
- (vii) The capacity offered should have been allotted to the bidder or his associate by the State Nodal / Designated Agency at the time of submission of bid for development of Wind Farm.
- (viii) The bidder should be in possession of suitable and adequate land either government land on lease or private land, required for installation of the project. The land should have clear title and free from any encumbrances, encroachments or litigation. The bidder may have any of the following arrangements for having the land:
1. Bidder already having possession of land in his own name
  2. Allotment letter of revenue land in bidder's own name by the Government or by competent authority. If allotment letter is not available then recommendation for allotment of land from the nodal agency will be considered subject to submission of allotment letter within 60 days of techno commercial bid opening.
  3. The bidder should have an Agreement with a third party (an individual or company) or Bidder's subsidiary or Bidder's group company who is/are either in possession / having Agreement to sale with owner of **private land** or have been recommended by nodal/designated agency for allotment of **revenue land** (subject to submission of allotment letter in 60 days of techno commercial bid opening)/ allotted Government land along with commitment to transfer such land to Kamarajar Port Limited without any consideration. The bidder shall furnish land details, Agreement with third party and commitment of the third party or Bidder's subsidiary or Bidder's group company along with commitment for transfer of such land in favour of Kamarajar Port Limited with his bid.
  4. Copy of lease/sale deed in case of own land and a copy of allotment letter in case of Government land shall also be furnished with the bid.
  5. In case of Forest land the bidder should have at least Stage -1 clearance from the Ministry of Environment and Forests. The stage -1 clearance should be for the quoted capacity of project. The Bidder shall submit the compliance report for all the requirements mentioned by MoEF in Stage-1 clearance.

#### **Financial Criteria**

- (i) Annual turnover of the bidder should be minimum Rs. 500 million in any one of the three preceding financial years.

- (ii) Net worth of the bidder should be positive for previous audited year as per audited financial statement immediately preceding the current financial year.

**General:**

1. The bidder shall furnish documentary evidence by way of copies of Contract / Purchase Order, Completion Certificate or any other equivalent document, Audited Balance Sheet and Profit & Loss Account etc. along with the Bid to establish experience / track record and financial capabilities meeting Bid Evaluation Criteria.
2. The bidder or its Proprietor/ Partner(s)/ Director(s) of the Firm should not have been convicted by a Court of Law for an offence involving moral turpitude in relation to business dealings during the past seven (7) years. The bidder shall give an affidavit to this effect. The affidavit must be affirmed before the competent judicial authority or duly notarized by the Notary. Besides, bidder should furnish litigation history of their firm or group firm (if claiming fulfillment of BEC on group entity terms). The litigation history shall include:
  - (i) Arbitration cases pending.
  - (ii) Disputed incomplete works.
  - (iii) Pending civil cases against the firm and/or its Proprietor/Partner(s)/ Director(s) involving moral turpitude in relation to business dealings.
  - (iv) Pending criminal cases against the firm and/or its Proprietor/Partner(s)/ Director(s) involving moral turpitude in relation to business dealings.
  - (v) Punishments awarded under civil cases and/or criminal cases involving moral turpitude in relation to business dealings to the firm and/or its Proprietor/ Partner(s)/Director(s).
3. The bidder should meet all the above eligibility criteria as on the bid due date. The bids of only those bidders, who meet the Bidder's Eligibility Criteria, will be considered for further evaluation.

**METHODOLOGY OF BID EVALUATION**

Evaluation of both un-priced bids and priced bids shall be done separately.

1. Techno-commercial evaluation of the un-priced bids shall be carried out first. This will be done on the basis of Eligibility Criteria, documents furnished by the bidder and completeness & conformity of the bids with respect to the ITB requirements.
2. Price bids of only qualified and techno-commercially acceptable bidders shall be opened.
3. Preliminary Examination of Price Bid
  - (i) Price Bid will be examined to determine whether they are complete, whether any computational errors have been made, whether the documents have been properly signed, and whether the bid(s) are generally in order.
  - (ii) Arithmetical errors will be rectified on the following basis:

If there is a discrepancy between the unit price and the total price, which is obtained by multiplying the unit price and quantity, or between subtotals and the total price, (even in case of carry forward of prices) the unit or subtotal 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 the Bidder does not accept such correction of errors, its bid will be rejected and the bid security will be forfeited.
4. IRR will be calculated considering AEP of offered project with the feed in tariff rates of concerned state.
5. Financial loading for interest component, if any, shall be done considering rate of interest as 12 % per annum.
6. Financial evaluation of the bids shall be carried out by calculating overall Project IRR (Post Tax) for the project life of 20 years with following considerations:
  - a) Total EPC contract price quoted by bidder.
  - b) Total O&M charges for 20 years. For first ten years O&M charges quoted by the bidders shall be considered. For 11<sup>th</sup> year onwards O&M charges will be calculated as here under:-
    - For 11<sup>th</sup> year O&M charges will be increased by 5% as applicable to 10<sup>th</sup> year.
    - For 12<sup>th</sup> to 20<sup>th</sup> year O&M charges will be escalated on annual basis at the rate of escalation quoted by bidder from 3<sup>rd</sup> year to 10<sup>th</sup> year.
  - c) Insurance charges will be considered @ 0.10% per annum for 20 years.

- d) Other charges such as Land lease, Chief Electrical Inspector fees, Nodal Agency / Discom / Transco charges quoted by the bidder.
  - e) Total Annual Energy Production (AEP) for 20 years as arrived at by the Owner / consultant after effecting corrections in the AEP furnished by the bidders.
  - f) Information / data furnished by the bidders in Bid Response sheets.
  - g) Financing norms as follows:
    - i) The debt equity ratio as 70: 30
    - ii) Loan period as 10 years with a moratorium of 1 year.
  - h) Any other point which may have financial bearing on overall return of the project can also be considered in the evaluation.
  - i) Feed in tariff of wind power of the offered State as prevailing on the date of opening of the price bid shall be considered.
  - j) Generation Based Incentive (GBI) as applicable at the time of evaluation of bid shall be considered.
7. Technical evaluation and financial evaluation for the offered project will be done separately.
8. Bidder having highest evaluated Project IRR (post-tax) for the whole project i.e. 25(±5%) MW shall be considered for ordering. The site offered would thereafter be ranked in the order of the IRR ranking starting with the highest IRR first. Order shall be placed on the bidder whose IRR is found to be the first highest. IRR will be calculated up to three decimal points by Kamarajar Port Limited / its consultant whose decision in this regard will be final.
8. Kamarajar Port Limited reserves the right to cancel any site without ascribing any reason based on its own assessment and can accordingly modify the capacity of the project to be awarded.

**SECTION-IV**

**SPECIAL CONDITIONS OF CONTRACT  
FOR  
SUPPLY, ERECTION & COMMISSIONING**

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## SECTION-IV

# SPECIAL CONDITIONS OF CONTRACT FOR SUPPLY, ERECTION & COMMISSIONING

### 4.1 DEFINITIONS & INTERPRETATION

**Acts/Codes** shall mean, but not limited to the following, including the latest amendments, and/or replacements, if any:-

1. Electricity Act, 2003 with amendments thereto if any.
2. A.I.E.E Test Codes
3. American Society of Testing of Materials (ASTM Codes).
4. Relevant standards of the Bureau of Indian Standards(IS Codes)
5. Arbitration and Conciliation Act, 1996, and Rules made there under.
6. Environment (Protection) Act, 1986 and Rules made there under.
7. Other approved standards and/or Rules and Regulations touching the subject matter of the Contract.

**Accelerated Depreciation (AD)** means the higher rate of depreciation as per Income Tax Act.

**Applicable Laws** means any statute, law, regulation, ordinance, rule, judgment, order, decree, restriction, directive, governmental authorizations, requirements of Applicable Permits and any agreements, decisions, acts, instructions, requirements, directions and notifications of the competent authority having jurisdiction over the matter in question, whether in effect as on bid due date or extension if any.

**ABT Meter means** Availability Based Tariff Meter for measurement of power and energy as per IEGC

**Bid and Bid Document** shall mean the proposal submitted by the Bidder in response to this ITB in accordance with the terms and conditions hereof.

**Bidder** shall mean the Bidding Entity or the Bidding Consortium which has submitted a proposal, in response to this ITB to Owner.

**Bidding Entity** shall mean a single entity, whether a firm or a Company.

**BIS** shall mean Bureau of Indian Standards.

**Bidding Consortium** shall mean a consortium of entities, being firms, companies or Governmental entities which have submitted a proposal in response to this ITB.

**Balance of Plant (BOP)** means the power evacuation system including equipments beyond WEG till Inter connection Point.

**Completion Period** shall mean the period by/during which the work shall be completed as agreed herein between the Owner and the Contractor.

**Completion Certificate** shall mean as defined in Clause 4.24 of this Section.

**Commissioning of Project** shall mean the commissioning of Wind Power Project of capacity 25( $\pm$ 5%) MW and its interfacing with State Grid and commencement of export of electrical energy to the grid.

**Commissioning Certificate** shall mean the certificate issued by State Nodal Agency/ State Transmission Company, as the case may be, on successful commissioning of wind power project.

**Date of Commissioning of wind energy generator** shall mean the date of commissioning mentioned in the certificate issued by State Nodal Agency / State Power Utility, as the case may be, on successful commissioning of WEG.

**Commercial Operation Date (COD)** means the date when the WEG is connected to the Grid.

**CT** means current transformer meant for measurement of current

**C&R Panel** means control & relay panel

**CEIG** means Chief Electrical Inspector of State Government

**CRM** means customer relations manager

**Common Facilities** As defined at clause number 4.35.

**DISCOM** means 'Concerned Distribution Utility of the State'.

**Date of completion** means the date of issue of completion certificate as per clause 4.24.

**Effective Date/Zero Date** shall mean the date of issue of Fax/ Letter of Intent

**Engineer-In-charge** shall be the engineer who will be the incharge of the project, assigned by Kamarajar Port Limited.

**Engineering, Procurement and Construction Contractor (EPC)** shall mean the firm/company or party on whom the Letter of Intent/Work Order for faithful execution of the work mentioned herein is placed and shall include his/her/their heirs, legal representatives and successors and permitted assigns.

**Final Acceptance** shall mean completion of project activities in all respect including 96 Hours test run & Power curve performance test or any other test required as per contract.

**Facility** means land, wind turbine, generator, step up sub-station, power evacuation system

**Generation Based Incentive (GBI)** shall mean the incentive given by MNRE on actual generation of energy

**Inter –connection Point** shall mean a point at EHV substation of transmission licensee or HV substation of distribution licensee, as case may be, where the electricity produced from the RE generating station is injected into state Grid.

**IEGC** means Indian Electricity Grid Code 2010.

**KW/MW** means Kilo Watt/Mega Watt

**KWh** means Kilowatt Hours

**LCS** means local control system.

**Micro-siting** means identification of points on the offered land contours based upon wind resource assessment, where individual WEG is to be located in the wind farm. These locations (points) for the WEGs shall be optimized to have maximum possible electricity generation.

**Metering Point** means the point at which the State Power Utility / Electricity Board measures the quantity of energy supplied to its grid.

**Machine Availability** means the period for which the WEG is in the state of power generation and remains available in healthy condition irrespective of wind condition. Formula of Machine Availability is defined at Clause 5.6.

**MBD** means Machine Break Down for insurance purpose.

**MNRE** means 'Ministry of New & Renewable Energy Sources, Government of India'.

**Nacelle Assembly** means set of generating equipment consisting of Gear Box & generator.

**NIWE** means National Institute of Wind energy, Chennai

**NODAL AGENCY** means 'Renewable Energy Corporation/Agency of the State'.

**O&M** shall mean Operation & Maintenance of wind power project which inter alia, includes provisions of manpower, spares, special tools, cranes or such materials/ equipments that may be required for maintaining the WEGs in operation.

**Operator** shall mean the person or the persons, firm or Company or corporation whose tender has been accepted for operation & maintenance by the Owner and includes the Contractor's legal Representatives, his successors and permitted assigns.

**Project** shall mean the Development, Design, Engineering, Supply, Procurement and Construction, Commissioning, Operation and Maintenance of the proposed 25( $\pm$ 5%) MW wind energy generation facilities complete in all respects and all activities incidental thereto.

**Project Life** means the operational life of WEGs and all associated equipments and the same shall not be less than 20 years.

**PT** means potential transformer meant for measurement of voltage.

**PPA/EPA** shall mean Power Purchase Agreement/Energy Purchase Agreement.

**Prudent Utility Practice means** accepted international/Indian practice(s), standard(s), engineering and operation considerations, taking into account the conditions prevalent at Site including manufacturer's recommendations generally followed in the operation and maintenance of facilities similar to the power plant.

**Power Curve** is a curve drawn with wind velocity in meter per second as axis and the corresponding energy generated by WEG as ordinate at standard density of air. (1.225kg/m<sup>3</sup>)

**Reactive Power** shall mean the Reactive Power drawn from the grid and charged by the power utility from the Owner and measured in KVARh.

**SEB** shall mean State Electricity Board.

**Stabilization Period** means time required for fine tuning of the WEG and is considered as 60 Days from the date of commissioning refer clause 4.10.

**Time Schedule** shall mean the period by which the work shall be completed as agreed herein between the Owner and the Contractor as per clause no. 4.9.

**TRANSCO** means 'State Transmission Company or Corporation'

**VAR** means reactive power.

**VCB** means Vacuum Circuit Breaker

**WAsP** means Wind Atlas Analysis and Application Program.

**WEG** shall mean Wind Electric Generator.

**WEG LAND** refers to such plot of land on which each of the WEG, its Associated Equipment, the Unit Transformer and the Unit Switchyard shall be located. The land parcel

for each WEG & associated equipment shall be leased / subleased / transferred by bidder or its associate companies in favour of Kamarajar Port Limited.

**CAPEX** Total capital cost of project

**OPEX** Total Operation & maintenance cost of project for 10 Years.

## **4.2 GENERAL**

4.2.1 Special Conditions of Contract shall be read in conjunction with the ITB, Scope of work, Technical specifications, drawings and any other document forming part of this contract, wherever the context so requires.

4.2.2 The materials, design and workmanship shall satisfy the applicable standards, specifications contained herein and codes referred to. Where the Technical Specifications stipulate requirements in addition to those contained in the standard codes and specifications, those additional requirements shall be satisfied.

In case of any contradiction in any of the terms & conditions to the extent that the two provisions cannot co-exist, the following shall prevail in order of precedence.

- i) Contract Agreement
- ii) Work Order
- iii) Letter/ Fax of Intent
- iv) Statement of Agreed Variations
- v) Instructions to Bidder
- vi) Special Conditions of Contract
- vii) Scope of Work
- viii) Technical Specifications.
- ix) General Conditions of Contract.
- x) Any other document

### **4.2.3 Environmental Laws**

All applicable codes, laws, rules and regulations relating to actual or potential effect of the activities on and at the project contemplated by executing this project on the environment, the disposal of material, the discharge of chemicals, gases or other substances or materials into the environment, or the presence of such materials, chemicals, gases or other substances in or on the project.

## **4.3 POWER PLANT**

The complete, fully functional and operational 25( $\pm$ 5%) MW wind power generating station including related facilities, substation and controls necessary to enable the plant to deliver electric power to 33 kV or at higher voltage outgoing feeders up to inter connection.

#### **4.4 DOCUMENT**

In this document unless otherwise stated:

- i) The headings and paragraph numbering are for convenience only and shall be ignored in construing the agreement;
- ii) The singular includes the plural and vice versa;
- iii) References to natural persons include body corporate and partnerships;
- iv) References to any enactment, ordinance or regulation include any amendment thereto or any replacement in whole or in part;
- v) References to Articles, Clauses and Schedules, unless the context otherwise requires, refers to Articles of, Clauses of and Schedules to this document.

#### **4.5 SCOPE OF WORK**

The scope of work covered in this tender shall be as specified under Section-VIA, VIB & VIC of "Scope of Work", and Technical Specification as per Section VII and as mentioned elsewhere in this tender document. It is, however, understood and confirmed by the Contractor that the scope as described in the tender document is not limiting in so far as the responsibilities of the Contractor shall include inter-alia, carrying out any and all works and providing any and all facilities those are required in accomplishing an operating system, complying fully with all requirements as are envisaged of it, complete in all respect and satisfying all Performance and guarantee requirements stated or implied from the contents of the tender document. The Contractor shall make all required liaisoning with all the agencies along with concerned power utilities for interconnection of the wind farm with the State Grid, so as to commence exporting the power generated from wind farm soon after its commissioning. The Contractor shall get tested all required equipments (*like CTs, PTs, ABT, etc.*) from the power utility well before commissioning of the wind farm so as to avoid any delay in commissioning of WEGs and export of power.

It will be responsibility of the bidder to arrange for the capacity allocation / developers permission as applicable in the State by the Renewable Nodal Agency of the State for the development of wind farm at the offer site.

The site offered should have been allotted to the bidder or his associate by the State Nodal Agency at the time of submission of bid for development of Wind Farm. The site should have clear legal title and should be free from any encumbrance.

#### **4.6 PLACEMENT OF ORDERS FOR AWARD OF CONTRACT**

4.6.1 Owner may place three separate orders on the bidder(s) for implementation of the project as mentioned below:

1. Order for detailed engineering, manufacturing, in-house testing, supply and delivery of equipments at site.
2. Order for arranging required land for the project (either on outright purchase basis or long-term lease basis, as applicable), micro-siting, all approvals, all civil & construction

works at site, laying internal & external evacuation system, erection & commissioning WTGs and interconnection with State grid of wind farm project in all respect.

2. Order for comprehensive Operation & Maintenance (O&M) of the wind energy project for a period of 20 years from the date of stabilization. Initially the Order shall be for first 10 (ten) years including two years free O&M period on the accepted rates. This O&M Contract shall be renewable for further term of 10 (ten) years on the same terms and conditions but at mutually agreed rates during 10<sup>th</sup> year of operation based on the conditions prevailing at that time. However the revised rates from 10<sup>th</sup> to 11<sup>th</sup> year should be in line with the rates in vogue at that time and is to be finalized in the first half of the 10<sup>th</sup> year. Further, the increase during 11<sup>th</sup> year is capped and shall not be more than 5%. The escalation from 12<sup>th</sup> year to 20<sup>th</sup> year will be considered same as that of quoted from 3<sup>rd</sup> year to 10<sup>th</sup> year.

4.6.2 A breach in the performance of any of the orders as indicated above, shall be considered as a breach in performance of the other order, which shall confer a right on the Owner to terminate the other order also at the risk and cost of the Contractor/operator without any prejudice to any other rights the Owner may have as per terms & conditions of respective order.

4.6.3 Total responsibility in regard to design, engineering, manufacturing, delivery at site, timely execution, including completion, guarantee liabilities and all other contractual obligations will remain with Bidder irrespective of the modality of ordering and the bidder shall coordinate all activities for smooth and timely completion of the project. In such a manner, as if there has been no split in the scope of work.

#### **4.7 RESPONSIBILITIES OF THE CONTRACTOR**

4.7.1 All expenses towards mobilization at site and demobilization including bringing in equipment, work force, materials, dismantling the equipment, clearing the site after completion of work and liaisoning for interconnection of wind farm with the State Grid with concerned departments etc. shall be deemed to be included in the prices quoted and no separate payments on account of such expenses shall be entertained.

4.7.2 Contractor may have to work in energized or partly energized conditions. In such cases, it shall be the responsibility of the Contractor to arrange for necessary permits or shuts downs and provide skilled and responsible persons for the execution of works. Contractor shall organize his works during the shutdown periods properly and complete the programmed works within the time given. Contractor shall not be paid any extra payments for working under the above said circumstances.

4.7.3 It shall be entirely the Contractor's responsibility to provide, operate and maintain all necessary construction equipments, scaffoldings and safety gadgets, cranes and other lifting tackles, tools and appliances to perform the work in a workman like and efficient manner and complete all the jobs as per time schedules. However, if any equipment/ facility are provided by Owner, the same shall be on chargeable basis.

4.7.4 Procurement and supply, in sequence and at the appropriate time, of all materials and consumables shall be entirely the Contractor's responsibility and his rates for execution of work will be inclusive of supply of all these items.

4.7.5 In case any material is issued by the Owner, then it will be properly used and maintained. Subsequent to completion of its use, it will be returned to Owner in good condition. In case of damage or misuse of such stores, Owner will recover the cost from the Contractor from the payments due to the Contractor.

#### **4.8 SECURITY DEPOSIT CUM-PERFORMANCE BANK GUARANTEE (SPBG)**

4.8.1 The Contractor shall furnish, within fifteen days of Award of Contract / Letter of Intent, a Security Deposit cum-Performance Bank Guarantee equivalent to 10% of accepted value of contracts for (i) Order for detailed engineering, manufacturing, in-house testing, supply and delivery of equipments at site and (ii) Order for arranging required land for the project (either on outright purchase basis or long-term lease basis, as applicable), micro-siting, all approvals, all civil & construction works at site, laying internal & external evacuation system, erection & commissioning WTGs and interconnection with State grid of wind farm project in all respect as per format enclosed at Annexure-III of volume I for both the above orders. The validity period of BG should be for a total period of 22 months from the date of LOI considering Commissioning period of 8 months, Stabilization period of 2 months from the date of commissioning of last WEG and 12 months warranty period. In case the wind project is not stabilized within 2 months the SPBG should be suitably extended to cover this period. In case the SPBG is not furnished within fifteen days as mentioned above, the EMD furnished by the bidder will be encashed and its offer will be rejected.

4.8.2 In case the power curve performance test is not successfully completed within the stipulated time period as given at clause 4.8.1, the Bank guarantee shall be extended for a suitable period so as to keep the validity for a period of 90 days from the expected completion of Power Curve Performance Testing successfully.

4.8.3 The SPBGs both for Supply and Installation shall be liable to be encashed wholly or partly at the sole discretion of the Owner, should the Contractor either fail to execute the work within the stipulated period or fail to fulfill the contractual obligations or fail to settle in full his dues to the Owner. In case of premature termination of the contract, the SPBG will be encashed and the Owner will be at liberty to recover the loss suffered by it from the Contractor.

4.8.4 The Owner is empowered to recover from the SPBG through invocation of B.G for any sum due and for any other sum that may be fixed by the Owner as being the amount or loss or losses or damages suffered by it due to delay in Performance and/or non-Performance and/or partial Performance of any of the conditions of the contract and/or non-Performance of guarantee obligations.

4.8.5 No interest is payable on SPBG amount.

4.8.6 In the event of full SPBGs being encashed, the Owner at its discretion and without prejudice to its any other rights, can terminate the contract.

#### **4.9 TIME SCHEDULE**

4.9.1 The time and the date of completion of the Contract as specified in the contract by the Owner without or with modifications, if any, and so incorporated in the Letter of Acceptance/Intent, shall be considered to be the heart of the Contract.

4.9.1 The bidder shall submit a detailed bar chart within the time frame agreed covering all activities with various key phases of supply and service obligations under the contract

such as supply schedule and field erection activities within fifteen (15) days of the date of Letter of Acceptance/Intent.

4.9.2 The time period mentioned below shall be reckoned from the date of issue of Letter of Acceptance/Intent.

4.9.3 Commissioning schedule for the wind farm from the date of issue of LOA shall not exceed beyond 31<sup>st</sup> March, 2017. The date of commissioning shall be the date as mentioned in the certificate of commissioning for last WEG, issued by the respective State Nodal Agency or the State utility & the project remains in continuous operation thereafter.

4.9.4 Transfer of Land

- i) Submission of all the documents for Transfer of private land in the name of Kamarajar Port Limited shall be got done within 60 days of LOA.
- ii) Sub-lease of Government land in favour of Kamarajar Port Limited shall be got done as per policy of the State and should be done within one year of commissioning.
- iii) Process of lease transfer of forest land in favour of Kamarajar Port Limited shall be commenced soon after finalization of WEG locations after award of Contract and should be done within maximum 4 years from the date of Stage II approval/ MoEF guidelines.
- iv) Bidder should submit Methodology for land transfer to Kamarajar Port Limited and obtaining of non-Agriculture use certificate where ever required as per BRS-17(b)

#### **4.10 STABILIZATION OF WEGs**

Soon after commissioning of WEGs in the wind farm the Contractor shall start undertaking stabilization activities for the turbines and related BOP. All stabilization activities shall be completed within stipulated period of two months from date of commissioning of last WEG of the project.

Post commissioning checks on turbines viz. fine tuning of pitching & yawing mechanism, checks for oil leakages, braking system, voltage converters, providing of auto start facility on each WEG irrespective of Grid failure period, any other checks as prescribed in Contractor's Protocol, checking of all electrical installations & rectification of defects observed, if any, attending to all punch points, torqueing, checks of all bolts & lubrication of bearings after first 500 operational hours of WEGs.

Further Stabilization of all WEG's in the wind farm shall be considered to have been achieved on successful accomplishment of the following activities:

- (i) Minimum monthly machine availability after stabilization should be 96% during high wind period / 95% during normal wind period, as the case may be for next one month.
- (ii) Project has been completed in all respect including power evacuation facility till utility grid.
- (iii) SCADA has been commissioned and fully operational including connectivity at Owner's premises. There should not be any discontinuity for a minimum period of 15 days from

the date of connectivity at owner's premises & it remains operational thereafter. In case of any interruption during test period of 15 Days, test period will start afresh.

(iv) WEG's are free from occurrence of repetitive fault of the same nature.

In case stabilization work of all the WEGs and BOP is delayed beyond stipulated period of two months by the Contractor the Comprehensive O&M period shall commence from the date when successful stabilization of all WEGs & BOP has been done and certified by the Engineer-in-Charge. The SPBG shall also have to be extended for the same period.

#### **4.11 COMPENSATION FOR DELAY**

4.11.1 Completion time is the essence of the Contract and the same shall be firm and binding. The Bidder shall complete all activities of the Project viz. design, engineering, manufacture, supply, storage, all civil works, and installation, erection, testing, commissioning, and interconnection with State grid of wind energy project before 31<sup>st</sup> March, 2017. In case the project is not completed within stipulated time and the delay is not due to force majeure or due to owner's default then the contractor has to pay the owner compensation for delay for the value of un-commissioned WEG, a sum at the rate of 0.5% per week of delay subject to a maximum of 7.5% of the CAPEX (value of supply and erection commissioning i.e. without value of O&M).

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.

4.11.2 Both the Contractor & the Company agree that the above percentages of liquidated damage is genuine pre-estimates of loss/damage, which the Company would have to suffer on account of delay/breach on the part of the Contractor and the said amount will be payable on demand without there being any proof of the actual loss/or damage caused by such delay/breach. Decision of the Company in the matter of applicability liquidated damage shall be final & binding on the Contractor

Compensation for non-conformance of Power Curve Testing shall be separate and will be in addition to the Compensation for delay and shall be governed as per Clause No. 4.31 of this Section.

4.11.3 Commissioning will be considered for the project as a whole when last WEG of the wind energy project has been interconnected with the State Grid.

4.11.4 The Bidder shall indicate duration of all the activities in activity chart in conformity with the overall schedule of the completion of project. A sample for activity chart is attached for reference at Bid Response Sheet No.17. Bidder shall submit the activity chart in form of Bar Chart which shall be discussed and finalized and shall be a part of Contract.

#### **4.12 EXTENSION OF TIME**

4.12.1 Failure or any delay by the Owner due to any cause whatsoever, shall in no way effect or vitiate the contract or alter the character thereof or entitle the Contractor to damages or compensation thereof provided that the Owner may extend the time for completion of the work by such period as it may consider necessary or proper.

4.12.2 If the Contractor shall desire an extension of the time for completion of the work on the grounds of his having been unavoidably hindered in its execution or the work has been materially increased by Owner or other such grounds, he shall apply in writing to the engineer in-charge within ten days of the date of occurrence of event on account of which

he desires, such extension as aforesaid, and the Engineer-In-charge shall, if in his opinion (which shall be final) reasonable grounds have been shown thereof, authorizes such extension of time as may be, in his opinion be necessary or proper. Whenever such extension is granted by the engineer-in-charge, this would be without prejudice to the Owner's right under this contract.

#### **4.13 NO COMPENSATION FOR ALTERATION IN OR RESTRICTION OF WORK**

If at any time from the commencement of the work the Owner shall for any reason whatsoever not require the whole work or part thereof as specified in the tender to be carried out or, alteration in the work are required, the Engineer-In charge shall give notice in writing of the fact to the Contractor, who shall have no claim to any payment or compensation whatsoever on account of any profit or advantage which he might have derived from the execution of the work in full or prior to alteration.

#### **4.14 CONTRACTOR'S OFFICE AT SITE**

During the execution of the contract, the Bidder shall ensure responsible person with authority to take decisions to be available at site. Such person deputed by the Contractor shall report to the Consultant's Site in-charge for smooth execution and timely completion of the work. The Contractor shall also maintain an office at the site and such office shall be open at all reasonable hours to receive instructions, notices or other communications. The Contractor shall be responsible for any misconduct/indiscipline by his employees or sub Contractor / agent employee's .The Contractor shall abide by the instructions of the engineer in charge, if given in this regard.

EPC Bidder shall submit the Manpower Chart with hierarchy that would be deployed at site.

#### **4.15 SUB-LETTING OF WORK**

Contractor shall not subcontract or assign, in whole or in part, its obligations to perform under this contract, except with Company's prior written consent. In the eventuality of sub-contracting of work, Owner/Company will be informed in advance. However, the Contractor's liability or obligations will not get altered / delegated to sub-Contractor. If any sub-Contractor engaged upon the work at the site executes any work which in the opinion of the engineer in-charge is not in accordance with the contract documents, the Owner/ Company may give written notice to the Contractor advising him to terminate such sub-contracts and the Contractor on the receipt of such notice shall terminate such contracts.

#### **4.16 POWER OF ENTRY**

4.16.1 In case the Contractor does not commence the work in the manner described in the contract documents or if he shall at any time in the opinion of the Engineer in charge:

- i) Fail to carry on the works in conformity with contract document /schedule, or
- ii) Substantially suspend work or the works for a continuous period of 14 days without permission from the engineer in charge, or

- iii) Fail to carry on and execute the works to the satisfaction of the Engineer-in-Charge, or
- iv) Commit or permit any other breach of any of the provisions of the contract on his part to be performed. or
- v) If the Contractor abandons the works, or
- vi) If the Contractor during the continuance of the contract becomes bankrupt.

In any of such events, the Owner shall have the power to enter upon the works and take possession of the materials, temporary works, equipment, tools and stocks thereon, and to revoke the Contractor's order to complete the works by his agents, other Contractors or workmen.

#### **4.17 USE OF COMPLETED PORTIONS**

4.17.1 Whenever in the opinion of the Owner the work or any part thereof is in a condition suitable for use and in the best interest of the Owner requires use, the Owner may take possession of the same. The Contractor shall, however, be not relieved of his pending obligations.

4.17.2 Prior to the date of final acceptance of the work by the Owner, all necessary repairs or renewals in the work or part thereof so used on account of defective materials or workmanship or due to the operations failure except normal wear & tear shall be at the expenses of the Contractor. Such use shall neither relieve the Contractor or any of his responsibilities under the contract, nor act as waiver by the Owner of the conditions thereof. However, if in the opinion of the Owner the use of the work or the part thereof delays the completion of the remainder of the work, the Owner may grant such extensions of time as it may consider reasonable. The decision of the Owner in the matter shall be final. The Contractor shall not be entitled to claim any compensation on account of such use by the Owner.

#### **4.18 POWER OF THE ENGINEER-IN-CHARGE TO ORDER SUSPENSION OF WORK**

The Engineer-in-charge assigned by Kamarajar Port Limited may, from time to time by direction in writing and without invalidating the contract, order the Contractor to suspend the work or any part thereof at such time or times and for such reasons as he may consider necessary. After such directions to suspend the work or any part thereof has been given, then proceed with the work or part thereof, directed to be suspended until he receives a written order from the Engineer-in-charge to so proceed. In the event of suspension, the Owner may under the provisions of the contract, extend the time for completion of the work or part thereof by such period as it may find reasonable. The decision of the Owner in the matter shall be final and binding on the Contractor.

#### **4.19 PAYMENT TERMS**

Payments shall be released in the following manner after furnishing of Security Deposit cum- Performance Bank Guarantee by the successful bidder and on signing of Contract Agreement. All payments shall be released on pro rata basis.

10% of the supply value of the contract may be given as interest bearing advance after Award of Contract / Letter of Acceptance/ Intent and signing of agreement for Supply against furnishing of Bank Guarantee of 110 % of the advance as per Annexure- IV of volume I. The interest on advance shall be 12% per annum. Advance to be adjusted on pro rata basis along with interest accrued thereon against payment towards supplies. The validity of advance Bank Guarantee shall be two months beyond the scheduled project commissioning period.

50% of the advance amount is to be taken in the 1<sup>st</sup> installment after signing of contract agreement for supply and balance 50% on opening of site office, starting the construction of approach roads and works of power evacuation system.

<b>A</b>	<b>For Land</b>
a	100% of cost of land to be released on signing of lease deed / registration in the name of Kamarajar Port Limited, on prorata basis for each WEG location but not before issuance of commissioning certificate. Please see Note below.
<b>B</b>	<b>For Supply of Plant &amp; Equipment</b>
a	10% of the order value (as per Bid Response Sheet PIII) of supply portion against acceptance (i.e. after physical verification) of Micro-siting report.
b	60% of the order value along with 100% taxes & duties (as per Bid Response Sheet PIII) of supply portion against receipt of complete WEG at site and completion of WEG foundation on pro-rata basis
c	10% of the order value on erection of WEGs on pro-rata basis.
d	10% of the order value on commissioning of WEGs on pro-rata basis.
e	5% of the order value on successful completion of 96 hours short run test as per clause 4.30
f	5% of the order value on successful stabilization and on rectification of deficiencies, submission of all documents required for Completion Report on pro-rata basis.
<b>C</b>	<b>For Construction, Erection, Commissioning &amp; interconnection with State grid</b>
a	20% of the contract value on pro-rata basis on casting of tower foundations.
b	15% of the contract value on pro-rata basis on erection of WEGs.
c	20% of the contract value on pro-rata basis on completion of internal OH lines and unit substations.
d	20% of the contract value on pro-rata basis on completion of evacuation system & metering.

e	15% of the contract value on successful commissioning of the project and completion of all balance associated civil & electrical works on pro rata basis.
f	10% of the contract value on successful stabilization and rectification of all deficiencies, submission of all documents required for completion report as per clause 4.24

**Note:**

1. In case of forest/revenue land where the sub lease in the name of Kamarajar Port Limited will take long time after commissioning, the payment towards land can be released on submission of a Bank Guarantee of equivalent amount. The bidder can give the BG to release the payment against land after commissioning (connection of all WEGs of wind farm with the state grid). The BG should be valid for one year extendable for another year from the date of commissioning during which period the sublease in name of Kamarajar Port Limited for revenue land shall be arranged failing which the BG will be encashed.

In case of forest land, the BG can however be extended every year up to maximum 4 years from the date of Stage II approval during which the transfer of lease in favor of Kamarajar Port Limited be arranged failing which the same shall be encashed.

Encashment of BG in unlikely cases, however, does not relinquish the responsibility of the bidder to do the needful for transfer of land in name of Kamarajar Port Limited at the shortest possible time.

2. No payment however would be released against any of clauses of 4.19 A, B & C (except the advance payment) till:
  - i) In case of private land, the land is transferred in the name of Kamarajar Port Limited and submission of the permission from competent authority for usage of agricultural/given land for the wind farm on prorata basis for each WEG location
  - ii) In case of revenue land, the land is leased in name of the bidder or Bidder's subsidiary or Bidder's group company or the third party (with whom agreement has been signed by the bidder) for development of wind farm.
  - iii) In case of forest land, stage II clearance has been obtained.

<b>D</b>	<b>PAYMENT FOR O&amp;M</b>
a	Payment period shall be on quarterly basis at the end of each quarter. The operator shall submit bills in respect of the quarter ended in quadruplicate after the end of each quarter for the payment after submission of SPBG as per Clause no 5.10

**4.20 PAYMENT PROCEDURE**

Bidder shall submit RA bills / Final bill for claim in four copies to Consultant / Kamarajar Port Limited. After verification and recommendation, the Consultant shall submit three copies of verified bills to Owner for release of payment.

All payments shall be released in electronic mode only. For this, Bidder shall submit a certificate from its banker on banker's letter head indicating, (i) Name and address of the branch, (ii) Type of account, (iii) Name of the company/ person in whose name the account is opened, (iv) Account Number & RTGS/IFSC Code for e-transfer of payments. The details should be filed in the proforma enclosed at Annexure-VIII of Volume I.

It is expressly understood that the drawl of payment by the Contractor in the manner specified will not be construed as the fulfillment of the Contractor's obligations either in part or whole under the contract and that the Contractor shall continue to remain responsible to Owner until all the obligations under the agreement have been fulfilled. Payment will be released in 15 days from the date of becoming due or of date of receipt of invoice with all necessary documents whichever is later.

#### **4.21 RATES TO BE FIRM AND INCLUSIVE OF ALL TAXES**

The rates quoted by the Contractor shall remain firm inclusive of all taxes and binding till completion of the project in all respect. The rates shall not be subject to escalation. Rates shall be deemed to include and cover all costs, expenses, taxes, duties, levies, royalties, foreign exchange variation, etc. and liabilities of every description and all risks associated in execution, completing and handing over the work to the Owner by the Contractor. However, any statutory changes in taxes and duties including new levy or expense due to change in law from the Last date and time of submission of bid will be to Kamarajar Port Limited's account.

Sales tax shall be charged at concessional rate against Form "C" in case issued by Owner. The Owner shall deduct income tax, Works Contract tax / VAT or any other similar tax as applicable on works contract as per the prevailing rates from the bills of the Contractor. Owner shall not be responsible for any liability on this account on the Contractor in respect of this contract and exclusion of any applicable taxes at prescribed rates due to ignorance or otherwise shall not form a reason for claiming anything extra at a later date.

#### **4.22 DEFECTS PRIOR TO TAKING OVER**

4.22.1 If at any time before the work is taken over, Engineer-in-Charge shall:

- i) Decide that any work done or materials used by the Contractor or any sub-Contractor is defective or not in accordance with the contract, or that the works or any portion thereof, are defective, or do not fulfill the requirements of contract (all such matters being hereinafter, called 'Defects' in this Clause)

**And**

- ii) As soon as reasonably practicable notice given to the Contractor in writing of the said decision specifying particulars of the defects alleged to exist or to have occurred, then the Contractor at his own expense and with all efforts shall make good the defects so specified.

4.22.2 In case the Contractor fails to do so, the Owner may take, at the cost and risk of the Contractor, such steps as may in all circumstances be reasonable to make good such defects. The expenditure so incurred by the Owner will be recovered from the

amount due to the Contractor. The decision of the Engineer-in Charge with regard to the amount to be recovered from the Contractor will be final and binding on the Contractor. As soon as the works have been completed in accordance with the contract and have passed the tests on completion, the Engineer-in-Charge shall issue a certificate in which he shall certify the date on which the works have been so completed and have passed the said tests and the Owner shall be deemed to have taken over the works on the date so certified.

#### **4.23 DEFECTS AFTER TAKING OVER**

4.23.1 In order that the Contractor could obtain a completion certificate, he shall rectify any defect arising from the defective materials supplied by the Contractor or workmanship or any act or omission of the contract or that may have been noticed or developed after the works or group of the works has been taken over, the period allowed for carrying out such works will be normally 15 days. If any defect be not remedied within a reasonable time the Owner may proceed to do the work at Contractors risk and expense and deduct from the final bill such amount as may be decided by the Owner.

4.23.2 If by reason of any default on the part of the Contractor, a completion certificate has not been issued in respect of the works within one month after the date fixed by the Contractor for the completion of the work, the Owner shall be at liberty to use the works or any portion thereof in respect of which a completion certificate has not been issued, provided that the works or the portion thereof so used as aforesaid shall be afforded reasonable opportunity for completion of these works for the issue of completion certificate.

4.23.3 All the aforesaid safeguards/ rights provided for the Owner shall not prejudice its other rights/remedies elsewhere provided herein and/or under law.

#### **4.24 COMPLETION CERTIFICATE**

4.24.1 The contractor shall submit Completion Report of the project to Owner. The Completion Report shall consist of the following documents:

- (i) Copy of the Commissioning Certificate (after connecting all WEGs of the wind farm to the State Grid) issued by the competent authority.
- (ii) Technical documents as per scope of work & technical specifications according to which the work has carried out.
  - Four sets of as built drawings showing therein modification and corrections, if any, made during the course of execution signed by the Contactor. A soft copy of all drawings and documents including as built drawings shall also be submitted.
  - Copy of complete layout of the Wind Farm including Evacuation system
  - Copies of test Certificates for type / routine tests performed on major equipment along with detail test results.
  - O&M Manuals – 3 sets
  - Copies of Statutory clearances / permissions.
  - Certificate / undertaking for making payment of all statutory requirements, duties, labour wages and others for having made payment.

- An undertaking confirming the payment of all statutory duties, taxes or document(s) having evidence of paying statutory duties, taxes etc. as per requirement of concerned statutory authorities.
- Certificate regarding completion of the facility in all respect by the Engineer In Charge/ Consultants
- A copy of the Power Purchase Agreement.

4.24.2 Owner shall issue Completion Certificate after verifying from the completion documents and satisfying itself that the work has been completed in accordance with details set out in the construction and erection drawings and the contract documents. No Completion Certificate shall be given nor shall the work be deemed to have been executed until the export of generated wind power commenced, statutory requirements are completed and all scaffolding, surplus materials and rubbish is cleaned off the site completely.

#### **4.25 ESTIMATED ANNUAL ENERGY PRODUCTION**

Bidder shall submit estimated Annual Energy Production (AEP) of the offered wind farm by using Wind Resource Assessment tools.

The bidder shall submit the following details with the bid both in soft copy and hard copy:

1. Details of reference wind mast i.e.
  - a. NIWE mast or Bidder's own / third party mast. The minimum height of the mast shall be 50 M or above.
  - b. Location of the mast with respect to offered site giving co-ordinates and elevation. Owner's / third party/ NIWE wind mast location should not be more than 10km farthest WEG location offered.
  - c. Height of the mast indicating sensors height.
  - d. Period of wind data of the mast considered for calculation which should not be older than 5 years of bid due date or extension if any.
  - e. Annual Air Density of the site.
  - f. Wind data of the mast from the date of installation till the date of removal or one month prior to the bid due date or extension if any in soft mode.
2. Wind data time sheet for a minimum period of one year or joint frequency distribution of wind data for two levels in WAsP format.
3. De-rating, if any, due to ambient conditions.
4. Digitized contour map at contour intervals of 2 meter for the proposed site for complex terrain and 5m for uniform terrain and 10 m / 20 m for surrounding area including roughness considered in the form of MAP file as input to WAsP. The digitized map should cover at least 2 km area in all directions beyond boundary line of offered site and reference wind mast location.

5. Roughness map should be submitted separately as well as incorporated with digitized contour map
6. Certified Power curve of the offered WEG.
7. Thrust curve of the offered WEG.
8. Wind Resource Assessment report covering estimated annual energy generation of the entire wind farm and its monthly yield in percentage of annual generation including Micro-siting along with assumptions considered.
9. AEP of each WEG as per Wind Resource Assessment tool for the complete wind farm for P50, P75 & P90 exceedance levels.
10. The bidder shall furnish details of nearest wind mast of NIWE.
11. Year to year for past 20 years period based on Satellite data from MERRA. Details of month wise Wind variation. In case the data is not available for the offered site, bidder can submit the DATA from other recognized agency.
12. Electrical single line diagram of wind farm from WEG up to the metering point of SEB/ Discom indicating size, length and brief specification of cable, OH line conductor and transformer etc. along with calculation of transmission losses.
13. Actual energy generation of the WEGs already existing in offered area or nearby area from the date of installation of such WEGs.
14. Following correction factors mentioning percentage thereof to be considered for AEP estimation shall be furnished clearly:
  - a) Machine Availability: Shall be considered as 95%
  - b) Grid Availability: Shall be considered as 95%
  - b) Array Efficiency/ Wake loss
  - c) Air Density
  - d) Internal/Transmission losses up to metering point and internal consumption as guaranteed by bidder
  - e) Year to year wind variation
  - g) Distance & Height of wind mast
  - h) Other uncertainties
  - i) Any other correction factor

Based on the above inputs, Owner/Consultant shall get the estimated deliverable generation worked out. If required, Owner/ Consultant may ask for additional information. Further, Owner and Consultant's representative may visit the offered site and collect site specific information for which bidder will provide all the necessary assistance.

Consultant, during site visit, will collect actual energy generation of the WEGs installed in that area or nearby area from the date of installation of such WEGs and calculate the average annual energy generation so as to arrive at final Estimated Annual Energy Production of the offered site.

Wind data submitted by the bidder for its own mast should have NIWE (National Institute of Wind Energy) report on verification procedure with data like Wind Power Density (WPD), annual mean wind speed etc. However NIWE certificate could be submitted within one month of bid due date or extension.

Estimated deliverable annual energy production (AEP) will be worked out by the consultant by giving effect of array efficiency, machine availability, grid availability, wind variation, internal consumption, and evacuation losses and as accepted by Owner, shall be considered for financial evaluation of the Bids.

Necessary corrections shall be carried out by Owner or its Consultant in the AEP furnished by bidders. The lower of the two estimated generation, after corrections, shall be considered for evaluation of bids

No change in data once furnished by the bidder at the time of submission of the bid relating to estimation of generation like machine model, rotor diameter, hub height, location of site, micro-siting plan of the wind farm etc; shall be permitted. However, during the execution of the project, in case it becomes *absolutely inevitable and* unavoidable for the Bidder then changes in location of WEGs in same area and same wind farm may be accepted by Owner but this should not affect the annual energy estimation. In such an event Owner will get the estimation of generation of the wind farm checked from the Consultant with the changed data and same methodology as adopted during the bid evaluation and if the generation so worked out is found to be less than what was considered for financial evaluation, then the Bidder will have to modify CAPEX/OPEX in such a way that the post-tax project IRR is maintained.

## **4.26 INSURANCE**

### **4.26.1 Insurance during Supply, Erection and Commissioning**

- a) Contractor shall at his own expenses effect insurance from IRDA approved agencies to the supplies, transit, personnel and all other related activities to the satisfaction of the Owner as follows including all third party risks. A copy of all such policies will be given to the Owner along with endorsement letter from the insurance company. Owner shall be informed such insurance policies.
- b) Insurance to cover marine, transit cum storage cum erection cum commissioning policy;
- c) Insurance to cover third party liability of appropriate value along with an undertaking indemnifying Kamarajar Port Limited from any such claim
- d) Workmen compensation and/ or group personal accidents Insurance policy covering its employees and workers including that of the Sub-Contractor.

e) Contractor shall also effect and maintain any other insurance that may be required under any law or regulation or practice from time to time.

4.26.2 The Contractor shall take all reasonable precautions to prevent fire of any nature in the general area of his operations and he shall be responsible for all damage from fires due directly or indirectly.

4.26.3 All risks till commissioning of the project are to be suitably covered by the contractor.

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 dispatch 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 Kamarajar Port Limited. Unless insurance document in this regard are furnished to the Owner no payment will be made for such supplies.

#### **4.27 TESTS / INSPECTION**

4.27.1 All major/critical items (towers, rotor blades, nacelle assembly including generator & control panels and transformers) shall be inspected prior to dispatch in accordance with the standard practice/ QAP of the manufacturer and applicable Standards at no cost to Kamarajar Port Limited. Copies of test certificates for such inspections shall be supplied before dispatch of the equipments.

In case of imported components the same should be inspected at the stock yard / warehouse of contractor for 10% quantity by Kamarajar Port Limited. However Kamarajar Port Limited reserves the right to depute their representatives for plant inspection & prototype inspection at overseas works.

4.27.2 After the award of work, the successful bidder shall furnish a complete list and details of all tests to be conducted on all major equipments.

4.27.3 The bidder shall also furnish a schedule of inspection / testing so that Owner may associate his representative to witness the tests. The Contractor shall also furnish copies of all test/inspection reports for records and reference of Owner.

4.27.4 Owner may depute its personnel or authorized representative or consultant for witnessing testing of major equipment at manufacturer's works. The bidder shall make all the required arrangements for such testing at its work and extend full co-operation for inspection.

- 4.27.5 Contractor shall arrange and extend necessary cooperation for effectively carrying out inspection / testing. However, this shall not absolve the responsibility of the Contractor in providing the performance guarantee/warranty.
- 4.27.6 Inspection shall be carried out on 10% quantity of the ordered equipments viz. The major items requiring inspection/testing are towers, rotor blades, nacelle assembly including generators, control panels and transformers. For HT/EHT Circuit Breakers manufacturers test certificate shall be submitted. All other items like cables, conductors, relays and associated equipment/components shall conform to relevant international/national standards.
- 4.27.7 The scope of work broadly includes review of manufacturing / fabrication procedures, QA/QC plans, and review of Non Conformance Report (NCR) issued by the Contractor during fabrication stage.
- 4.27.8 All the standard tests in accordance with the Standards adopted shall be carried out at the manufacturer's works on all the major equipment and accessories so as to ensure efficient operation and satisfactory performance of all the component/parts.
- 4.27.9 Any special test to be performed shall be mutually agreed upon between the Bidder and Owner
- 4.27.10 All equipment shall be further tested at site, wherever required, before commissioning.
- 4.27.11 The work is subject to inspection at all times and at all places by Owner. The Contractor shall carry out all instructions given during inspection and shall ensure that the work is carried out according to the relevant codes of practice.
- 4.27.12 Decision of Owner in regard to the quality of work and materials and performance to the specifications and drawings shall be final.
- 4.27.13 If any item is not found conforming to standards during test/inspection, the same shall be replaced/ rectified by Contractor without any cost to Owner and shall be re-offered for inspection.

#### **4.28 GUARANTEE / WARRANTY**

- 4.28.1 Any material, equipment and/or accessories which prove defective or which fail to meet the design guarantee or Performance Guarantee during the defects liability period (which is 12 months from the date of completion of Stabilization Period of last WEG) the Contractor shall replace / rectify at his own cost such material, equipment and/or accessories.
- 4.28.2 The Contractor shall guarantee the wind farm and installation work for a period of 12 (twelve) months from the date of completion of Stabilization Period of last WEG. Any damage or defect that may arise or lie undiscovered at the time of issue of completion certificate, connected in any way with the equipment or materials supplied by

him or in the workmanship, shall be rectified or replaced by the Contractor at his own expenses as deemed necessary by the Engineer-in-Charge or in default, the Engineer-in-Charge may cause the same to be made good by other workman and deduct expenses (for which the certificate of Engineer-in-charge shall be final) from any sums that may be then or at any time thereafter, become due to the Contractor or from his SPBG.

#### **4.29 STATUTORY APPROVALS FOR WORKS**

- 4.29.1 All statutory approvals/ permissions related to installation of the wind power project and carrying out its operation & maintenance (O&M) as may be required under applicable law, rules shall be obtained by the Bidder. All fees for such statutory approvals for installation & commissioning and first two years of O&M shall be borne by the Contractor.
- 4.29.2 Inspection and acceptance of the work as above shall not absolve the Contractor of any of his responsibility under this contract.
- 4.29.3 If any penalty/levy becomes payable to the State Electricity Utility on account of low power factor of the wind farm, the same shall be borne by the Contractor only.
- 4.29.4 All fee / charges payable to any statutory authority on account of operation & maintenance of wind farm shall be borne by the Contractor during the warrantee period of the contract.
- 4.29.5 The Contractor shall be responsible for interconnection of wind farm with the State grid, so as to export power from wind farm. The date of commissioning will not be considered prior to inter connection of all the WEGs of Wind farm with the State grid. Therefore, the Contractor should make all efforts for installation of metering equipment, etc., and carry out the inter connection prior to the final commissioning of the wind farm.
- 4.29.6 So long as commissioning of the project is not delayed and operation and maintenance is not hampered due to delay in statutory approvals, no Price Reduction shall be affected.

The bidder shall furnish the flow chart along with time required for various statutory approvals for the commissioning of Wind Power Project as per BRS 17(b).

#### **4.30 96 HOURS SHORT TIME TEST RUN**

This short time test shall be conducted on all the WEGs. The test shall be carried out during conditions of high wind regime so that the machines are subjected to fluctuating wind thrusts and their mechanical endurance established. The test shall be considered successful if values of observed parameters of WEGs are found within the set values.

For conducting this test, the WEGs shall be run continuously for 96 hours without any interruption. In case of interruption or stoppage of WEG during the test, the test shall not be considered to have been completed. In such an event the test shall be conducted afresh.

However test will continue in case of grid fluctuation & wind speed rises above cut off level up to two hours.

The test shall be considered successful if values of observed parameters of WEGs are found within the set values. In case of non-conformance of the parameters of any component/item of WEG, replacement of the defective component shall be done and test to be repeated till such time it is successful.

#### **4.31 POWER CURVE PERFORMANCE TEST**

Power curve performance test on one WEG in the wind farm shall be conducted at site for ascertaining its performance with reference to certified power curve of the machine. The test shall be conducted during first year of operation of the wind energy project in accordance with the methodology as described below-

Power curve testing shall be carried out for a period of three month during high wind season.

Contractor shall submit a proposal suggesting at least three WEGs along with corresponding wind masts in the wind farm considered suitable for carrying out power curve test for consideration by Owner.

The Contractor and Owner officials shall jointly inspect wind farm site for selection of one designated turbine (WEG) out of the short listed machines. The test shall be carried out on this designated turbine. Location for installation of a separate wind mast near the designated turbine needed for power curve measurement (the test) shall also be decided jointly.

Contractor shall install a wind mast of height equal to hub height of the designated turbine near the selected location at a distance between  $2D-2.5 D$  ( $D$  is rotor diameter) from the designated turbine in consultation with Owner. This mast will be maintained at site for the period required for successful power curve testing. Refer IEC 614002005(12) clause 5.2.1.

Erection of wind mast and onsite facilities/support for testing and monitoring shall be the responsibility of the Contractor/Developer.

This mast shall record wind data at height equal to that of hub height of the turbine. The wind data recorded by this mast during test period shall be taken as reference data for the purpose of power curve verification test.

Power curve verification shall be carried out as given hereunder:

- Wind speed distribution shall be prepared for a continuous duration of three month during high wind season.

- Certified power curve (CPC) for the WEG as per contract shall be applied to the above wind speed distribution to arrive at the gross expected energy generation (GEEG).
- Following factors shall be applied on GEEG to arrive at the net expected energy production (NEEG):
  - (i) Air density factor as actually measured
  - (ii) Array losses as per arraying efficiency as determined by WAsP application for the selected WEG taking into account the selected wind mast location and factoring in all obstacles.
  - (iii) Grid availability as actually measured at the supply point of the selected WEG.
  - (iv) Machine availability as actually measured and recorded at LCS of the selected WEG.
  - (v) 2% on account of flow distortion and Measuring accuracy
- Metering arrangement CTs duly calibrated shall be provided at LCS.
- Accuracy class of all the measuring equipments shall be 0.5 or better. Contractor shall furnish valid calibration certificates of accredited test house for all measuring instruments before their installation at site.
- NEEG thus arrived shall be verified against actual energy generated by the WEG as recorded by the meter in the control panel during test period.
- If actual generation recorded by the meter installed at WEG is equal to or more than 95% of NEEG, then the turbine will be considered to have met power curve performance test.
- If the actual generation as recorded at the WEG meter is less than 95% of the calculated net estimated generation from the wind mast data, then bidder shall conduct the test again after making necessary checks & settings, as per the above procedure.
- In case the test is again unsuccessful, technical explanation for this shall be given to the Owner. If the Owner is satisfied by the explanation submitted by the Contractor then the power curve test shall be considered as fulfilled.
- In case Owner is not satisfied with such technical explanation submitted by the Contractor, the Contractor shall compensate the loss due to shortfall in the test in the manner as given here under:-

For every 1% (or part thereof) shortfall in actual generation than 95% NEEG, the Contractor shall pay to Owner @ 0.5% (half percent) of the Contract Value of supply, erection and commissioning of wind power project. In case the actual generation as recorded at the WEG meter is less than 90%, the bidder shall rectify the defects in all WEGs or replace all the WEGs at their own cost as the case may be in the manner that power generation is not less than 95 % of NEEG

The power curve performance test should be repeated again after rectification. In case the actual generation is equivalent or more than 95% of NEEG the test will be deemed to have passed the performance test. In this case, the Contractor will also compensate the Owner for the actual revenue loss during the period when generation was lower due to performance of the WTG.

For any further reference, IEC-61400-12-1: 2004(E) titled "Power performance measurements of electricity producing wind turbines" shall be followed.

#### **4.32 DATA FOR QUALIFYING AS CDM PROJECT AND GBI**

The bidder shall provide all the required information/data to Owner as may be asked for fulfilling the requirement for qualifying the wind farm for Clean Development Mechanism (CDM) benefit. The bidder shall also extend all help to Owner free of cost for processing case of CDM and also bear the cost for conducting stake holder meeting at site. However other cost such as, newspaper advertisement, registration fee, CDM Consultant, preparation of reports should be to the account of Kamarajar Port Limited.

The bidder shall also extend all help to Kamarajar Port Limited., free of cost, in filling and processing of necessary proforma / applications for claiming Generation based incentive (GBI)/ Accelerated depreciation (AD) benefits. The registration charges shall be to the account of Kamarajar Port Limited.

#### **4.33 REGISTRATION FOR REC**

The bidder shall also extend all help to Kamarajar Port Limited., free of cost, in filling and processing of necessary proforma / applications for claiming REC benefits. The registration charges shall be to the account of Kamarajar Port Limited..

#### **4.34 PROGRESS REPORT & PROJECT REVIEW MEETING**

The EPC contractor shall submit fortnightly and monthly progress report (soft and/or hard copies) along with catch up plants against slippages to Consultant and simultaneously to Owner.

Owner shall hold project review meetings with Consultant and EPC Contractor at pre-defined periodicity.

#### **4.35 COMMON FACILITIES**

Bidder shall give details of Common Facilities which will be shared in terms of right to use by Kamarajar Port Limited for the life of Wind Farm with other Power Producers in the Wind Farm and comprise all facilities that are needed to evacuate power from the individual WEG's, for sale of energy till the metering point. Common Facilities include electrical and other installations for use in such operations i.e. 33 kV transmission lines, the entire Pooling Station, the bays and the EHV Transmission Line. Common Facilities also include all civil construction for such electrical installations and other buildings in the Wind Farm including but not limited to the Pooling Station building. Pathways and approach roads within the Wind Farm for inter-connections are also part of Common

Facilities. Common Facilities also include land or any right of use of land for all installations and / or buildings within the Common Facilities.

In case of freehold land housing any Common Facility, such freehold land shall form part of the Common Facility. Bidder is to undertake that for land which is not held under freehold ownership, necessary leasehold or other rights like tenancy or license or ROW or any valid written approval shall be obtained by it and shall be maintained for the Life of the Wind Farm.

The bidder shall submit the methodology for use of common path & ways, common power evacuation system as per BRS-17(b)

#### **4.36 RIGHTS OF COMMON FACILITIES**

1. Bidder to ensure that Kamarajar Port Limited. will have an undivided share, in proportion to the number of WEGs owned by them, of the usage rights in the Common Facilities and shall be the beneficiary of all its usage rights in terms of the Common Facilities for the designed Life of the Wind Farm.
2. Kamarajar Port Limited shall be free to assign or otherwise transfer its usage rights in the Common Facilities to a third party, in part or on full, who shall thereafter continue to enjoy the same usage rights for the remaining Life of the Wind Farm, provided that Kamarajar Port Limited. shall be free to assign or otherwise transfer only after the commissioning of the Project
3. The common facilities can be used by Kamarajar Port Limited for the life of Wind Farm in case O&M is not executed by the bidder for any reason.

#### **4.37 CONFIDENTIALITY, USE OF CONTRACT DOCUMENTS AND INFORMATION:**

- 4.37.1 Contractor shall not, without Owner'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 Owner 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.
- 4.37.2 Contractor shall not, without Owner's prior written consent, make use of any document or information except for purposes of performing the contract.
- 4.37.3 Any document supplied to the Contractor in relation to the contract other than the Contract itself remain the property of Owner and shall be returned (in all copies) to Owner on completion of Contractor's performance under the Contract if so required by Owner.
- 4.37.4 The above obligations of the Contractor shall be in force even after termination of the Contract.

#### **4.38 SAFETY**

- 4.38.1 Upon arrival of Plant and Equipment/Material at the Site(s), the Contractor shall assume custody thereof and remain responsible thereafter for safe custody until the whole plant is handed over.
- 4.38.2 Adequate firefighting equipment and extinguishing agents of sufficient capacity and quantity must always be available at site(s) and kept ready for immediate use. Sufficient number of workmen must be fully trained in the use of such equipment and must be available for immediate intervention at all times.
- 4.38.3 For storage of materials and equipment for the construction and erection work, storage must be subdivided into storage units and the distance between such storage units shall be as acceptable to the insurance company which issued the policy. All inflammable materials and especially all inflammable liquids and gases must be stored at a sufficient large distance from the property under construction or erection and from any hot work.
- 4.38.4 Welding, soldering or the use of an open flame in the vicinity of combustible material is only permitted if at least one workman suitably equipped with extinguishers and well trained in firefighting is present.
- 4.38.5 At the beginning of work, all firefighting facilities must be checked thoroughly.
- 4.38.6 Explosives shall not be used at the site(s) by the Contractor without the permission in writing and only in the manner and to the extent to which he has prescribed. Where explosives are used by the Contractor, the same shall be transported to the site in explosive proof van and stored in a special magazine to be provided by and at the cost of the Contractor, who shall be liable for all damages loss or injury to any person or property and shall be responsible for complying with all statutory obligations in these respects. The contractor shall employ only licensed blasters.
- 4.31.7 The contractor shall for the duration of the contract, maintain in good order and condition all such protective apparel and equipment (such as safety helmets, safety belts, gloves etc.) for all their workmen and staff engaged for contract work as may be required to be used by Law and by the Owner. The contractor shall ensure that such protective apparel/ equipment are worn and used by their workmen and staff without fail. In case Owner notices any non-compliance thereto, Owner will not only be entitled to make alternative arrangements for the same but recover cost and damages plus Owner's own charges @ 20% or as deemed fit by the company, on his account.

**SECTION-V**  
**SPECIAL CONDITIONS OF CONTRACT**  
**FOR**  
**OPERATION & MAINTENANCE (O&M)**  
**OF**  
**WIND POWER PLANT**

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## **SECTION–V**

### **SPECIAL CONDITIONS OF CONTRACT FOR OPERATION & MAINTENANCE (O&M) OF WIND ENERGY PROJECT**

#### **5.1 TERM OF O&M CONTRACT**

The Operator shall be responsible for comprehensive Operation & Maintenance (O&M) of the wind energy project for a period of 20 years from the date of stabilization. Initially the Order shall be for first 10 (ten) years, including first year free O&M period, on the accepted rates. This O&M Contract shall be renewable for further term of 10 (ten) years on the same terms and conditions but at mutually agreed rates during 10<sup>th</sup> year of operation based on the conditions prevailing at that time. However the revised rates from 10<sup>th</sup> to 11<sup>th</sup> year should be in line with the rates in vogue at that time and is to be finalized in the first half of the 10<sup>th</sup> year. Further, the increase during 11<sup>th</sup> year is capped and shall not be more than 5%. The escalation from 12<sup>th</sup> year to 20<sup>th</sup> year will be considered same as that of quoted from 3<sup>rd</sup> year to 10<sup>th</sup> year.

Further the Operator shall submit an indemnity bond to safeguard Kamarajar Port Limited against any risk of non-performance by Operator/ its Associate towards their obligations during the O&M phase and to ensure availability of power evacuation facilities/ systems to be co-terminus with PPA period or its extended term beyond first 20 years.

#### **5.2 BATTERY LIMIT**

The battery limit for bidder during the period of O&M contract shall cover complete wind energy plant and power evacuation system up to the point of interconnection upto the metering point of Discom/Transco.

The bidder shall be responsible for arranging at his own cost all spare parts required for replacement for keeping the WEGs operational, repairs / replacement of any defective equipment(s) at his own cost as required from time to time, schedule and preventive maintenance, major overhauling of the equipments, maintaining log sheets/record for operational detail, deployment of staff for continuous operations and qualified engineer for supervision of O&M work, deployment of security personnel so as to ensure smooth operation for the entire period of O&M. Owner shall not pay any other amount except the agreed O&M charges.

Operation & maintenance of evacuation system up to the point of interconnection with the State grid shall be the responsibility of the O&M Operator. In case of any outage of external lines connected with the wind farm, the Operator shall follow up with TRANSCO / DISCOM for prompt restoration of the faulty line under intimation to Owner.

### **5.3 SCOPE OF WORK**

The Scope of Work for O&M Contract shall include but not limited to the following:-

1. Supply of spares & consumables
2. All Statutory compliances as applicable on bid due date or extension, if any.
3. Arrangement of Tools & Tackles
4. Crane Management
5. Testing
6. Liaison with all Government agencies
7. All administrative work
8. Maintaining records and submissions to all concerned authorities
9. Security of the wind farm
10. Coordination with the required agencies for revenue realization.
11. Coordination with the grid authorities for maximum evacuation of power from the wind farm.

Cost of all the above items shall be included in the price quoted for O&M Contract.

Operator shall provide all day to day operation and maintenance services for the wind energy project as set forth herein. Operator shall perform the work and arrange/ supply all required spare parts, cranes, special tools & tackles or any other items as may be required, in a prudent and efficient manner and in accordance with manufacturer's and systems designers' specifications, Annual Operating Plan for the Plant and O&M manuals.

All applicable laws of the land including environmental protection, pollution, sanitary, employment and safety laws, ("Government Rules") shall be complied as applicable on bid due date or extension if any.

### **5.4 PRUDENT UTILITY PRACTICE.**

Operator shall use all reasonable and practical efforts:

- To maximize plant capacity utilization factor
- To minimize plant downtime
- Optimize useful life of all the equipments of the energy project.

The Operator shall perform the following obligations prior to taking over of the O&M activity:

- Prepare Mobilization plan in consultation with the Owner
- Provide the services and personnel set forth in the Mobilization Plan

- Prepare in consultation with the Owner, the initial Annual Operating Plan
- Develop and implement plans and procedures including those for firefighting, maintenance planning, procuring and inventory control of stores and spares, plan to meet emergencies, plant safety and security; and such other facilities and systems as may be necessary to commence Operator's ongoing responsibilities.

After taking over the activity of O&M for the power plant, the Operator shall be responsible for the operation and maintenance of the plant and shall perform all necessary services including applicable services listed below:-

- a) Provide all operations and maintenance services necessary and advisable to efficiently operate and maintain the plant, including all associated and appurtenant mechanical and electrical equipments keeping in view the objectives set-forth herein above.
- b) Maintain at the Plant accurate and up-to-date operating logs, records and Monthly reports regarding the operation and maintenance of the Plant which shall include detail of power output, other operating data, repairs performed and status of equipment, all such records to be maintained for the lifetime of the wind farm. Upon expiry of term, the operator shall hand over such records to the Owner. However, Owner shall have access to all such records at any time.
- c) Regularly update and implement equipment repair or replacement and preventive maintenance program that meet the specifications of the equipment manufacturers and the recommendations of the manufacturers.
- d) Perform periodic preventive maintenance and overhauls required for the Plant in accordance with the recommendations of equipment manufacturers. Attend any break down in the Plant/Facility promptly. Inform time taken in attending to such breakdown shortly after restoration of WEG.
- e) Provide technical & engineering support for resolving operation and maintenance problems.
- f) Perform the services required to procure all spare parts, or equipment/s as required, overhaul of parts, tools and equipment, required to operate and maintain the Plant in accordance with the recommendations of individual original equipment manufacturer.
- g) Operate and maintain the suitable fire protection and safety of equipments.
- h) Maintain with the assistance of the Owner, records regarding the facility in accordance with generally acceptable accounting principles under the Laws.
- i) Arrange spares, consumables, tools & tackles, crane and testing equipment. Cost of these items shall be included in the price quoted for O&M.

## 5.5 PERSONNEL

The Operator shall employ adequately qualified and experienced personnel for operating and maintaining the wind energy project. The Operator shall ensure that such personnel remain on duty at the plant at all times, twenty-four (24) hours a day and seven (7) days a week soon after commissioning of the first WEG.

## 5.6 MACHINE AVAILABILITY

5.6.1 Operator shall maintain all the WEGs of the wind power project in a befitting manner so as to ensure minimum machine availability as defined in the clauses hereunder and elsewhere in the document.

5.6.2 The Operator shall keep average minimum machine availability for the Wind farm at not less than 70% during stabilization period of two months.

5.6.3 The Operator shall keep the six month average minimum machine availability of the Wind farm at not less than 96% during the months of high wind season i.e. typically April to September or for 6 months of high wind season as per site specific conditions every year. In case of stabilisation period falls during high wind season the machine availability will be considered for the remaining high wind months for the first year.

5.6.4 The Operator shall keep the remaining six month average minimum machine availability of the Wind farm at not less than 95% during the months of October to March or the balance of 6 months in each year.

5.6.5 The operator shall guarantee for above minimum Machine Availability. The machine availability includes power evacuation system (up to interface with the system of Power Utility).

5.6.6 In case the Machine Availability is found to be less than as stated above then the Operator shall pay to the Owner Pre-determined Mutually Agreed Compensation as given at Clause No. 5.8.1 of this Section.

5.6.7 For working out of Average Machine Availability Factor (MAF) of the wind farm, following formula shall be considered for each period separately:

*MAF of the wind farm shall be calculated in the following manner:*

$$MA \text{ for each WEG} = \frac{\{D - (GF + FM + S + U)\} \times 100}{\{D - (GF + FM)\}}$$

$$\text{Average MAF of the wind farm} = \frac{\text{Sum of the M.A calculated for each WEG}}{\text{No. of WEGs installed at site}}$$

Where, Recorded Hours = {D – (GF + FM + S + U)}

*D* = Number of total hours for a machine in the applicable period i.e. 8760 hours

*GF* = Grid Failure hours,

*FM* = Force Majeure hours

*S* = Scheduled Maintenance Hours for a Machine

*U* = Unscheduled or Forced Maintenance Hours for a Machine

5.6.8 The Operator shall also ensure that the minimum machine availability for an individual WEG in the wind farm shall not be less than 70% in each year during O&M period.

## **5.7 GUARANTEE FOR MAINTAINING POWER FACTOR AND DRAWAL OF REACTIVE POWER**

### **5.7.1 Power Factor**

It will be the responsibility of the operator to maintain power factor of the wind farm not less than the minimum requirement of TRANSCO / DISCOM so as to minimize Reactive Power drawal from State grid system.

### **5.7.2 Levy of Reactive Power (KVARh) Charges**

In the event of levy of any charges by State grid on account of lower power factor than the minimum mandatory requirement, such charges at actual amount shall be deducted from the operator's bills / outstanding operator's credit amount.

### **5.7.3 Guarantee for Transmission Losses**

Total Annual Average Losses in evacuation system of electricity from LCS to the point of interfacing shall be guaranteed by bidder and should not be more than 4%. Losses as guaranteed will be considered during estimation of Annual Energy Production.

Excess losses than the guaranteed above will be payable by Operator to Owner at Feed in Tariff at which PPA has been entered into with the Buyer along with GBI if applicable. Such loss will be calculated on annual basis as per clause 5.8.2.

## **5.8 PRE-DETERMINED MUTUALLY AGREED COMPENSATION**

The Operator shall pay to the Owner Pre-determined Mutually Agreed Compensation for lower Machine Availability, than stipulated in clause 5.6 of this Section and also for Transmission Losses exceeding the guaranteed limit than stipulated in clause 5.7.3 in the manner given hereunder. However, maximum liability for these factors i.e. on

account of lower machine availability and higher transmission losses together shall not exceed 100% of O&M charges of the concerned year.

#### 5.8.1 For Machine Availability during Operation & Maintenance Period

##### a. For Machine Availability of Complete Wind Farm below 96% as per requirement of clause 5.6.3

In case Machine Availability of wind farm during this period is less than the minimum guaranteed value of 96%, the Contractor shall pay compensation to the Owner in the following manner:

$$COM = \{(96 - MAF) \times C \times E\}/100$$

Where,

*COM is Compensation payable to Owner in Rs.*

*MAF is Machine Availability Factor as calculated in Clause 5.6.7*

*C is the sum total of Selling Price in Rs. Per kWh (Feed-in-Tariff) as per PPA and GBI*

*E is the actual generation of saleable energy in kWh during the period under consideration.*

##### b. For Machine Availability of Complete Wind Farm below 95% as per requirement of clause 5.6.3

In case Machine Availability of wind farm during this period is less than the minimum guaranteed value of 95%, the Contractor shall pay compensation to the Owner in the following manner:

$$COM = \{(95 - MAF) \times C \times E\}/100$$

Where,

*COM is Compensation payable to Owner in Rs*

*MAF is Machine Availability Factor as calculated in Clause 5.6.7*

*C is the sum total of Selling Price in Rs. Per kWh (Feed-in- Tariff) as per PPA and GBI*

*E is the actual generation of saleable energy in kWh during the period under consideration*

#### 5.8.2 Recovery of Compensation

The above Compensation will be deducted from price of Comprehensive O&M Contract during the free O & M period, Compensation shall be paid by the operator else it will be deducted from the Security Deposit.

The total combined Compensation on account of shortfall in machine availability, on account of transmission loss and financial implication due to scheduling & forecasting shall be limited to 100% of annual O&M contract value for that year.

Any Compensation arising out of guarantees during O&M period shall be adjusted against the O&M charges to be made to the Operator on annual basis in the last quarter.

## **5.9 LIAISONING**

It shall be the responsibility of the Operator to liaison with the State Government, concerned Renewable Agency, State Transmission & Distribution Companies, CEIG or any such agency / department which may be required for expediting the project and during O&M period.

## **5.10 O&M PERFORMANCE GUARANTEE**

The Bidder shall submit a Bank Guarantee one month prior to completion of free O&M period for an amount equivalent to 10% (ten percent) annual O&M charges for the year. Every year a fresh bank guarantee shall be submitted by the Bidder, having validity of 13 months, one month prior to expiry of the previous Bank Guarantee or the existing bank guarantee can be extended suitably every year till O&M contract remains with the Bidder.

Such Bank Guarantee shall be given in the Performa as per Annexure – V of Volume I.

## **5.11 INSURANCE**

### **By Owner**

Insurance policy for all the perils of Fire, natural calamities like earthquake, flood, storms, cyclone and tempest shall be taken by Kamarajar Port Limited regularly during O&M contract period. In case of any loss/ claim under the policy, O&M contractor shall immediately inform the same to Kamarajar Port Limited. & Insurance Company and thereafter shall take all the measures required to protect the interest of Kamarajar Port Limited including follow up as required for settlement of claim.

The contractor shall replace the damaged equipment without waiting for settlement insurance claim. Kamarajar Port Limited will bear the cost of replacement/ repair over and above the insurance claim, if any.

### **By operator (O&M Contractor)**

Operator shall provide or obtain and maintain in force throughout the period of contract the following insurance coverage:

- Insurance as well as undertaking to bear the risk during to cover third party liability

- Workmen compensation and/ or group personal accidents, Insurance policy covering all its employees and works including of the sub-contractor. Insurance policy should also cover pilferage, theft and burglary.
- Contractor shall also effect and maintain any and all other insurance, which he may be required under any law or regulation or practice from time to time.
- The Contractor may or may not take MBD insurance policy but it would be the responsibility of the Operator to operate and maintain the wind farm and all the associated equipments at his own cost for the quoted O&M period for which the Owner shall pay the agreed O&M charges only. Any replacement / repair / modification of any item / equipment shall be carried out by the Operator at his own cost for the quoted O&M period, so as to have minimum machine down time The Owner shall not be responsible for any break down / failure of any equipment to any reason thereof except for Force Majeure / Fire & Allied Perils Events or extraneous reasons. In the case of any delay/ lapse on the part of O&M Contractor, in restoring the operations, the loss in generation would be charged to the O&M Contractor.

### **General**

- The Contractor shall take all reasonable pre-cautions to prevent fire of any nature in the area of operation of his operations.
- In the case of any delay / lapse on the part of O&M Contractor, the loss would be made up by them. The contractor shall replace the damaged equipment without waiting for settlement of insurance claim.

The replacement / repair / modification of any / all equipment have to be carried out by the contractor at his own cost for the entire period of contract. Kamarajar Port Limited shall not be responsible for any break down / failure of any equipment to any reason thereof and that contractor shall maintain requisite stock of spares of various equipments.

## **5.12 MEASUREMENT OF ENERGY AND METERING**

### **5.12.1 Metering Systems:**

The Operator shall maintain the Metering System by ABT (Availability based tariff Meter) as per IEGC 2010 (Indian Electricity Grid Code) The Metering System will be designed and installed conforming to requirements of State utility so as to measure outgoing energy and power delivered by the WEG to the State grid at the delivery point, i.e. point of inter connection and also for the import of energy for any purpose. Metering equipments shall comply the requirements of State utility Grid Code but shall not be inferior to 0.2 accuracy Class. Meter reading shall be done jointly with Power Utility Engineer on monthly basis or at mutually agreed time interval.

### **5.12.2 Testing of Meters**

The Owner shall have the right to carry out inspections of the Metering Systems from time to time to check their accuracy.

All testing and metering equipment shall conform to the relevant IS/ TRASCO/ DISCOM standards.

If either the Operator or the Owner finds any inaccuracy in the Metering System, the operator or the Owner, as the case may be, shall notify the other party in writing within 24 hours for a joint inspection and testing from TRANSCO/DISCOM/ or other agreed agency.

#### 5.12.3 Sealing and Maintenance of Meters

The Metering System shall be sealed in the presence of both parties or in the presence of DISCOM Engineer.

When the Metering System and/or any component thereof is found to be outside the acceptable limits of accuracy or otherwise not functioning properly, it shall be repaired, re-calibrated or replaced by the Operator on priority.

Breaking of meter seals shall not be done except in case of any requirement by State power utility for testing/calibration. Even in such case the Operator shall immediately inform the Owner of such requirement to enable Owner for deputing its representative. All testing/ calibration of metering system shall be done by State power utility officials only. However, sealing procedure DISCOM/ utility will be Acceptable.

### 5.13 O&M CHARGES

The operation and maintenance period of the wind energy generator shall be twenty years including the free O&M period. The bidder shall quote fixed price for at least ten years. This O&M Contract shall be renewable for further term of 10 (ten) years on the same terms and conditions but at mutually agreed rates during 10<sup>th</sup> year of operation based on the conditions prevailing at that time. However the revised rates should be in line with the rates in vogue at that time and is to be finalized in the first half of the 10<sup>th</sup> year. Further, the increase during 11<sup>th</sup> year is capped and shall not be more than 5%. The escalation from 12<sup>th</sup> year to 20<sup>th</sup> year will be considered same as that of quoted from 3<sup>rd</sup> year to 10<sup>th</sup> year.

The O&M charges shall be quoted with applicable taxes & duties showing separately. Any increase in statutory taxes, levies / fees or newly imposed taxes would be charged extra (with submission of documentary proof). Similarly, due credit would be given to Owner in case of withdrawal or reduction in applicable taxes / fees / duties.

Payment will be made after all statutory deductions as applicable to such type of contracts. The rate quoted shall deem to be inclusive of all salaries and other cost, expenses of employees, cost of spares, cost of repair / replacement / modification of any equipment or system for the entire period of 20 years so as to give machine availability as per clause 5.6 for 20 years. The rates shall also be inclusive of tools & tackles, etc. and liabilities of every description and all risk of every kind to be taken in operation, maintenance and handing over the plant to the Owner by the operator. Owner shall not be responsible for any such liability on the operator in respect of this contract and exclusion of applicable taxes on bid due date or extension if any at prescribed rates due to ignorance or otherwise shall not form a reason for claiming anything extra at a later date. If any amount is payable / levied to/by

TRANSCO/ DISCOM, etc., on account of low power factor or any other account of wind farm, the same shall be deducted from the operator's remuneration or from other due payments/ Bank Guarantees.

#### **5.14 PAYMENT**

Payment period shall be on quarterly basis at the end of each quarter. The operator shall submit bills in respect of the quarter ended in quadruplicate after the end of each quarter for the payment after submission of SPBG as per Clause no.5.10.

#### **5.15 SUBMISSION OF DAILY & MONTHLY GENERATION DATA STATEMENT**

A daily report comprising energy generation, grid availability, breakdowns, generation hours, low wind hours, machine availability etc shall be sent through e-mail and /or made available through Customer Relation Manager (CRM) to Owner.

Monthly Generation data statement for net energy delivered to the Utility duly certified by their authorized official shall be furnished to Owner by the Operator not later than 10th day of the following month/ as per state Utility practice. The Operator shall coordinate with the DISCOM/required agencies for revenue realization.

#### **5.16 OPERATOR'S OFFICE AT SITE**

During the execution of the contract the Operator shall ensure that a Plant Manager with authority to take decisions to be available at site. Such person deputed by the Operator shall report to the Engineer in Charge for smooth operation of the plant. The Operator shall maintain an office at the site and such office shall be open at all reasonable hours to receive instructions, notices or other communications. The office shall have telephone, fax and internet facility. The Operator shall be responsible for any misconduct/indiscipline by his employees or sub operator/agent employee's. The

Operator shall abide by the instructions of the Owner Representative, if given in this regard.

Operator shall provide sitting space in office to the representative/s of Owner or their authorized agency during their visit to the site.

#### **5.17 POWER OF ENTRY**

In case the Operator does not execute the work in the manner described in the contract documents or if he shall at any time in the opinion of the Engineer-in- Charge:

- i) Fail to operate & maintain the plant in conformity with contract document or
- ii) Substantially suspend work or the works for a continuous period of 15 days without permission from the engineer in charge, or
- iii) Fail to carry on and execute the works to the satisfaction of the engineer in charge, or

- iv) Commit or suffer or permit any other breach of any of the provisions of the contract on his part to be performed, or
- v) If the operator abandons the works, or
- vi) If the Operator during the continuance of the contract becomes bankrupt.

In any of such events, the Owner shall have the power to enter upon the works and take possession of the plant, materials, spares, equipment, tools and stocks thereon, and to revoke the Operator's license to operate the plant by his agents, other Operators or workmen.

#### **5.18 HANDING OVER THE PLANT AFTER EXPIRY OF TERM**

In the beginning of last year of expiry of term & extension of term as the case may be, operator shall hand over the plant to the Owner in operationally fit and running condition. The operator shall demonstrate 96 hours short run test of all WEGs along with the associated major & critical equipments to ensure that plant is operational and in good running condition in accordance to the norms of manufacturer. While handing over the plant, operator shall hand over all technical documents, literature, and instruction manuals, lists of spare part & tools & tackles. Operator will also hand over all the relevant record/ documents.

#### **5.19 DEFECTS / NON-ACHIEVEMENT PLANT DEPENDABLE CAPACITY AFTER HANDING OVER**

In order that the Operator could obtain a Handing Over certificate, he shall rectify any defect / non achievement of plant dependable capacity in accordance to the norms of manufacturer arising from the defective Operation & maintenance practices or noncompliance of Prudent Utility Practices or that may have been noticed or developed during/ after the plant has been taken over, the period allowed for carrying out such works will be normally one month. If any defect could not be remedied or plant dependable achievement capacity in accordance to the norms of manufacturer could not be achieved within a reasonable time the Owner may proceed to do the work at operators risk and expense and deduct from the final bill such amount as may be decided by the Owner.

All the aforesaid safeguards /rights provided for the Owner shall not prejudice its other rights/ remedies elsewhere provided herein and/or under law.

#### **5.20 FINAL PAYMENT**

Whenever, in the opinion of the Engineer-in-charge, the Operator has completely performed the contract on his part, the Engineer in-charge will so certify in writing to the Operator.

Final payment to the Operator shall be made after accounting for all the previous payments/ advances/ adjustments of dues, provided always that Operator furnishes a "NO Further

Claim - No Dues Certificate". The release of final payments does not relieve the Operator from his any other obligations as provided for in the contract.

Owner shall deduct statutory taxes at source as per prevailing rates from bills of the Operators.

## **5.21 FAILURE OF THE OPERATOR TO COMPLY WITH THE PROVISIONS OF THE CONTRACT**

5.21.1 If the contractor refuses or fails to execute the work or any separate part thereof with such diligence as will ensure its completion within the time specified in the contract or extension thereof or fails to perform any of his obligation under the Contract or in any manner commits a breach of any of the provisions of the contract it shall be open to the Owner at its option by written notice to the Contractor to: -

- (a) Determine the Contract: In which event the Contract shall stand terminated and shall cease to be in force and effect on and from the date appointed by the Owner on that behalf, whereupon the contractor shall stop forth with any of the contractor's work then in progress, except such work as the Owner may, in writing, requires to be done to safeguard any property or work, or installations from damage, and the owner, for its part, may take over the work remaining unfinished by the Contractor and complete the same through fresh contractor or by other means, at the risk and cost of the Contractor, and any of his sureties if any, shall be liable to the owner for any excess cost occasioned by such work having to be so taken over and completed by the Owner over and above the cost at the rates specified in the schedule of quantities and rates.
- (b) Without determining the Contract: To take over the work of the contractor or any part thereof and complete the same through a fresh contractor or by other means at the risk and cost of the Contractor. The contractor and any of his sureties are liable to the Owner for any excess cost over and above the cost at the rates specified in the schedule of quantities/ rates, occasioned by such works having been taken over and completed by the Owner.
- (c) In other cases, the decision of the Owner is binding on the contractor.

5.21.2 In such events of clause 5.21.1 (a) or (b) above

- (a) The whole or part of the security deposit furnished by the Contractor is liable to be forfeited without prejudice to the right of the Owner to recover from the contractor the excess cost referred to in the sub-clause aforesaid, the Owner shall also have the right of taking possession and utilizing in completing the works or any part thereof, such of materials, equipment and plants available at work site belonging to the contractor as may be necessary and the Contractor shall not be entitled for any compensation for use or damage to such materials, equipment and plant.

(b) The amount that may have become due to the Contractor on account of work already executed by him shall not be payable to him until after the expiry of six (6) calendar months reckoned from the date of termination of contract or from the taking over of the work or part thereof by the Owner as the case may be, during which period the responsibility for faulty materials or workmanship in respect of such work shall under the contract, rest exclusively with the contractor. This amount shall be subject to deduction of any amounts due from the Contractor to the Owner under the terms of the contract authorised or required to be reserved or retained by the Owner.

5.21.3 Before determining the contract as per clause 5.21.1 (a) or (b) provided in the judgment of the Owner, the default or defaults committed by the Contractor is/are curable and can be cured by the Contractor if an opportunity given to him, then the Owner may issue notice in writing calling the Contractor to cure the default within such time specified in the notice.

5.21.4 The Owner shall also have the right to proceed or take action as per 5.21.1 (a) or Clause 5.21.1(b) above, in the event that the contractor becomes bankrupt, insolvent, compounds with his creditors, assigns the contract in favour of his Creditors or any other person or persons or being a company or a corporation goes into liquidation, provided that in the said events it shall not be necessary for the Owner to give any prior notice to the contractor.

5.21.5 Termination of the Contract as provided for in sub-Clause 5.21.1 (a) above shall not prejudice or affect their rights of the Owner which may have accrued up to the date of such termination.

**SECTION-VI A**  
**SCOPE OF SUPPLY**

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## **SECTION-VI A**

### **SCOPE OF SUPPLY**

The Scope of Supply covered under this specification shall be but not limited to the following:-

#### **6.1 DESIGN, MANUFACTURING & SUPPLY**

Design, engineering, manufacture, in house testing and supply at site of suitable low voltage, 50 Hz, upwind / downwind, horizontal axis Wind Electric Generators (WEGs) in the range of 1500 KW and above rating complete with accessories as may be required for erection, commissioning and successful continuous operation of 25( $\pm$ 5%) MW capacity wind energy farm with the State grid. The WEGs shall be equipped with current limiting devices and capacitors (in case of induction generators) so as to maintain power factor conforming to the requirement of State grid.

Bidder shall ensure compliance with the requirements of "Indian Electric Grid Code" 2010 notified by CERC and subsequent amended from time to time.

Design, engineering, manufacture and supply at site of towers suitable for WEGs.

Design, engineering, manufacture and supply at site of wind farm internal electrical system.

Design, engineering, manufacture and supply at site of Grid interfacing equipments including transformers, HT lines, panels, kiosks, protection equipment, metering equipment for evacuation of power from the wind power plant to the nearest State grid sub-station.

Design, engineering, manufacture and supply of ABT type meter(s) for recording data regarding export and import of power to/from State grid and also recording KVAH & KVARH data on real time basis.

Design, engineering, manufacture and supply of VAR drawal compensation system, if required.

Design, engineering, manufacture and supply of all control system to give command to WEGs, receive data, processing and getting required report on energy generation, wind speed etc.

Design, engineering, manufacture and supply Centralized Monitoring and Control System (SCADA) on sharing basis for Owner.

Design, engineering, manufacture and supply of any item not specified but essential for the wind farm.

Stock keeping of adequate spares at site for operation & maintenance of wind energy project. List of such spares to be provided.

## **6.2 WIND MONITORING MAST**

The bid should include supply, installation and maintenance of one wind monitoring mast at offered site till the power curve testing is carried out. This may be new or existing wind mast near the WEG selected for power curve test

This shall include all required data loggers, sensors etc. capable of recording data for a minimum of 10 minute intervals. Wind measuring system should be 16 quadrant type and of approved / accredited makes. The height of the wind mast shall be equal to the hub height ( $\pm 2.5\%$ ) of the WTG's to be installed. The wind monitoring mast shall be installed and shall become operational prior to wind farm starts power generation.

## **6.3 DOCUMENTS & DRAWINGS**

6.3.1 Following documents in three copies each shall be submitted to Owner as well as Consultant for review and approval:

Detail Technical Specifications.

General Arrangement Drawing.

Contour plan for the land area.

Micro-siting plan & wind farm layout.

Schematic diagram for entire evacuation system and transmission loss calculations.

G. A. drawings for overhead lines along with all types of structures, single, double, triple and four pole structure transmission lines, 33kV switchyard & Interfacing points.

Quality Assurance Plans.

Copies of type test certificates along with test reports, routine and acceptance tests for major components.

6.3.2 Submission of all the drawings on "as built" basis covering all changes/modifications, if any, due to site conditions in four sets to Owner/Consultants after commissioning of the project for record purpose.

- One soft copy of as built drawings shall also be submitted.

- O & M Manuals in four sets.

6.3.3 The Contractor shall forward to Owner/Consultants Schedule of supply within a week time from the date of Award of Contract.

**SECTION-VIB**  
**SCOPE OF INSTALLATION, TESTING &**  
**COMMISSIONING**

## SECTION-VIB

### SCOPE OF LAND & IT'S DEVELOPMENT, INSTALLATION, TESTING & COMMISSIONING

The Scope of arrangement of land, Installation, Testing & Commissioning covered under this specification shall be but not limited to the following.

#### 6.4 LAND, LAND DEVELOPMENT & LAND TRANSFER

##### 6.4.1

**A)** Acquisition and transfer of ownership of Land for:

- i) Installation of 25(±5%) MW Wind Energy Project for power generation in any potential state of India.

**B)** Acquisition and transfer of ownership of Land and/or Right of Way/Use for Land required for:

- i) Construction of internal roads required for smooth & trouble free O&M on sharing basis
- ii) Construction/ development of proper approach roads to the project site
- iii) Approach roads can be on sharing basis and such approach roads either should belong to bidder or has the Right of Way/Use.
- iv) Setting up transmission lines, transformers and its allied switchgear system for evacuating the power generated from wind turbines up to the point of interconnection at the nearest TRANSCO/ DISCOM Grid Substation

6.4.2 Arranging necessary statutory approvals & permissions from the concerned departments/ authorities required for above. Bidder shall furnish copies of Govt. Policy (ies) applicable/in force for acquisition & transfer of land applicable to wind energy projects for the type of land offered

6.4.3 All expenses required to be incurred for the above including statutory fees, stamp duty, logistic expenses etc. shall be borne by the bidder/contractor.

6.4.4 Technical Requirements of the offered Land.

The land offered by the bidders should meet the following requirements.

- (a) Only those sites shall be accepted where wind resource assessment (WRA) has been carried out by installing wind mast of minimum 50m height and measurement of wind-data for at least continuous one year period as per established industry practices/MNRE/NIWE/State nodal agency guidelines. The sites should have authentic wind resource assessment data to ensure estimation of long-term energy output from the wind-farm and meeting the techno- commercial viability of the project.
- (b) It is desirable that the bidder furnishes wind-data and energy output records of adjacent wind-masts or wind farms for recent years to Owner during energy estimation validation to be submitted in the bid for correlation of data with the offered wind farm.
- (c) A single site would be defined as the cluster of WTGs installed at the same location connected to a single pooling sub-station.
- (d) The farthest wind turbine of wind farm in the offered land shall not be more than 10 km from the reference wind mast to enable Owner carry out prediction of estimated energy yield of the offered wind farm for long term basis with reasonable accuracy.
- (e) In case of land purchased on foot print basis, developer shall leave minimum distance of  $0.5D+5m$  as boundary distance from the centre of the proposed WEG from the neighboring land.
  - (i) Boundary distance of  $0.5D + 5m$  in all four directions from the WTG (where D is the WTG rotor diameter) if there is no building, school, residential place etc. nearby.
  - (ii) Boundary distance of Tower height +  $0.5D + 5m$  in all four directions from the WTG (where D is the WTG rotor diameter) if location is nearer to building, school, residential place etc.

#### 6.4.5 Legal Requirement of Land

There could be three types of land for development of wind farm project i.e. (i) Private Land; (ii) Revenue (or Government) Land & (iii) Forest Land. Bidder can offer for any of the land for the project. Transfer of land shall require to be done depending upon type of land offered by Bidder in the following manner:-

##### **(I) Private Land**

**A.** Private land, if offered, should have clear title and should be transferable to Owner. The Bidder shall furnish the documentary evidence for possession of land in his name.

In case the land is not in the name of Bidder, the Bidder shall furnish the following documents along with the bid:

- i) Agreement to sell / Agreement to Lease in favour of bidder/land supplying agency of the offered land with the actual land owner along with a

commitment to sell/ transfer such land to Kamarajar Port Limited without any consideration

- ii) In case the Agreement to Sell/ Agreement to Lease is executed with an agency other than the Bidder, then the development agreement/ along with the agreement to sell/transfer the land to Kamarajar Port Limited between the Bidders and the land supplying agency shall also be submitted.
- B.** The successful bidder shall be required to ensure the following while transferring land in favour of Kamarajar Port Limited.
- i) The seller from whom the Bidder/Bidder's nominee/3rd Party is buying the land has a clear title to the said land
  - ii) Validity of the said Agreement to Sell shall be maintained or extended, if required, minimum up to the validity of the Bid and it must also provide reasonable time (of 60 days) for executing sale Deed with Kamarajar Port Limited. from the Letter of Award (LOA).
  - iii) Agreement to sell should provide that the Sale Deed will be executed and duly registered in favour of Bidder /owner/ Kamarajar Port Limited.
  - iv) Submission of all the documents for Transfer of private land for Sale Deed in the name of Kamarajar Port Limited shall be got done within 60 days of LOA
  - v) The land use in the records/policy of the Government does not prohibit the purpose for which the land is being procured i.e. setting up of a wind energy project and allows change of land use for allowing setting up of a wind energy project. Bidder should provide a certificate from designated authority within three months from LOI as well as provide an undertaking for the same with the offer.
  - vi) All taxes, legal dues, charges, incidental/logistics expenses etc. for the said land applicable up to the period of execution of Sale Deed in favour of Owner by the Bidder shall be duly paid to the concerned Authority by the Bidder.
  - vii) Obtain permission of competent authority for Non Agriculture (NA) use of agriculture land for wind farm project within three months from LOI, It is to be noted that no payment against cl 4.19 except advance will be released till submission of the permission from competent authority for usage of agricultural given land for the wind farm and till ownership transfer in name of Kamarajar Port Limited.

**(II) Revenue Land (Govt.) Land:**

In case the offered land is Government land for which requisite amount has been deposited to Revenue department / Nodal Agency by the Bidder or its subsidiary or Bidder's group company for development of Wind Farm & suitable agreement is signed between the District Collector & the Bidder or its subsidiary or Bidder's group company or official Letter of Allotment from State or its agency is issued, then land

should be sub-leased for at least 20 years or as per State Government policy from the date of commissioning. Agreement between the Bidder and its subsidiary/group company to transfer the same to Kamarajar Port Limited without any consideration is to be submitted. Transfer/sublease in the name of Kamarajar Port Limited. shall be done as per state policy and should be done within one year of commissioning.

If the land has been allotted to a third party for development of Wind Farm with whom the Bidder has signed an Agreement to Transfer such land to Kamarajar Port Limited without consideration, then the land should be subleased to Kamarajar Port Limited. for at least 20 years (or as per State Government policy) from the date of commissioning. The bidder is responsible for completing the formalities and ensuring the sublease in name of Kamarajar Port Limited. Agreement between the Bidder and the third party to transfer the same to Kamarajar Port Limited without any consideration is to be submitted. Transfer/sublease in the name of Kamarajar Port Limited shall be done as per state policy and should be done within one year of commissioning.

If Allotment Letter of competent authority is not available the recommendation of allotment of offered land for development of Wind farm from the Nodal Agency will be considered subject to submission of Allotment Letter of competent authority within 60 days of Techno-commercial bid opening.

### **(III) Forest Land:**

The bidder must have at least Stage-1 clearance of the offered forest land from Ministry of Environment and Forests as on the bid due date or extension if any. The Bidder shall be required to fulfill/ comply all the requirements mentioned by MoEF in Stage-1 clearance and obtain Stage-2 clearance within a period of 4 (four) months from the date of opening of Techno-commercial bid.

Lease transfer of the forest land in favour of Kamarajar Port Limited shall be got done for a period of 25 years or as per the conditions laid down by MoEF while according clearance of the land.

In case of Forest land the lease transfer shall be for balance period as available with the bidder at the time of lease transfer

Bidder shall indicate minimum area of land for installation of each WEG. The approximate area of land of the wind farm to be transferred/sub leased/leased / transfer to Kamarajar Port Limited is to be indicated in the offer irrespective of the type of land offered In BRS -20(a)

6.4.6 Bidder shall also submit location wise details of land offered for each WEG such as Survey/ Khasra No., area offered and reference of sale deed/ATS/allotment letter etc. as per BRS-20(b).

6.4.7 Bidder shall submit detailed Methodology for land transfer as per BRS 17(b).

6.4.8 Construction of approach roads to Wind farm and internal service roads

6.4.9 Land development activities, obtaining all clearances related to land development, civil works including building having control room, store, office, amenities, water arrangement, extensions etc.

6.4.10 To comply with all the rules and regulations already in force and formed by the statutory and local bodies notified from time to time effective at the time of submission of bid. In case change /new in statutory charges imposed after bid due date or extension if any same will payable by Owner.

6.4.11 Obtain permission of competent authority for Non Agriculture (NA) use of agriculture land/given land for wind farm project

## **6.5 STATUTORY APPROVALS**

Obtaining statutory approvals / clearances, wherever required, from Government departments but not limited to the following:

- Airports Authority of India
- Pollution Control Board
- State Renewable Energy Development Agency
- State Power Utilities viz. Transmission Company / Distribution Company
- Electrical Inspectorate (CEIG)
- Forest Department and
- Arranging PPA with State DISCOMs
- Other applicable permissions / clearances relevant for the offered site.

## **6.6 ERECTION, TESTING & COMMISSIONING**

Micro-siting of all the WEGs

Construction of civil foundations for WEG towers.

Transportation of all materials from the site store to WEG locations.

Erection of WEG towers on foundations.

Installation of WEGs on erected towers.

Installation, testing and commissioning of unit substation for WEGs and adequate internal evacuation system for 25(±5%) MW wind farm of Owner. The power evacuation system beyond unit substation of WEGs will be on shared basis.

Testing and commissioning of WEGs.

Installation, testing and commissioning of Grid interfacing equipments including transformers, HT lines, panels, kiosks, protection equipment, metering equipment for evacuation of power from the wind power plant to the nearest State grid sub-station

Installation, testing and commissioning of ABT type energy meter(s) for recording data regarding export and import of power to/from State grid and also recording KVARh & KVARh data on real time basis.

Installation, testing and commissioning VAR drawl compensation system, if required.

Installation, testing and commissioning of Centralized Monitoring and Control System (CMCS) for remote operation of the WEGs, receiving the data relating to WEGs, processing and getting required report on energy generation, wind speed downtime, etc. This facility for Owner wind farm shall be on shared basis.

## **6.7 POWER EVACUATION**

The bidder should have any of the following arrangements for adequate Power evacuation for the offered wind project.

1. Approval from State Transmission Company (TRANSCO) /DISCOM for power evacuation for the wind farm in bidder's own name.
2. An Agreement with a third party, an individual or Company having approval from TRANSCO/ DISCOM for providing power evacuation facility for the project for 20 years, with no additional cost to OWNER. Bidder should clearly indicate the name of individual/ company having approval of power evacuation.
3. The bidder shall furnish the details of evacuation system as per BRS 16.
4. The bidder shall furnish letter from SLDC giving share of other connected wind/ solar projects and also allocation letter confirming reservation of adequate power evacuation capacity for the project in BRS 2.

## **6.8 INFRASTRUCTURE**

Suitable arrangement of water to be ensured to cater for the day-to-day requirement of drinking water and other needs of wind farm during entire O&M period.

Construction of approach road and internal roads in the wind farm.

## **6.9 SHARED FACILITIES**

The Facilities which shall be used either exclusively (if it is for the exclusive user of the Wind Farm) or on sharing basis by investors in the Wind Farm (if Kamarajar Port Limited is not the exclusive user of the Wind Farm) including (but not limited to) the following:

- All internal roads including approach roads to WEGs in the wind farm
- Internal evacuation system of wind farm consisting of 33 kV (or applicable voltage) lines including spur lines from individual WEG and associated equipments for transfer of wind power generated from WEGs to pooling station of wind farm
- Pooling station consisting of EHV transformers (if required), associated equipment, control system, structures, metering system, control room building, stores etc. for stepping up of voltage from internal evacuation system to appropriate state grid voltage system.
- Control room cum office building, stores and any other civil structure in the wind farm.
- Central Monitoring & Control System (CMCS)
- Communication network.
- Water supply arrangement.
- Firefighting arrangement.
- Safety & security system of wind farm.

#### **6.10 MANPOWER & UTILITIES**

The EPC Contractor shall give details of manpower to be deployed at the site for store management, installation, testing & commissioning, security and during O&M of wind energy project.

Deploy at site adequate qualified manpower, cranes, special tools & tackles, required consumables, measuring & testing equipments. Arranging construction power & water as required for installation and commissioning of the project.

#### **6.11 GENERAL**

To discharge obligations relating to retirement/ Superannuating benefits to employees or any other benefit accruing to them in the nature of compensation, profit in lieu / in addition to salary, etc. for the period of service with the Contractor.

To hand over the entire system in good working condition.

**SECTION-VIC**

**SCOPE OF  
OPERATION AND MAINTENANCE**

## SECTION-VIC

### SCOPE OF OPERATION AND MAINTENANCE

#### 6.12 OPERATION AND MAINTENANCE SCOPE

Owner intends to entrust the operation and maintenance (O&M) of 25(±5%) MW wind farm on comprehensive basis to the Contractor on turnkey for 20 (twenty) years including 2 (two) years free O&M period during warrantee.

The bidder has to quote for 25(±5%) MW wind farm along with its comprehensive O&M for 20 years.

The period of comprehensive O&M of 20 years shall be into two time blocks. Each time block shall be ten (10) year duration. Two years of free O&M period shall be in first time block and shall commence after the stabilization of the project as per clause no.4.10.

The bidder shall quote rates for Comprehensive O&M for the first time block on yearly basis from 3<sup>rd</sup> year to 10<sup>th</sup> year as per Clause No. 5.13 of Section - V.

This O&M Contract shall be renewable for further term of 10 (ten) years on the same terms and conditions but at mutually agreed rates during 10<sup>th</sup> year of operation based on the conditions prevailing at that time. However the revised rates should be in line with the rates in vogue at that time and is to be finalized in the first half of 10<sup>th</sup> year. Further, the increase during 11<sup>th</sup> year is capped and shall not be more than 5%. The escalation from 12<sup>th</sup> year to 20<sup>th</sup> year will be considered same as that of quoted from 3<sup>rd</sup> year to 10<sup>th</sup> year.

The Contractor shall be responsible for all the required activities for maintenance and successful running of the WEGs for optimum energy generation as well as maintenance of associated facilities of the wind farm.

Deputation of Engineering and other supporting personnel.

Deputation of security personnel.

Keeping the WEGs in operational mode so as to get optimum energy generation from the wind energy project.

Monitoring controlling, troubleshooting maintaining of records, registers.

To maintain proper and adequate inventory of all spares, consumables and fixing/ application of the same as per WEGs

Conducting periodical maintenance check, testing over hauling and taking preventive action for smooth running of wind farm as required.

General up keeping of all equipment, building, roads etc.

Submission of daily/periodical reports to Owner energy generation & operating conditions of the wind farm.

Taking care of all the security aspects of the wind farm.

Continuous monitoring of performance of the Wind Electric Generators and regular maintenance of the whole system including WEGs, transformers, overhead lines, outdoor kiosks, switchgear, equipments etc. for extracting and maintaining the maximum energy output from the wind farm.

### **6.13 GENERAL**

To maintain at the facility accurate and up-to-date operating logs, records and monthly reports regarding Operation & Maintenance of the facility.

To perform or contract for and oversee the Performance of periodic overhauls or maintenance required for the facility in accordance with the recommendations of the original equipment manufacturer.

To maintain and up-keep control room, all internal roads, tool room, stores, equipment, etc. in workable conditions.

To discharge obligations relating to retirement/ Superannuating benefits to employees (of the contractor) or any other benefit accruing to them in the nature of compensation, bonus / in addition to salary, etc. for the period of service with the Contractor.

### **6.14 OPERATION AND PERFORMANCE MONITORING**

Operation part consists of deputing necessary manpower required to operate the wind farm at the optimum capacity.

Daily work of the operator in the wind farm shall include logging the voltage, current, power factor, Active and Reactive Power output of the 25( $\pm$ 5%) MW wind farm, keeping batteries in healthy state, individual WEG's output data once a day. The operator shall also record failures, interruption in supply and tripping of different relays, reason for such tripping, duration of interruption etc. and inform Owner of such interruptions with details very next day of occurrence. Necessary auto data recording instruments will be provided by Contractor.

The operator shall record daily and monthly energy output of each WEG. Monthly Performance reports indicating turbine wise energy production, down time, capacity utilization factor, machine availability etc. shall be prepared for each WEG as well as for the wind farm and furnished in soft mode to Owner in the first week of the following month.

A daily report comprising energy generation, grid availability, breakdowns, generation hours, low wind hours, machine availability etc. shall be sent through e-mail and /or made available to Owner.

Monthly performance of each WEG based on the following parameters shall be prepared and submitted to Owner before 10<sup>th</sup> of succeeding month

- a. Daily generation data
- b. Details of preventive maintenance activities carried out during the month
- c. Breakdown details along with remedial actions taken
- d. Break up of down times – Technical & Non-Technical
- e. Error trend
- f. Component failure details
- g. ROW problems – Reasons & remedial actions taken
- h. SCADA connectivity and healthiness

Annual report of wind farm will also be prepared on above points and shall be submitted in the month of April every year.

OWNER at its discretion may get the performance checked from an independent technical consultant.

## **6.15 PREVENTIVE MAINTENANCE**

The Contractor shall draw the preventive maintenance schedules for daily, monthly and yearly and attend to the breakdowns keeping in view that the machine availability is always as per clause 5.6. A copy of such Preventive Maintenance Schedule shall be submitted to the Owner before the start of year.

The Contractor shall carry out the periodical/plant maintenance as given in the manufacturer's service manual and perform minimum two certified services per annum. Such programme for all the equipment shall be prepared as per operating manuals of manufacturer's and shall be implemented in letter and sprits.

Regular periodic checks of the WEGs shall be carried out as a part of routine preventive maintenance during low wind period. In order to meet the maintenance requirements stock of consumables are to be maintained as well as various spare as recommended by the manufacturer at least for 2 years to be kept for usage.

Maintenance of other major equipment involved in wind energy farm are step up transformers, overhead line equipment, switchgear outdoor 33 kV/22 kV/11 kV VCB kiosk and metering panel. Particular care shall be taken for outdoor equipment to prevent corrosion. Cleaning of the insulators and applying Vaseline on insulators if required, shall also be carried out at every 3 to 4 months interval. Resistance of the earthling system as

well as individual earth resistance is to be measured and recorded every month. If the earth resistance is high suitable action shall to be taken to bring down the same within the limits.

Maintenance record is to be maintained by the operator to record regular maintenance work carried out as well as any breakdown maintenance along with the date of maintenance, reasons for the breakdowns, steps taken for attending to the breakdown, duration of the breakdown etc.

**Schedules will be drawn such that some of the jobs other than breakdown, which may require comparatively long stoppage of the WEG's, shall be carried out preferably during the non-windy season.**

The Contractor shall deploy enough manpower at wind farm site to carryout work instructions and preventive maintenance schedules as specified. The Contractor shall keep at least one skilled and experienced supervisor at site on permanent basis to supervise the jobs that are being carried out at site.

The Contractor will attend to breakdown jobs immediately for repair/ replacement/ adjustments and complete at the earliest during the currency of O&M Contract.

The Contractor shall immediately report the accidents, if any, to the Engineer In charge & to all the concerned authorities as per prevailing law of the State showing the circumstances under which it happened and the extent of damage and/ or injury caused. O&M Contractor would be solely & fully responsible/ liable to pay for any losses/ damages/ claims, etc. and Owner will be fully indemnified for such losses/ claims.

The Contractor shall comply with the provision of all relevant Acts of Central or State Governments including payment of Wages Act, 1936; Minimum Wages Act, 1948; Employer's Liability Act, 1938; Workmen's Compensation Act, 1923; Industrial Disputes Act, 1947; Employees State Insurance Act, 1948; Contract Labour (Regulations & Abolishment), Act 1970 or any other law relating whereto and rules made there under from time to time.

The Contractor shall at his own expense provide all amenities to his workmen as per applicable laws and rules.

The Contractor shall ensure that all safety measures are taken at the site to avoid accidents to his or his Co-Contractor or Owner's Workmen.

If in the event of negligence or mal-operation by the Contractor's operator any failure of equipment take place such equipment should be repaired/ replaced by Contractor free of cost within a reasonable period of time.

#### **6.16 STATUTORY CHARGES & LEASE RENTAL CHARGES**

Statutory charges like CEIG annual charges, annual meter testing charges, joint certification charges etc., lease rental charges or any other charges as may be required to

be paid to such statutory agencies shall be in the scope of the Owner & shall be paid by the Owner from time to time post commissioning of project. For such payments contractor has to inform one month in advance to the Owner.

#### **6.17 QUALITY SPARES & CONSUMABLES**

In order to ensure longevity safety of the core equipment and optimum Performance of the system the Contractor should use only genuine spares of high quality standards as recommended by manufacturers (OEM).

#### **6.18 TOOLS AND TACKLES**

The Contractor shall arrange for all the necessary tools and tackles including crane for carrying out all the maintenance work covered under this contract.

#### **6.19 SECURITY SERVICES**

The Contractor shall arrange proper security system including deputation of security personnel at his own cost for the check vigil for the wind farm.

#### **6.20 TRAINING**

Providing a detailed training plan for all operation, maintenance procedures, which shall after approval by Owner, form the basis of the training program. Contractor shall impart training on site to 6 Owner engineers in O&M of Wind Energy Generators and associated equipments for two weeks. Boarding and lodging expenses of the trainees shall be borne by Owner.

#### **6.21 SCHEDULING AND FORECASTING**

Scheduling and forecasting process is now required to be implemented in the Wind Sector as the Central Electricity Regulatory Commission (CERC) have notified a Regulation named Indian Electricity Grid Code Regulations (IEGC), 2010 on April 28, 2010 for helping and maintaining the Grid discipline and also formulate rules related to the operating parameters of the Indian Grid across the country. CERC has also issued IEGC Regulations, 2010 under clause (h) of subsection (1) of Section 79 read with clause (g) of sub-section (2) of Section 178 of the Electricity Act, 2003. As per CERC order dated 16th January, 2013 the implementation date has been fixed as 1<sup>st</sup> July, 2013. As specified elsewhere in the Contract documents, to comply with statutory requirements, Regulations, Orders, Bidder would be responsible for scheduling & forecasting for the ordered capacity on behalf of the Owner but Kamarajar Port Limited reserves the right to withdraw the same from the scope of operator. The bidder should include this cost in his bid and no additional financial implication should be there to Kamarajar Port Limited for arranging a separate agency for doing the scheduling and forecasting as per requirements. The operator shall be responsible for scheduling and forecasting of energy correctly and shall bear 10% of the annual financial liability/ implication, if any. The overall liability will be limited to 100% of annual O&M charges as specified at Clause No.5.8.2.

**SECTION-VII**

**TECHNICAL SPECIFICATION**

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## SECTION–VII

### TECHNICAL SPECIFICATION FOR WIND ELECTRIC GENERATORS (WEGs) AND ELECTRICAL SYSTEM FOR INTERFACING WITH GRID

#### 7.1 TYPE AND RATING OF WEGS

The WEGs shall be:

- i. of rating in the range of 1500 KW and above
- ii. Upwind type
- iii. Three blade type
- iv. Horizontal axis with active yawing
- v. Power Regulation (Pitch/Stall)
- vi. Grid compatible type
- vii. Single speed, dual speed or variable speed
- viii. Of having survival wind speed capable to withstand cyclonic effect in the offered area.
- ix. Generator having insulation class 'F' or better.

#### 7.2 GRID CONDITIONS

The WEGs shall be capable of operating under the following grid conditions (Refer IEGC 2010)

Frequency	:	50 Hz, + 2 Hz and (-) 2.5 Hz
Voltage	:	+/- 10%
Maximum asymmetric voltage	:	2% (Phase to ground) for 60 sec. Maximum
asymmetric current	:	± 10% of nominal current

The WEGs shall have adequate protection and control to operate in parallel and synchronized manner with State grid. The tolerance limits indicated may, however, be exceeded in actual conditions and the WEGs shall be protected from damages against such exceeding of limits.

#### 7.3 DESIGN CRITERIA

The WEGs shall be designed to have a life of not less than 20 (twenty) for continuous operation. Bidder shall indicate the list of components whose life may be less than 20

(twenty) years, indicating approximate actual life of such items. The WEGs should be suitably designed to perform satisfactorily in Indian climatic conditions with particular reference to offered site. The WEGs shall be designed to accept Indian make sub-components and consumables such as contactors, thyristors, fuses, lubricants etc. All material, components, sub-assemblies and equipments should be absolutely brand new. The blades should be designed based on standard specifications such as IEC61400-1 which may be indicated by number, date of issue, authority of issue.

#### **7.4 LOCAL CONTROL SYSTEM (LCS)**

Each WEG shall have a Local Control System (LCS) and it shall be designed for automatic, unattended operation based on a microprocessor-controlled system with a power backup. The microprocessor and power control units shall be located properly and well ventilated. In case of tubular tower the LCS shall be capable of operating satisfactorily at such temperature rise with well-ventilated exhaust system. The LCS shall be able to display basic operating functions of the WEG and also the provision for stopping and restarting the WEG. In case offered WTG model does not have the display in the local control system laptop should be made available during the visit of owner to view the display at LCS

The LCS shall communicate with Central Monitoring & Control System (SCADA) at Master Control Room for operation, monitoring & control of all the WEGs, for display & record of important parameters, for providing annunciations (or error messages) and stop, display & restarting of WEGs again on acceptable conditions.

The LCS shall be able to:

##### **A. Display and record the following parameters:**

- i. Power (kW)
- ii. Voltage (V), of all the three phases in RMS values.
- iii. Frequency (Hz)
- iv. Current (A) of all the three phases in RMS values.
- v. Power factor
- vi. Rotor Revolution Speed (rpm)
- vii. Brake activation
- viii. Maximum power generated (kW) with time of generation
- ix. Cumulative energy production
- x. Cumulative active energy consumption from grid

- xi. Cumulative reactive energy consumption drawn from grid
- xii. Energy production for the grid (kWh)
- xiii. Operation time of generator
- xiv. Status of wind turbine
- xv. Yaw angle
- xvi. Wind speed (m/s) and direction of wind flow.
- xvii. Actual reactive power consumption (kVAr)
- xviii. Temperature of generator, gear box, nacelle and control panels
- xix. Hydraulic oil pressure
- xx. WEG availability period
- xxi. Lull period

**B. Annunciations for the following conditions**

- i. Low oil level or pressure in gear box
- ii. Yaw failure
- iii. Cable twist
- iv. Control system failure
- v. Excessive vibration in nacelle
- vi. Worn-out brake pads
- vii. Abnormal temperature in generator, gear box, yaw motor, brake calipers and control panel
- viii. Grid failure i.e. frequency error, excess current asymmetry, voltage failure
- ix. Over speed of rotor and generator
- x. Activation of emergency stop brake
- xi. Failure of capacitor units

**C. Stop, display and restart again when conditions are acceptable:**

- i. Low wind speed
- ii. Excessive wind speed
- iii. Untwisting of cables
- iv. Activation of stop push button (restart when start push button is activated)

**D. Stopping the WEG automatically whenever the grid supply fails.**

**E. Auto start of WEG on resumption of healthy grid supply irrespective duration of Grid failure.**

**F.** The LCS shall be connected with the Central Monitoring and Control System. It should be possible from central monitoring and control system at the master control room to control all the Wind Electric Generators, give commands, record their various data and take out the printed reports of energy generated from the wind power project as a whole and from each WEG, export /import of energy etc.

## **7.5 START-UP**

The WEG must be equipped with a soft start arrangement for limiting the starting current and avoiding peak loads on the grid and excess voltage drop across the generators. The maximum inrush/ starting current shall not exceed 1.5 times full load current of the generator.

## **7.6 GENERATOR**

The generator shall be of three phase asynchronous / synchronous type and compatible for 50 Hz grid connection. The generator shall be designed for tropical environment and in accordance with relevant international standards, which should be stated in the offer in adequate detail. The rated output and voltage shall match the varying availability of wind on the one hand and all possible grid conditions on the other. The insulation class should be F or better.

In case variable speed WEGs are offered, the power electronics shall be suitable for Indian grid conditions.

Suitable device to monitor and control the temperature for ensuring proper functioning of all the equipments shall be provided. Successful bidder shall supply a copy of type test report and routine test reports for each Generator.

Generators shall be provided with temperature sensors and installed in the stator winding being part of the generator protection system. Generator windings etc. must be special corrosion protected to cope with condensation problem caused by the high RH – temperature gradient on the site. Generator should be protected against short circuit, earth fault and overload as per relevant IS or IEC code.

## **7.7 CAPACITORS**

The WEG shall be provided with capacitors in case of induction generators, for maintaining a minimum power factor of 0.95 at full load and as close to unity as possible during the entire range available. The capacitors shall be cut in after the start-up procedure is terminated. Self-excitation of WEG due to capacitors is to be avoided. The bidder shall furnish the rating of the capacitors. Capacitors shall be housed in a separate panel so that proper ventilation is maintained and the heat dissipated from the capacitors shall not affect components in the switchboard. Capacitors should be designed for tropical environment and in accordance with relevant International and Indian Standards which should be stated in the quotation. All penalties/charges payable to SEB due to low power factor and reactive energy consumption beyond prescribed limits shall be borne by the Bidder only. Safety equipments must be provided for switching off the device for the capacitors so as to prevent excess voltage production WEG without being connected to the grid. The rated voltage of capacitors must be equal to the turbine nominal voltage +15%. Capacitors must meet standard IS 2993-1974. Switching contactors should have proper rating to handle making and breaking capacitor current.

In case power factor is maintained as 0.95 by inbuilt programs same is acceptable.

## **7.8 BRAKING SYSTEM**

The WEG shall have the provision for soft braking to avoid excessive loading on parts and structure. Each WEG shall have two independent braking systems and out of the two brakes, one of them may be aerodynamic type and act at 10% (ten percent) over-speed of the rotor. If aerodynamic brake is not provided, the bidder should furnish full details as to how the WEG will be “failsafe”, even when grid power is not available. The bidder along with explanatory notes on their working principle shall indicate expected life of the braking system and the pads.

## **7.9 TOWER**

Tower may be either lattice type, or tubular (steel or pre-stressed concrete) type. Lattice tower shall be galvanized, tubular steel /concrete tower may be painted with anti-corrosion paint as per specifications & in accordance with Indian/International standards. Where tubular towers are provided for Stall regulated WEGs using tip spoilers, the tower should preferably have inspection door for tips spoilers checking and maintenance. Suitable numbers of sets of template to fix the foundation bolts in the concrete should be supplied. The tower should have convenient climbing devices and suitable landing platforms. Safety arrangements e.g. rope, belts etc. should be provided. Necessary foundation bolts/anchor plates/stubs should also be supplied. The exposed portion of the foundation bolts should be galvanized/ painted with anti-corrosive paint.

## **7.10 SWITCH BOARD**

For each WEG a switchboard shall be installed which must include all power distribution for the WEG protection systems, soft start, capacitor control etc. The general data for the switchboard are as follows:

Frequency	:	50 Hz + 2 Hz (-) 2.5 Hz
Voltage	:	±10% Degree of protection:
1. In door air-conditioned areas	:	IP22
2. In door non air-conditioned areas	:	
a. Ventilated enclosure	:	IP42
b. Non Ventilated	:	IP54
3. Outdoor	:	IP55

Switch board shall be provided with adequately rated copper bus bar, incoming control, outgoing control etc. as a separate compartment inside the panel to meet the requirements of the CEA/ CEIG. All live terminals and bus bars shall be shrouded. The outgoing terminals shall be suitable to receive suitable runs and size of cables required for the WEG/Transformer rating.

Switchboard shall be designed and manufactured in accordance with the relevant Indian standards /IEC/EN/VDE. Distribution boxes, junction boxes, cold junction boxes, terminal boxes and all field mounted equipment to be furnished as per this specification and shall have weather proof protection conforming to IP 55.

Separate control and power panels shall be provided with separate power circuit for isolated operation of control circuit.

#### **7.11 EARTHING & LIGHTNING PROTECTION**

Earthlings (or grounding) of WEGs, transformers and all electrical installations shall be under the scope of bidder. All electrical frames shall be effectively connected to earth at least at two points. Material required for earth electrode as well as earth current conductor shall be supplied by the bidder. Combined earth resistance at each WEG shall be less than two Ohm.

Earth electrode shall be designed to withstand the maximum possible short circuit current. Lengths of electrodes shall be such that the combined earth resistance shall be less than two Ohms.

Bidder shall provide suitable independent earthing system for protection of blades, nacelle, tower and step up transformer against any lightning surge. Effective earth resistance on individual electrodes shall be less than 3 Ohm (three Ohm) and the combined earth resistance shall be less than two Ohm. The work shall be executed, as per IS: 2309 / 3043. Bidder should append a drawing showing the earthing arrangement for WEG and transformer. Care shall be taken to protect electric and electronic equipment within the control panel against any lightning/switching surges which are expected in electrical network. For this purpose the bidder shall provide suitable arrangement in the panels.

The bidder shall provide suitable lightning protection system at the highest possible point on the WEG.

#### **7.12 WIND MONITORING MAST**

Refer clause No.6.2.

#### **7.13 ENVIRONMENTAL PROTECTION**

Lattice towers shall be galvanized to relevant standards applicable to galvanization of fabricated steel structures. Minimum thickness of galvanizing shall be 120 microns, irrespective of whether it is hot dip galvanized or spray galvanized. These towers will be inspected at site and if damage to galvanization is noticed or the thickness of any section is found inadequate, such tower shall be replaced by the bidder to the satisfaction of the OWNER. Site galvanization or site repairs will not be permitted. All other exposed iron components should also be galvanized. Only hot dipped galvanized bolts and nuts should be used.

Tubular tower, Nacelle & Hub should be painted with anti-corrosion paint in accordance with EN-ISO 12944 (Part-4).

All Switchboards shall have two coats of epoxy painting of 120 microns thickness over two coats of primer. Alternatively these can have powder coating having thickness more than 60 microns.

All materials, components and equipments shall function and work properly during the lifetime against deterioration that may be caused due to hostile climate conditions. The bidder shall submit descriptions of protection methods to be used for all components.

#### **7.14 MICRO-SITING**

The bidder shall carry out micro-siting, erection, start-up and commissioning work. The bidder shall be responsible for bringing to site and deployment of all the required tools, cranes and other equipments/instruments required for this purpose. Bidder shall furnish micro-siting data to Consultant for review.

#### **7.15 NIWE APPROVAL**

The model of WEG offered should be of type tested design and should have been included in the "List of Models and Manufacturers of Wind Electric Generators / Wind Turbine Equipment" published by National Institute of Wind Energy (NIWE) as on the date of opening of the bids. Bidder shall submit a copy of such updated list published by NIWE with the bid.

Copy of power curve and thrust curve should be submitted along with the offer(s) in tabular form.

## **7.16 TECHNICAL DATA**

The bidder shall furnish technical data and documents complete in all respect as per the requirement of bidding document.

## **7.17 OPERATION & MAINTENANCE CHECKS**

The successful bidder shall carry out O&M checks at regular intervals viz. daily, weekly, monthly, quarterly, half yearly and yearly basis during warrantee period and O&M period for which details of such checks shall be furnished along with the bid.

## **7.18 ELECTRICAL SYSTEM FOR INTERFACING WITH THE GRID**

Each WEG will be connected to grid through unit transformer of suitable capacity and voltage ratio, internal overhead line, common, control & metering station(s),if required / common EHV sub-station(s) at wind farm up to grid interconnection point, external overhead line up to the grid sub-station of TRANSCO/ DISCOM, complete with all associated switch gears and materials including the requirement of reactive power management and data communication equipments so as to meet the requirements of State Load Dispatch Centre (SLDC) and State/ applicable Grid Code including Connectivity requirements System needs to be designed looking to the requirement for scheduling & forecasting.

Bidder shall design electrical system in accordance with the Indian Electricity (IE) Rules, Chief Electrical Inspector General (CEIG) requirements, Standard Practices of SEBs/ DISCOM, Code of Practices issued by Bureau of Indian Standards (BIS).

Bidder shall submit complete scheme for grid interfacing & interconnection for wind farm including schematic diagrams and the basis of design & brief specifications of equipments, materials and installations along with the offer.

All equipments / materials shall be suitable for the site conditions and shall be manufactured strictly in accordance with latest relevant Indian Standards published by BIS and all similar materials and removable parts shall be uniform and interchangeable with one and another. Adequate preventive measures shall be taken against hostile climatic conditions like temperature, corrosion, salinity, humidity, sand storms, wind pressure etc.

Electrical installations shall be constructed strictly according to the following:

- I. Relevant Code of Practices issued by Bureau of Indian Standards (BIS).
- II. Electricity Act, 2003.
- III. Statutory requirements by Chief Electrical Inspector (CEI) of the State.
- IV. IEGC, 2010 and subsequently amended from time to time notified by CERC.
- V. Standard Practices followed by SEBs / DISCOM.
- VI. Central Electricity Authority (CEA) Guidelines.

VII. Central Board of Irrigation and Power (CBIP) Manuals.

VIII. Rural Electrification Corporation (REC) Manuals.

Any item not specifically mentioned but found essential for successful operation of electrical system with full safety according to statutory requirements shall be included in scope of work of the bidder.

Unit substation area of each WEG shall be provided with fencing of 1800 mm height.

#### **7.19 MCCB / ACB**

MCCB/ACB at the power panel of each WEG provided should take care during full load current exceeding the specified limit.

Each WEG shall have recording facility of generation and consumption of active and reactive energy, instantaneous power and power factor besides other operational data in the local control system.

#### **7.20 CABLES**

Power cables for interconnection from generator terminals to power panel; power panel to step up transformer and all other cables used in the wind farm shall fulfill requirement of IEC/ BIS codes with a minimum rated voltage of 1100/600 V. Core insulation shall be colour-coded or identified by wrapping colour tapes. The bidder shall furnish size, number of cores and rating of the cables in the bid.

#### **7.21 SOURCES OF COMPONENTS**

The bidder shall furnish the make and source of various components of the WEG as per format given in the bidding document. List of preferred suppliers of bought out items are given at Annexure -VII of volume I.

#### **7.22 DESIGN IMPROVEMENT**

The bidder may suggest for improvement in specifications, if any, of equipment which could yield in better performance of machines. Such suggestions could be discussed based on merits and modifications in the specifications could be considered, if found appropriate.

If any of the agreed change is such that it affects completion schedule, the parties may agree for revised completion schedule before the bidder proceeds with the change.

#### **7.23 INSPECTION AND TESTING**

Refer clause 4.27.

#### **7.24 STANDARDS & STATUTORY REQUIREMENTS**

The WEGs and other equipments should conform to the relevant International/ Indian Standards and shall meet all the CEA/ CEIG and local statutory requirements. The Bidder shall furnish the standards adopted by them.

#### **7.25 TECHNICAL INFORMATION TO BE PROVIDED BY THE BIDDER**

The successful bidder shall be required to provide three copies of the following information, drawings and documents, within two weeks of the placement of order:

- i) Technical particulars and general data of WEGs, Generator, Rotor, Tower, Yawing system, Brake system, Gear system (in case of geared machines), Hub, Nacelle, Main shaft, Main bearing, Coupling, Power panel, Control system, Power factor compensation (if required), AC-DC-AC convertor(if required).
- ii) Technical particulars of transformers indicating losses, circuit breakers, current transformers, potential transformers and cables.
- iii) Specification of anti corrosion treatment.
- iv) PERT/ GANTT diagram showing broad time schedule of supply, erection and commissioning.
- v) Protection scheme of unit substation and WEG.
- vi) Micro-siting plan of WEGs
- vii) Wind farm layout drawings indicating WEGs, roads, overhead lines, sub-stations, buildings etc.
- viii) G A drawing of entire electrical system for grid interfacing & Interconnection.
- ix) Foundation drawings for towers.
- x) SLD of the evacuation system with conductor size etc. like unit substation, 33kV internal overhead line, common group control and metering station, if required, common EHV substation, external overhead line up to the grid substation of the sub-station

#### **7.26 TECHNICAL INFORMATION TO BE FURNISHED AFTER AWARD OF CONTRACT**

- i) Description of erection procedure.
- ii) Operation & maintenance and troubleshooting manual including drawing for local control system.
- iii) Equipment drawings and instruction manuals of original equipment manufacturer for major/ critical equipments.
- iv) Copies of type test certificates, routine tests and acceptance tests of major items of WEG, transformers and CBs.
- v) Soil test report indicating safe bearing capacity.

vi) Batch Test certificate of reinforcement steel.

## **7.27 STATUTORY AND OTHER REGULATIONS**

All works shall be done as per statutory Acts, Rules and Regulations of the Central/ State Govt. and our own Authorities or as applicable.

## **7.28 PROTECTION AGAINST HIGH TEMPERATURE, CORROSION, DUST STORMS ETC.**

WEGs need to be suitably protected against high temperature and dust storms. All equipments shall be designed to withstand high temperature and dust storms of the area where the WEGs proposed to be installed.

Normal Temperature range from 0°C to 50°C

All materials, components and equipment shall function and work properly during the lifetime without deterioration due to the aggressive soil, climatic conditions, cyclones and dust loading. Bidder shall submit protection methods / precautions to be adopted for the satisfactory Performance of WEGs for such conditions, without fail.

WEG offered should deliver rated output at worse condition anticipated at site. De-rating of WEG vis-à-vis ambient conditions, if any, should be given with offer.

## **7.29 CENTRAL MONITORING AND CONTROL SYSTEM (CMCS)/SCADA**

At the project site CMCS on sharing basis with proper software such as SCADA shall be provided. This should be complete with all hardware and software for displaying, recording, monitoring and control of operational parameters of all WEGs. Necessary interface facilities shall be provided.

Supply of Central Monitoring & Control System (CMCS) complete in all respect with necessary software, hardware, cables etc. is to be designed in the manner that the generations, the relevant details & operational parameters sourced from CMCS would be made available to owner on real time basis at its Head Office through in house customer portal via internet for required analysis and report preparation/forecasting and onward transmission to meet the requirements of State Load Dispatch Centre (SLDC). The relevant generation data shall be made accessible to five users remotely through web.

Electrical supply from the grid for CMCS room shall be arranged by the contractor which shall meet all electrical load requirements such as lighting, air conditioning, SCADA system, battery charging etc. There shall be an un-interrupted power supply (UPS) system of appropriate capacity for CMCS.

## **7.30 WEG FOUNDATION AND OTHER CIVIL WORKS**

### **A) Scope of Work**

The scope of work under civil work shall include:

- i. Land development for the wind farm.
- ii. Conducting contour survey and soil testing.
- iii. Foundations of WEGs.
- iv. Foundations for WEGs, step-up transformers & HT switchgear kiosk.
- v. Room for housing WEG local control panels (applicable for WEGs with lattice type tower).
- vi. Construction of suitable control room for housing the CMCS equipped with air conditioner on shared basis.
- vii. Office cum stores building on sharing basis.
- viii. Wind farm approach road and internal roads on sharing basis.
- ix. Basic amenities for staff on sharing basis.

## **B) Design Criteria**

All civil, structural and architectural work shall be designed, supplied and constructed as per latest editions of Indian Codes and Standards with addendums and supplements issued by BIS. Wherever Indian Standards are not available / formulated, applicable BS or International Standards shall be followed. In case of ambiguity between codes, specifications and drawings, the more stringent of them shall govern.

The Bidder shall conduct geo-technical investigation and decide on various design parameters he proposes to adopt for foundation design. No commercial implications for any variations in this regard during execution shall be entertained.

All structures and portions thereof shall be analyzed and designed to sustain various loads and combinations thereof, conforming to the latest revision of applicable Indian Standards, specifications, engineering practice and other technical requirements. All structures shall be designed to sustain worst combination of dead loads plus assigned live loads, equipment, wind, seismic, temperature or other loads it is being subjected to.

Minimum factors of safety against overturning, sliding and hydrostatic uplift adopted for design shall be mentioned by the bidder in the bid.

Stability of structures shall be investigated for loading conditions during construction. However, factors of safety given in relevant Standards and codes shall also be taken care of.

## **C) Materials & Job Specifications**

All materials which may be used in the work shall be of standard quality manufactured by renowned concerns conforming to Indian Standards or equivalent, shall have IS mark as far as possible, unless otherwise approved by Engineer In-charge. The

Contractor shall get all the materials approved from Engineer In-charge prior to use. The Engineer-In-charge shall have right to determine whether all or any of the materials are suitable. Any materials procured or brought to site and not conforming to specifications and satisfaction of the Engineer-in-charge shall be rejected and the Contractor shall have to remove the same immediately from site at his own expense and without any claim for compensation due to such rejection.

Providing & operating necessary measuring and testing devices and materials including all consumables are included in the scope of work. No separate measurement or payment for testing the work shall be made. The rates quoted for various items shall be deemed to include the cost of such tests which are required to ensure achievement of specified qualities.

**D) Detailed Contour Survey & Soil Investigation of the Site**

A detailed contour survey with 2 m contour interval in case of uneven land and at 5 m interval in case of even land shall be carried out and drawings prepared by the Contractor. Boundary stones shall be fixed for identification of land along the border of the area. The Contractor shall also be responsible for detailed soil investigation at all WEG locations for the purpose of foundation design.

**E) Land Development for site activities**

The Contractor shall be responsible for making the site ready by clearing of bushes, felling of trees (if required), leveling of ground (wherever required) etc. for commencing the project.

**F) WEG Tower Foundation**

**i) General**

The work shall comprise of design and construction of wind turbine foundations as per locations indicated on the final layout drawings prepared after micro-siting.

The successful bidder shall furnish sources of steel (Reinforcement and structural), cement and concrete ingredients i.e coarse aggregate, fine aggregate, water and admixture. The foundation design shall suit the local soil conditions and the materials used viz. cement, reinforcement steel etc. shall conform to relevant standards. Bidder shall furnish the safe bearing capacity of soil, concrete mix design calculation and detailed construction drawing for the foundation for the WEGs to OWNER before proceeding with the work. The Contractor shall mention the survival wind speed considered for design of WEG Tower Foundations.

**ii) Excavation, back filling and stone pitching**

The Contractor shall carry out all excavation works in accordance with the dimensions and levels indicated on the drawings.

The excavated material under above categories shall be kept separately, so that good quality material can be used, as required.

Excavation shall be carried out in accordance with the guidelines given in IS:3764-1992 "Safety code for excavation work".

Blasting, if required, shall be carried out strictly in accordance with IS: 4081-1986 "Safety code for blasting and related drilling operations" and the latest State laws, regulations and rules. Blasting, if done, shall at all times be carried out under the supervision of fully qualified, experienced and licensed supervisors.

If any damage of any kind occurs, the Contractor shall be solely responsible for such damages or any claims that may arise there from, and shall, at his own expense, carry out repairs or restoration as the Site Engineer may direct.

The Contractor shall obtain written permission of the Site Engineer for each location where the Contractor wants to use explosives.

Back filling of foundation shall be carried out as shown on the drawings or directed by the Site Engineer with suitable materials. Filling materials shall be spread, leveled and thoroughly compacted in layers not more than 20 cm thick or as directed by Site Engineer. Each layer shall be separately compacted to achieve the required state of compaction to be confirmed by Field Dry Density (FDD) test.

Wherever shown on the drawings, dry stone pitching shall be placed. The area to be pitched shall be trimmed and any loose material re-compacted. Pitching shall be laid on a bed of approved granular material.

iii) **Reinforced Concrete & Plain Cement Concrete Works**

The works shall consist of making and placing concrete for reinforced concrete works in conformity with the drawings or in accordance with the written instructions of the Site Engineer.

All materials, workmanship and testing shall comply with the latest revisions of the relevant Indian Standards Codes of Practices referred to in these specifications and notes given on the drawings.

Unless otherwise stated in these specifications, the IS: 456-2000 "Code of practice for Plain and Reinforced Concrete", and the standards referred to in this code of practice are applicable to reinforced concrete work.

Water used for all purposes throughout the works shall be according to IS: 456-2000.

Potable water is generally satisfactory but it shall be tested prior to use in works and confirm to the permissible limits outlined as per IS: 456-2000, when tested in accordance with IS: 3024-1964. The pH value of water shall not be less than 6.

Coarse aggregate shall be sampled and tested according to IS: 456-2000 and IS: 2386 (part 1 to 8)-1963 (reaffirmed 1990). To be acceptable, the results shall fall within the grading indicated in IS: 383-1990. Coarse aggregates shall be obtained from natural sources crushed or uncrushed or combination thereof from approved quarries. It shall be hard, strong, dense, durable, clean and free from foreign matters. It shall be roughly cubical in shape and shall comply with IS: 383-1999. Maximum quantities of deleterious materials in the coarse aggregate shall not exceed the limits laid down in IS: 383-1999.

Single sized coarse aggregates shall be graded as specified in IS: 383-1990. Maximum size of coarse aggregate shall be 40 mm for Plain Cement Concrete and 20 mm for Reinforced Cement Concrete.

Fine aggregates shall be sampled and tested according to IS: 456-2000 and IS: 2386 (part 1 to 8) -1963 (reaffirmed 1990). To be acceptable the results shall fall within the grading zones I-III laid down in IS: 383-1990.

Fine aggregates shall be hard, durable, clean and free from adherent coating and organic matter and shall not contain clay. Sand shall not contain harmful impurities such as iron, pyrites, coal particles, lignite, mica shell or similar laminated and other impurities which might affect the durability of concrete or attack the reinforcement.

When tested as per IS: 2386 (part 1 to 8) 1963 (reaffirmed 1990) fine aggregate shall not exceed the permissible quantities of deleterious materials outlined in IS: 383-1990. It shall be obtained from natural sources such as Natural River or pit sand, crushed stone sand or mixture of these alternatives.

The Contractor shall perform trial mixes and preliminary tests of each class of concrete. The selection criteria will be compressive strength, workability and surface finish and shall follow the procedures outlined in IS: 456-2000.

Control tests shall be carried out before undertaking the works according to the composition selected for the purpose of the concrete works.

The concrete shall be mixed in a mechanical mixer. The mixing shall be according to IS: 4926-1976 (reaffirmed 1990).

Concreting in unfavorable weather will not be permitted. Precautions outlined in IS: 7861 (part 1)-1974 (reaffirmed 1990) and IS:7861 (Part-2) 1981(reaffirmed 1987) shall be followed.

All concrete surfaces shall be maintained in moist condition and protected against harmful effects of weather, for at least for two weeks of placing.

iv) **Shuttering**

The works shall consist of supply, fabricating, placing and removing all temporary forms for shaping of concrete, together with all temporary construction required to support such forms. The Contractor shall be responsible for the correct dimensions, alignment, leveling, cleaning and oiling. All shuttering shall be approved by Engineer-in-charge but it will not dilute in any way Contractor's responsibility. Shuttering shall not be removed before the concrete is sufficiently set and hardened

v) **Steel Reinforcement**

The work shall consist of supplying, cutting, bending, placing and fixation of reinforcement bars of the grade, type and size specified on the drawings. Unless otherwise stated in this specification the IS: 2402-1963 (reaffirmed 1990) shall be applied to this work.

Reinforcement shall be high strength deformed bars grade Fe-415, Fe-500 as mentioned in the drawing, confirming to IS: 1786-1985 (reaffirmed 1990). The Contractor shall furnish test documents of steel reinforcements to be used in the works or get required tests done at an approved laboratory.

vi) **Anchor Plates/Anchor Bolts/Stubs/Circular Embedment**

Anchor plates/Anchor Bolts/Stubs/Circular Embedment along with necessary templates will be provided by the wind electric generator supplier. The Contractor shall be responsible for correct placing and fixation in accordance with dimensions, levels and specifications within the tolerances given on the drawings.

vii) **P.V.C Tubing**

P.V.C tubing for laying of cables shall be provided as per diameters shown on the drawings. P.V.C tubing shall be of Class-3 and suitable for a working pressure of 6 kg/cm<sup>2</sup>. The P.V.C tubing shall comply IS: 4984-2000 and IS:7834 -1987. Solvent cement shall be used for jointing of P.V.C. tubing.

viii) **Soil Investigation**

Records of all soil investigations shall be kept as a part of final project data. Soil investigations shall be carried out in compliance with IS: 1892-1979 (reaffirmed 1987), IS: 1498-1970 (reaffirmed 1987), IS:2720 (part 28)-1974 (reaffirmed 1988), IS:2131-1981 (reaffirmed 1987) or any other pertinent Indian Standard or recognized specification to the approval of the Site Engineer.

**G) Control Cabin**

In case of lattice type towers for the WEGs, it is essential to provide control cabin for housing the switchboard and local control panels. The control cabin shall be designed to suit the soil conditions. The size of the cabin shall be adequate to house the equipment with required clearances and operating space as required by CEA/CEIG.

Cabin shall be constructed by using good quality stones/bricks. The wall thickness shall be minimum 200 mm. Roof slab shall be of RCC as per standard practice. Door, Window, Ventilators shall be of metal construction and painted with 2 coats of paint over two coats of suitable primer. Cable trench as required shall be provided. The Contractor shall furnish the plan and construction details of the control cabin, in the bid, in case the bid is for WEGs with Lattice Towers. The office cum stores building is to be provided on sharing basis.

#### **H) Switch yard civil works**

Switchyard civil work includes step up transformer plinth, HT Switchgear kiosk plinth, two pole / 4 pole structure foundation, earth pits, metal spreading curb wall in and around switchyard and fencing. The transformer/HT switchgear kiosk plinth shall be made of concrete or dressed stones masonry conforming to relevant standards. The height of transformer/HT Switchgear kiosk plinth shall be decided based on the requirement of ground clearance as per voltage of unit substation.

Earth pit construction shall be of brick masonry with precast RCC (1:2:4) cover. The fencing of the switchyard shall be with GI chain link of 1800 mm height with MS Angle posts. The gate shall be made of steel of the same height as that of the fencing.

#### **I) Building**

For the operation & maintenance of wind farm the Office cum control room building of suitable size should be constructed as per relevant Indian Building Standards for common use.

Control room building shall comprise of the following:

- CMCS Room: This room shall house the CMCS/ SCADA and shall be sized suitably as per the requirements of the offered equipment. There should be adequate facilities for officers visiting on behalf of the Owner during their visit to the site which includes sitting arrangement, arrangement of water, electricity etc. The room shall be appropriately air-conditioned to maintain suitable temperatures for personnel & equipment in the building during all climatic conditions.
- Store room: A store room or storage space on sharing basis within the building of appropriate size for spares and consumables shall be provided in the building.

#### **J) Approach Roads & Internal Roads**

All the WEGs shall be accessible through approach roads and internal roads suitably for transporting the plant equipment, spares, cranes & other maintenance machinery. The bidder shall furnish the drawing of approach road/internal road taking into account geographical terrain of the area. Width of the carriageway shall be kept as 5.0 meters. (Minimum) Extra width shall be provided at curves and hair pin bends. For all other minor roads, carriageway shall be of 3.75 m width. Roads shall be provided with proper roadside ditches, under drains and R.C.C pipe culverts as per site

requirement to carry out the natural flow of water. Where ever necessary embankment and retaining wall shall be provided of adequate strength to sustain heavy vehicular movement.

## **SECTION VIII FORMS AND FORMATS**

# SECTION VIII

## FORMS AND FORMATS

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**BIDDER'S GENERAL INFORMATION**

**To**

Kamarajar Port Limited,  
Vallur (Post),  
Chennai – 600 120 India

Sub: Engineering, Procurement and Construction (EPC) contract of 25(±5%) MW capacity Wind Energy Project at suitable site in any wind potential State in India with its Comprehensive Operation & Maintenance for 20 years.

1. Name of the bidder -----  
-----
2. Status of Firm/ Company: Proprietorship Firm / Partnership Firm/ (Private or  
Company [Mark ] public)
3. Number of years in the business -----
4. Registered Office Address: -----  
-----  
-----
5. Operational Address: -----  
[If different from above] -----  
-----
6. Telephone No. & Fax No.: -----
7. E-mail ID & Website: -----
8. Licensed capacity to manufacture:

Description of equipment	Size Capacity	Licensed Capacity	No. of units manufactured		
			Current Year	Last Year	Second Last Year

9. Plant Details:
  - a) Location
  - b) Description

10. Type of the equipment manufactured/supplied/installed during last 4 years.

Name of Equipment	Capacity/size/ Model	Nos. manufactured / supplied / installed	Project to which supplies have been made	No. of orders in hand

11. Details of testing facilities available at works:

- a) List of testing equipment.
- b) Tests, which are carried out on items offered
- c) Details of the test organization available.

12. Describe Quality Control Organization, if any, and give the organization chart.

- a) Are goods offered subject to batch test, random sampling, or full 100% test for Quality check?
- b) Are tests carried out by factory employees or by a separate testing agency?
- c) Are independent quality Control Organization checks made and certificates issued?

13. ISO Certification [If any] [If 'Yes', Please Furnish Details]:

14. Nearest service center to offered

Location(s) with phone number

15. Names of three buyers to whom similar equipments have been supplied, installed and commissioned in the past to which reference could be made by us regarding the bidder's technical and delivery ability.

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16. Schedule for furnishing technical data and certified drawings after receipt of orders

**Signature of Bidder**

**LIST OF ENCLOSURES**

**To**

Kamarajar Port Limited,  
Vallur (Post),  
Chennai – 600 120 India

Sub: Engineering, Procurement and Construction (EPC) contract of 25(±5%) MW capacity Wind Energy Project at suitable site in any wind potential State in India with its Comprehensive Operation & Maintenance for 20 years.

Dear Sir,

We are enclosing the following documents as part of the bid:

- (i) Power of Attorney of the signatory to the Bidding Document.
- (ii) Documents showing Financial Situation Information for the last three years such as annual reports, profit and loss account, net worth etc. along with information as sought in Bid Response Sheet No 3
- (iii) Copy of Bidding Documents along with addendum/corrigendum signed in token of confirmation that Bid Documents are considered in full while preparing the bid and in case of award, work will be executed in accordance with the provisions detailed in Bid Documents.
- (iv) Documentary Evidences showing the Bidder's claim of meeting Eligibility Criteria as mentioned in Schedule ITB -1.
- (v) EMD in the form of BG in favor of Kamarajar Port Limited, Chennai from any Bank as per Annexure -II of Volume I.
- (vi) Tender Fee in the form of Demand Draft / Banker's Cheque payable at Chennai from any Bank as per Annexure -II of Volume I.
- (vii) Copy of agreement confirming evacuation of full capacity generated power from the WPP for each site.

**Signature of Bidder**

**FINANCIAL INFORMATION****FINANCIAL DATA FOR LAST THREE AUDITED FINANCIAL YEAR**

<b>Sl. No.</b>	<b>Description</b>	<b>FY 2013-14</b>	<b>FY2014-15</b>	<b>FY2015-16</b>
1	Current Assets			
2	Current Liabilities			
3	Working Capital (1-2)			
4	Annual Turnover			
5	Paid up share capital			
6	Free Reserves & Surplus			
7	Net Worth of bidder funds			
8	Profits before taxes			

Attached are copies of the last three audited balance sheets, including all related notes, and income statements as indicated above, complying with the following:

- i) All such documents reflecting the financial situation of the bidder.
- ii) Historic financial statements must be audited by a certified accountant and must be complete, including all notes to the financial statements.
- iii) Historic financial statements must correspond to accounting periods already completed and audited (no statement for partial periods shall be accepted).

**Signature of Bidder**

**LETTER OF AUTHORITY**

[Proforma for Letter of Authority for Attending Subsequent 'Negotiations' / 'Pre-Bid Meetings' / 'Un-priced Bid Opening' / 'Price Bid Opening']

Ref:  
Kamarajar Port Limited,  
Vallur (Post),  
Chennai – 600 120 India

Date:

Sub: Engineering, Procurement and Construction (EPC) contract of 25(±5%) MW capacity Wind Energy Project at suitable site in any wind potential State in India with its Comprehensive Operation & Maintenance for 20 years.

**Dear Sir,**

I/We, -----hereby authorize the following representative(s) for attending any 'Negotiations' / 'Meetings', 'Un-priced Bid Opening', 'Price Bid Opening' and for any subsequent correspondence / communication against the above Bidding Documents:

[1] Name & Designation: -----  
Signature: -----  
Phone/Cell: -----  
Fax: -----  
E-mail: -----

[2] Name & Designation: -----  
Signature: -----  
Phone/Cell: -----  
Fax: -----  
E-mail: -----

We confirm that we shall be bound by all commitments made by aforementioned authorised representative(s).

Yours faithfully,

Place:  
Date:

Signature of Authorised Signatory of Bidder  
Name  
Designation & Seal

Note: This "Letter of Authority" should be on the "letterhead" of the Firm / Bidder and should be signed by a person competent and having the 'Power of Attorney' to bind the Bidder. Not more than 'two [02] persons per Bidder' are permitted to attend Pre-bid meeting, "Techno-commercial / Un-priced" & "Price Bid" Openings

**PROFORMA FOR EXCEPTIONS AND DEVIATIONS**

The bidder is required to stipulate the list of exceptions and deviations, if any, in the proforma given below only. Any deviations given elsewhere in the offer will not be considered.

Sl. No.	Terms & Conditions	Agreed or Not agreed	Exceptions & Deviations with justifications
1.	Validity of offer 6 months from the bid due date or extension if any.		
2.	Scope of work		
3.	Technical Specification of the supply		
4.	Terms of payment		
5.	Firmness of price		
6.	Project Commissioning		
7.	Warrantee		
8.	O&M for 20 (twenty) years		
9.	Performance Guarantee: 1 Minimum machine availability 2 Minimum availability of internal electrical installations. 3 Power factor & kVArh consumption 4 Power curve		
10.	Any other :		

**Notes:**

- i) Attach separate sheet (duly signed), if necessary.
- ii) Information given in this Response Sheet shall be treated as final. Any variations observed elsewhere in the bid shall be ignored while evaluating the bid.

**Signature of Bidder**

**DECLARATION**

**To**

Kamarajar Port Limited,  
Vallur (Post),  
Chennai – 600 120 India

Sub: Engineering, Procurement and Construction (EPC) contract of 25(±5%) MW capacity Wind Energy Project at suitable site in any wind potential State in India with its Comprehensive Operation & Maintenance for 20 years.

Dear Sir,

We hereby confirm that we are not under any 'liquidation', any 'court receivership' or similar proceedings and 'bankruptcy' and we agree that if any noticed in future, our Bid may be rejected / terminated.

In case the bidder has any dispute in court of law of any kind which can affect the manufacturing, supply, installation, commissioning of WEGs & O&M Contract, in such case the bidder shall furnish the status of all cases along with all relevant documents.

**Signature of Bidder**

**Bid Response sheet No 7****AGREED TERMS & CONDITIONS**

Sub: Engineering, Procurement and Construction (EPC) contract of 25(±5%) MW capacity Wind Energy Project at suitable site in any wind potential State in India with its Comprehensive Operation & Maintenance for 20 years.

Bidder's Name: \_\_\_\_\_

This Questionnaire duly filled in, signed & stamped must form part of Bidder's Bid and should be returned along with Un-priced Bid. Clauses confirmed hereunder need not be repeated in the Bid.

<b>Sl. No.</b>	<b>DESCRIPTION</b>	<b>BIDDER'S CONFIRMATION</b>
1.	Confirm that quoted prices are with O&M for first time block of 10 years on basis with comprehensive O&M for 20 years.	
2.	Confirm quoted prices will remain firm and fixed (except for Statutory Variation and imposition of new tax/levies) as per Tender document till complete execution of the order.	
3.	i) Confirm that rate/amount of Excise Duty has been indicated in Price Schedule. Statutory variation in Excise Duty within contractual delivery period shall be to Purchasers account. ii) If there is any variation in Excise duty at the time of supplies for any reasons other than statutory variation the same will be borne by bidder. iii) Confirm in case of delay on account of bidder, any new or additional taxes and duties imposed after contractual delivery shall be to bidder's account.	
4.	Indicate item wise rate of Sales Tax/VAT on finished products : i) CST against 'C' form. ii) VAT (in case supplies are made within originating state). iii) Statutory variations if any in CST/VAT within contractual delivery period shall be to Owner's account.	
5.	Confirm transit insurance is included in the quoted prices.	
6.	Confirm acceptance of relevant Terms of Payment specified in the Bid Document.	
7.	Confirm that SPBG (10% of value of land, engineering, supply, erection, etc. without O&M as per clause 4.8) will be furnished as per Bid Document.	
8.	Confirm compliance to completion Schedule as specified in Bid document.	
9.	i) Confirm acceptance of price reduction schedule for delay in completion period specified in Bid document. ii) Confirm, In case of delay, the bills shall be submitted after deducting the price reduction due to delay.	

**Bid Response Sheet No 7 contd...**

<b>Sl. No.</b>	<b>DESCRIPTION</b>	<b>BIDDER'S CONFIRMATION</b>
10	Confirm goods to be supplied by you shall be guaranteed for Performance as per Bid document.	
11.	Confirm your offer is valid for 6 months from the bid due date or extension if any of Techno- commercial Bids.	
12.	(a) Confirm Documentation & Testing charges as per Technical Specifications / Bid Document are inclusive in your quoted prices. (b) Inspection shall be carried out by Owner/Third Party as envisaged in the bid document. Please confirm that no extra charges shall be payable to you on this account.	
13.	i) Confirm acceptance of complete Bid Document (all sections). ii) Confirm that printed terms and conditions of bidder are not applicable.	
14.	Confirm all the raw materials & components and those required to be imported for the manufacture and supply of items will be independently procured by you at your cost and expenses. Purchaser will not provide any Import License for the same.	
15.	Please furnish EMD details : a) BG No. & date (i) Value (ii) Validity	
16.	Confirm that Balance sheets and Profit & Loss A/c for the last three financial years are furnished along with the Un-priced Bid.	
17.	Confirm that, in case of contradiction between the confirmations provided in this format and terms & conditions mentioned elsewhere in the offer, the confirmations given in this format shall prevail.	
18.	The bidder is required to state whether any of the Directors of bidder is a relative of any Director of Owner or the bidder is a firm in which any Director of Owner or his relative is a partner.	
19.	Confirm that you have not been banned or de-listed by any Government or Quasi-Government agencies or Public Sector Undertakings. If you have been banned or de-listed by any Government or Quasi-Government agency or Public Sector Undertakings, then this fact must be clearly stated. If this declaration is not furnished bid shall be treated as non-responsive and liable for rejection.	

**Signature of Bidder**

**PROFORMA FOR FURNISHING DETAILS OF PAST EXPERIENCE IN WIND ENERGY PROJECTS DURING LAST THREE YEARS (TURNKEY PROJECT)**

- a) Total Aggregate capacity of all wind farms executed on turnkey basis in India in the last three years in MW

Attach separate sheet for each wind farm (at least for three projects)

<b>Sl.</b>	<b>Description</b>	
1	Name of works & Owner's address, contact person with telephone numbers.	
2	Detailed scope of work.	
3	Type of plant & machines used (only for major components).	
4	Capacity of the plant, No. of WEGs with capacity and height of tower.	
5	Whether O&M is being looked after? Please indicate period of O&M contract.	
6	Completion time as per contract.	
7	Actual completion time.	
8	If delayed, then reasons for delay.	
9	Period of successful operation.	
10	Actual generation achieved per machine per year (month-wise) since date of commissioning.	
11	Copies of Performance Reports from the prominent customers.	
12	Additional information, if any.	

- b) O&M works of wind energy projects undertaken in India for total capacity
- c) O&M contract for last three years in hand indicating capacity thereof.
- d) Number of machines of quoted model in operation in India with no. of years in operation.
- e) Number of WEGs commissioned in current financial year up to date of submission of offer in India & in offered State.

**Signature of Bidder**

**LIST OF WEGs INSTALLED THRU TURNKEY PROJECTS (1500 KW AND ABOVE) IN INDIA DURING PRECEDING THREE YEARS FROM DUE DATE OF OPENING OF OFFERS FOR AT LEAST 20 WEGs**

Date of Commissioning of WEGs	Rating of WEG (kW)	No. of WEGs	Site Details	Address & contact number of Investor

**Signature of Bidder**

**WORK SHEET FOR ESTIMATED ANNUAL ENERGY PRODUCTION (TO BE QUOTED FOR THE MODEL OFFERED)**

Bidder shall furnish calculations for estimated Annual Energy Production (AEP) of the wind farm based on actual micro-siting of WEGs for the offered project. Procedure followed viz. WAsP/ PARK method or any other method and factors considered for calculating AEP shall be detailed in the offer.

The bidder shall furnish the following in soft copy:

1. *MAP file containing orography / contour and roughness of the site and surrounding area in digitized form*
2. *Input wind data file for WAsP / PARK in the form TAB file.*
3. *WTG file duly corrected at site air density for WAsP input.*
4. *Raw wind data in excel format.*
5. *Total capacity of the wind farm planned at site.*
6. *All the coordinates (in UTM format) of the wind farm including coordinates of existing WEGs & proposed in future at offered site.*
7. *Coordinates (in UTM format) of all the existing WEGs of other developer(s).*
8. *Micro-siting drawing of the wind Farm indicating all the WEGs.*
9. *Actual energy generation of the WEGs already existing in offered area or nearby area from the date of commissioning.*
10. *Distance of the reference met mast from the nearest & farthest offered WEG location.*
11. *Chart showing Yearly & Monthly Wind Variation.*
12. *Detailed Methodology used in arriving Annual Energy Production at P (90) along with detailed wind resource assessment report of Wind Farm.*
13. *Certified Power Curve of the offered WEG model.*
14. *Site Air Density and corrected certified power curve at site air density.*
15. *Power Law Index (PLI).*

Time series Wind Data (speed & direction) or Directional Frequency Distribution Data in the following table:

**TABLE – I**

<b>Class Interval</b>	<b>Mid Wind Speed</b>	<b>Frequency percent</b>	<b>Total hours</b>

Details of Reference Met Mast of NIWE near offered site be furnished

Obtaining correct site information with relevant details for working out AEP shall be the responsibility of the bidder.

Following information which has direct bearing on working out AEP should be furnished

1)	Correction Factor for Air Density, %	:	
2)	Array Efficiency, %	:	
3)	Modeling Error, %	:	
4)	Machine Availability (Not less than 95%)	:	
5)	Any other factor	:	
6)	Annual Energy Production per WEG at controller after applying correction factors	:	
7)	Grid System availability, %	:	
8)	<i>Guaranteed Evacuation Losses including import of energy, % (supported by calculation sheet)</i>	:	
9)	Estimated Saleable Energy at metering point	:	
10)	Feed in Tariff of the state along with copy of the SERC order	:	

**Signature of Bidder**

**Bid Response Sheet No.10**

**GUARANTEED POWER CURVE OF WEG OFFERED FOR EACH WEG MODEL**

Wind Speed (m/s)	Power (kW)	Thrust Coefficient (Ct)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

Air Density .....

Reference of Certified Power Curve be given and a copy thereof furnished.

**Signature of Bidder**

**BID ELIGIBILITY CRITERIA FORM**

<b>Sl. No.</b>	<b>Item</b>	<b>Reference of supporting Document</b>
<b>A</b>	<b>TECHNICAL</b>	
1.	The bidder should be a manufacturer of wind energy equipments. The offered model of WEG shall be of 1500 KW rating or above.	
2.	The bidder should have engineered, manufactured, supplied, erected and commissioned, on turnkey basis, Wind Power Project of aggregate capacity not less than 25(±5%)MW comprising of wind electric generators (WEGs) of unit rating of 1500 KW or above in any one year in the last five years as on bid due date or extension if any. The Global experience shall also be considered.	
3.	The model / type of WEG quoted should have been installed by the bidder and must have been working satisfactorily in a wind farm at single site of capacity not less than 20 MW at least for a period of one year as on bid due date or extension if any. Global experience will also be considered	
4.	The quoted model / type of WEG should have Type Certification from an accredited test house such as RISO Denmark, DEWI-Germany, Germanischer LLOYD- Germany, NIWE or any other agency approved by Ministry of New and Renewable Energy (MNRE), Government of India. Such Type Certificate should be valid as on the date of opening of the bid. Copy of Type Certificate along with copy of certified power curve shall be submitted with the bid. Copy of Thrust curve shall also be submitted. Power curve and thrust curve should be in graphics as well as tabular form.	
5.	The bidder should have its name & the offered model included in the latest list of “Manufacturers of Wind Electric Generators / Wind Turbine equipment” in Table A published by National Institute of Wind Energy (NIWE), Ministry of Non-conventional Energy Sources and Government of India.	
6.	The bidder should be presently in the business of operation & maintenance (O&M) of wind farms and should have the experience of successful operation and maintenance of at least one wind farm of 20MW capacity or above in India, having WEGs of 1500 KW capacity or above, for a period at least of one year as on bid due date or extension if any and during last 5 years period.	
7.	The capacity offered should have been allotted to the bidder or his associate by the State Nodal / Designated Agency at the time of submission of bid for development of Wind Farm.	
8.	The bidder should be in possession of suitable and adequate land either government land on lease or private land, required for installation of the project. The land should have clear title and free from any encumbrances, encroachments or litigation. The bidder may have any of the following arrangements for having the land:	

	<p>(a) Bidder already having possession of land in his own name.</p> <p>(b) Allotment letter of revenue land in bidder's own name by the Government or by competent authority. If allotment letter is not available then recommendation for allotment of land from the nodal agency will be considered subject to submission of allotment letter within 60 days of techno commercial bid opening.</p> <p>(c) The bidder should have an Agreement with a third party (an individual or company) or Bidder's subsidiary or Bidder's group company who is/are either in possession / having Agreement to sale with owner of private land or have been recommended by nodal/designated agency for allotment of revenue land (subject to submission of allotment letter in 60 days of techno commercial bid opening)/allotted Government land along with commitment to transfer such land to Kamarajar Port Limited without any consideration. The bidder shall furnish land details, Agreement with third party and commitment of the third party or Bidder's subsidiary or Bidder's group company along commitment for transfer of such land in favour of Kamarajar Port Limited with his bid.</p> <p>(d) Copy of lease/sale deed in case of own land and a copy of allotment letter in case of Government land shall also be furnished with the bid.</p> <p>(e) In case of Forest land the bidder should have at least Stage -1 clearance from the Ministry of Environment and Forests. The stage -1 clearance should be for the quoted capacity of WEG only. The Bidder shall submit the compliance report for all the requirements mentioned by MoEF in Stage-1 clearance.</p>	
<b>B</b>	<b>FINANCIAL</b>	
1.	Annual turnover of the bidder should be minimum Rs.500 million in any one of the three preceding financial years.	
2.	Net worth of the bidder should be positive for previous audited year as per audited financial statement immediately preceding the current financial year.	
<b>C</b>	<b>GENERAL</b>	
1.	Affidavit as required at clause 2 (general) of Bidder's eligibility criteria(Schedule ITB 1)	

\* Land related documents should be submitted separately for the site Documentary evidence in support shall be furnished.

**Signature of Bidder**

**TECHNICAL PARTICULARS OF QUOTED MODEL OF WEG GENERAL DATA**

Sl. No.	Description	Site
1	Make of WEG	
2	Type	
3	Rated output	
4	Current (Amps.)	
5	Voltage (V)	
6	Voltage Variation (%)	
7	Frequency Variation (%)	
8	Asymmetry variation (%)	
9	Wind Speed at rated output (m/ Sec)	
10	Cut in wind speed (m/sec)	
11	Cutout wind speed (m/sec)	
12	Tip speed (m/sec)	
13	Survival wind speed (m/sec)	
14	Hub height (m)	
15	Rotor speed (rpm)	
16	Nacelle tilt angle	
17	Regulation	
18	Designed max. ambient temp. (deg. C)	
19	Designed life (years)	
20	Designed turbulence intensity	
21	Noise level (dB) (also specify distance)	
22	Frequency (Hz)	
23	Maximum designed rotor speed	
24	Pitch angle for stall regulated machine	
25	Rotor orientation (upwind /downwind)	
26	No. of blades	
27	Rotor diameter (m)	

**WEIGHT**

SI. No.	Description	Site
1	Rotor (kg)	
2	Nacelle (kg)	
3	Tower (kg)	
4	Total (kg)	

**GENERATOR**

SI. No.	Description	Site
1	Make	
2	Rated power output (kW)	
3	Type – Synchronous/asynchronous	
4	Output Voltage and RPM	
5	No. of poles	
6	Insulation Class	
7	Protection class	
8	Coupling	
9	Current in Amps.	
10	Frequency	
11	Dual speed/Variable speed	
12	Type of cooling	
13	If forced cooling, then	
	a) Type & quantity of coolant	
	b) Pump rating	
	c) Motor make & rating	
	d) No. of phase	
14	e) Motor duty cycle	
	KVA <sub>r</sub> consumption of generator at :	
	- No Load	
	- 25% Load	
	- 50% Load	
	- 75% Load	
- 100% Load		

**ROTOR**

SI. No.	Description	Site
1	Blade material	
2	Make	
3	Number of blades	
4	Rotor diameter (m)	
5	Swept area(Sq. m)	
6	Length of blade(m)	
7	NACA Specification	
8	Blades profile	
9	Weight of each blade	
10	Reference Standards	
11	Lightning protection for blades	

**TOWER**

SI. No.	Description	Site
1	Height (m)	
2	Type	
3	Material	
4	No. of Sections	
5	Mode of Assembly	
6	Ladder type	
7	Safety system	
8	Surface treatment protection	
9	No. & type of landing platforms	
1	Make	
1	Type of reptile protection	

**YAWING SYSTEM**

SI. No.	Description	Site
1	Make & Type	
2	Gear Ratio	
3	Rated capacity of yaw motor (kW)	
4	No. of yaw motors	
5	Type of yaw brake	
6	No. of yaw brakes	

**Bid Response Sheet No.12 contd...**

**BRAKE SYSTEM**

SI. No.	Description	Site
1	Aero Dynamic	
	i) Type	
	ii) Control	
2	Mechanical or other type	
	i) Make & Type	
	ii) Position	
	iii) No. of calipers	
	iv) Motor capacity (kW)	

**GEAR BOX (IF REQUIRED FOR THE SYSTEM)**

SI. No.	Description	Site
1	Type / model	
2	Gear ratio	
3	No. of steps	
4	Max. power transmission (kw)	
5	Lubricants	
6	Designed life	
7	Make	
8	Type of oil cooling	
9	Weight without oil (kg)	
10	Quantity of oil	

**Hub**

SI. No.	Description	Site
1	Make & Type	
2	Material	

**MAIN SHAFT**

SI. No.	Description	Site
1	Make & Type	
2	Material	

**MAIN BEARING**

SI. No.	Description	Site
1	Make	
2	Type & specification	

**COUPLING**

SI. No.	Description	Site
1	Make	
2	Type & specification	

**NACELLE**

SI. No.	Description	Site
1	Material	
2	Type of nacelle bed	
3	Facility of loading & unloading	
4	Lightning protection	

**REACTIVE POWER COMPENSATION (REQUIRED FOR WEGS WITH ASYNCHRONOUS GENERATORS)**

SI. No.	Description	Site
1	Capacity (KVAR)	
2	Number of capacitor units	
3	No. of steps	
4	Designed life of capacitors	
5	Type	
6	Make	
7	Current in Amps.	
8	Estimated kVArh consumption as [percentage of annual kWh generation	
9	Power factor at loads after compensation :	
	- No load	
	- 25% load	
	- 50% load	
	- 75% load	
	- 100% load	

**POWER PANEL**

SI. No.	Description	Site
1	Voltage	
2	Short circuit level	
3	Rating of main MCCB	
4	Provision for earth fault protection	
5	Dimension	
6	Relevant standards	

**CONTROL SYSTEM**

SI. No.	Description	Site
1	Type	
2	List of display (please attach separate sheet)	
3	List of error messages (please attach separate sheet)	
4	List of annunciation (please attach separate sheet)	
5	Stop features	
6	Remote control facility	
7	Printer facility	
8	Details of special accessories (Like Lap-top computer) for retrieval of parameters including power curve data.	
	Details of AC-DC- AC Converters/ Inverter system (for variable speed WEGs)	

**SENSORS**

List of sensors (please attach separate sheet)	Site

**DETAILS OF CMCS**

**POWER CABLE (BETWEEN GENERATOR & POWER PANEL)**

SI. No.	Description	Site
1	Type & Make	
2	Conductor material	
3	Conductor size	
4	No of core	
5	Ref. standard	

**ISO 9000 CERTIFICATION**

1	Category of certification	
2	Date of certification	

**Signature of Bidder**

**Bid Response Sheet No.13**

**TECHNICAL DATA FOR TRANSFORMER**

Sl. No	Description	Unit	Requirement
			Site
1.	Service	Outdoor / indoor	
2.	Type	Outdoor / indoor	
3.	Rating	kVA	
4.	Rated frequency	Hz	
5.	Number of phases:		
	HV	No	
	LV	No	
	Neutral (separate outside)	No	
6.	Rated Voltage		
	a) HV winding	kV	
	b) LV winding	kV	
7.	Vector group	Star / Delta	
8.	Type of cooling	ONAN/ ONAF	
9.	Insulation level:		
	a) Power frequency withstands (HV/LV)	kV rms	
	b) Impulse withstand voltage (HV/LV)	kV	
	c) Power frequency withstands (neutral)	kV rms	
10.	Method of earthing		
11.	Duty		
12.	Short circuit level	kA	
13.	Off circuit tap changer:		
	a) Range	%	
	b) In steps of		
	c) Tapping provided on HV side		
14.	Tap changer type		
15.	Temperature rise above 40 <sup>0</sup> C ambient:		
	a) Top of oil by thermometer	<sup>0</sup> C	
	b) Winding by resistance	<sup>0</sup> C	
16.	Terminal details:		
	a) HV side		
	b) LV side		

**Bid Response Sheet No.13 contd...**

Sl. No	Description	Unit	Requirement
			Site
17.	Losses (at 75 <sup>o</sup> C and principal tapping):		
	a) No load loss at rated voltage and frequency	kW	
	b) Load loss at rated current (ONAN)	kW	
	c) Total loss maximum rated power	kW	
18.	Efficiency at 75 <sup>o</sup> C and 0.9 PF:		
	a) At full load (ONAN)	%	
	b) At 75% load (ONAN)	%	
	c) At 50% load (ONAN)	%	
19.	Hot spot temperature in winding limit to	<sup>o</sup> C	
20.	Shipping dimensions:		
	a) Height	mm	
	b) Breadth	mm	
	c) Length	mm	
21.	Painting		
22.	Reference standards		
23.	Make		
24.	Minimum creepage distance	mm/kV	
25.	Overall dimensions (L x B x H)	mm	
26.	% Impedance (±10% Tolerance)	%	
27.	Quantity of Oil	liters	
28.	Details of Instruments and protection provided with the Transformer ( Make & Type)		

**Signature of Bidder**

**TECHNICAL PARTICULARS OF VCB**

Sl. No.	Particulars	Specification
		Site
1	Service	Outdoor/Indoor
2	Make & Type	
3	Rating	
4	Circuit breaking capacity (KA)	
5	Short circuit withstand capacity	
6	Operating time	
7	Wt. of V.C.B.	
8	Insulation level	
9	Impulse withstand voltage	
10.	Overall dimension	

**Note:** Bidder is required to submit specifications of other items viz. LA, CT, PT, Isolators and single line diagram of the whole wind farm from WEG upto grid sub-station.

**Signature of Bidder**

**SOURCE OF COMPONENTS FOR EACH MODEL**

<b>Sl. No.</b>	<b>Item Description</b>	<b>Vendor</b>	<b>Type offered</b>	<b>Source country</b>
1	Generator			
2	Blade			
3	Hub			
4	Tower			
5	Yawing System			
6	Brake calipers			
7	Hydraulic Disc brake system			
8	Main Shaft			
9	Main Bearing			
10	Local control system			
11	Gear Box			
12	Distribution transformer			
13	Horn Gap fuse			
14	Lightening Arrestor			
15	Interconnecting cable from WEG to Transformer			
16	AB Switch			
17	33 kV Vacuum /SF6 Circuit breaker			
18	Flexible coupling			
19	Power Panel			
20	Control Panel			
21	Capacitors			
22	Wind Mast			
23	CMCS (if offered)			
24	AC-DC-AC converter/ inverter for variable speed			
25	Flexible cables			
26	PVC cable			
27	Contactors			
28	MCCBs			
29	Sensors (furnish information for all type of sensors)			
30	Gear Oil			

**Signature of Bidder**

**Detailed proposal of power evacuation for the 25(±5%) MW WEP approved / to be approved at point of interconnection of State Grid for each site**

- 1) To furnish all relevant technical details like single line diagram of the proposed system along with metering point indicating voltage & length of line, conductor size, capacity of proposed equipment / sub-station and line, etc. along with its technical specification of general nature.
- 2) Full detail of Power Evacuation Scheme of state utility.
- 3) Grid connectivity/Power evacuation approvals from competent authority.
- 4) The detail of the substation to which Wind Power Plant will be connected and latest letter from SLDC giving share of other connected wind /solar projects and also allocation letter confirming reservation of adequate power evacuation capacity for the entire power generated from the wind power plant at maximum wind condition.
- 5) Self-declared status of power evacuation arrangement.
- 6) To furnish detailed calculations for losses in Transformer(s), HT Line, EHV Line etc up to the point of interconnection.

**Signature of the Bidder**

**Bid Response Sheet No.17 (a)****DRAFT ACTIVITY CHART**

Bidder shall furnish Bar Chart for the following activities and his plan to for implementation of the project to meet the completion date. This information shall be in addition to detailed project schedule and other information he is required to furnish as part of his offer. The activities indicated herein are minimum activities for which bidder shall furnish the required information. Bidders are encouraged to furnish more detailed information in their offer.

<b>Sl. No.</b>	<b>Activity</b>	<b>Site</b>
1	Land acquisition and transfer to Owner	
2	Sanctions/Approvals/Clearances	
a.	Application/NOC from State Nodal Agency/State Govt.	
b.	Power Purchase Agreement with Power Utility	
c.	Approval from Chief Electrical inspector of State Govt.	
d.	Clearance from Aviation Department, if applicable	
e.	Clearance from Defense, if applicable	
g.	Any other	
3	Micro-siting	
4	Approach Road	
5	Internal Road	
6	WEG Tower Foundations	
7	Control Cabins (in case of lattice Towers)	
8	Office cum Control Room Building	
9	Storage Shed	
10	Permanent Water Supply	
11	Supply of Equipments and Materials	
a.	Towers for WEGs	
b.	Nacelle for WEGs	
c.	Blades for WEGs	
d.	Control panels, Power Panels, Cables and Balance items of WEGs	
e.	Equipments and Materials for Unit Sub-Stations	

<b>Sl. No.</b>	<b>Activity</b>	<b>Site</b>
f.	Equipments and Materials for Internal OH Lines	
g.	Equipments and Materials for common Sub-stations/ metering Stations	
h.	Equipments and Materials for External OH Lines	
i.	Equipments and Materials for Modification at Grid Sub- Stations of TRANSCO / Concerned Discom.	
j.	Wind Mast and Data logger	
k.	Central Monitoring and Control System	
12	Erection of Equipments and Materials	
a.	Towers for WEGs	
b.	Nacelle for WEGs	
c.	Blades for WEGs	
d.	Control panels, Power Panels, Cables and Balance items of WEGs	
e.	Unit Sub-Stations	
f.	Internal OH Lines	
g.	Common Sub-Stations/Metering Stations	
h.	External OH Lines	
i.	Modification at Grid Sub-Stations of TRANSCO /DISCOM	
j.	Wind Mast and Data logger	
k.	Central Monitoring and Control System	
13	Grid Interconnection of the wind farm	
14	Commissioning of the wind farm	
15	Training of OWNER Engineers	
16	Handing over to OWNER	

**Signature of the Bidder**

**Bid Response Sheet No.17 (b)**

**To**

Kamarajar Port Limited,  
Vallur (Post),  
Chennai – 600 120 India

Sub: Engineering, Procurement and Construction (EPC) contract of 25(±5%) MW capacity Wind Energy Project at suitable site in any wind potential State in India with its Comprehensive Operation & Maintenance for 20 years.

Dear Sir,

The detailed methodology of various activities along with supporting documents to be furnish as under-

<b>Sr. No</b>	<b>Description</b>	<b>Methodology</b>
1	(i) Methodology of land transfer to Kamarajar Port Limited (ii)Obtaining Non Agriculture use certificate wherever required	
2	Methodology of use of common path & ways	
3	Methodology of use of common power evacuation system	
4	Flow chart along with time required for various statutory approvals for the commissioning of Wind Power Project	
5	Any other Item	

**Signature of Bidder**

**Bid Response Sheet No. 18**

**LIST OF COMPONENTS HAVING LIFE, LESS THAN 20 YEARS FOR EACH MODEL**

<b>Sl. No.</b>	<b>Description of Item</b>	<b>Make</b>	<b>Expected Life</b>

**Signature of the Bidder**

**DRAWINGS TO BE ENCLOSED BY THE BIDDER**

The Bidder should enclose the following drawings for each site with the bid:

- i. Contour plan and layout of wind farm.  
WEG Tower Foundation
- iii. Single line schematic diagram of electrical system for grid interfacing and grid interconnection from WEG up to grid substation clearly indicating metering point with voltage and line lengths with type of conductor used.
- iv. General drawings of electrical installations including unit substations control & metering station, EHV substations, overhead lines etc.
- v. General arrangement drawings of major electrical equipments.

**Signature of the Bidder**

**Bid Response Sheet No.20 (a)**

**DETAILS OF LAND (FOR EACH SITE) FOR WIND ENERGY PROJECT**

<b>Sl. No.</b>	<b>Item</b>	<b>Site</b>
1.	Nearest Village /Town	
2.	Location w.r.t. nearest village / town	
3.	Taluka /Tehsil	
4.	District	
5.	State	
6.	Nearest Railway station	
7.	Nearest Airport	
8.	Nearest Highway	
9.	Altitude of area	
10.	Land area (Ha) of the Wind farm. Detail break up to be given	
11.	Total Land area(Ha) to be transferred to Kamarajar Port Limited	
12.	Approx Land area (Ha) per WEG to be transferred to Kamarajar Port Limited	
13.	Whether land already been acquired or is in process of acquiring	
14.	Ownership Details (Also indicate basis of holding Ownership/lease/sub-lease)	
15.	Approach details	
16.	Estimated installed capacity considering WEG model offered	
17.	Nearest NIWE/MNRE Wind Monitoring Mast	
18.	Distance & direction from nearest NIWE/ MNRE Wind Monitoring Mast	
19.	Details of Wind Monitoring Mast installed by the Bidder in this land (if any) i.e. height of mast, date of establishment of mast, date of closing of data collection (in case mast is already removed)	
20.	Whether sanction of project obtained or yet to be obtained.	

**Note:**

The Bidder should give all relevant documents to satisfy OWNER regarding above information and attach extra sheets (if necessary).

**Signature of Bidder**

**LOCATION WISE DETAILS OF LAND**

<b>Sl. NO.</b>	<b>Location No.</b>	<b>Survey/ Khasra No</b>	<b>Allotment Order / Sale Deed No.</b>	<b>Owner Name</b>	<b>Total area of Land Parcel</b>	<b>Area of Land Allotted</b>

Please attach extra sheet, if required

**Bid Response Sheet No. 21****DETAILS OF WIND DATA**

<b>Sl. No.</b>	<b>Item</b>	<b>Site</b>
<b>A.</b>	<b>Details of Wind Mast</b>	
1.	Whether Wind mast of NIWE / Bidder's own	
2.	Source of wind data (Published or own data)	
3.	Distance & direction from the proposed site (To mark on SOI map)	
4.	Height of wind mast	
5.	Make of data logger (in case of own mast)	
6.	Whether approved by MNRE/State Nodal Agency (in case of own mast)	
7.	Period of Wind data collection	
8.	Period of wind data used for Annual Energy Production	
9.	Whether measurement has been carried out at two heights (If yes then indicate the heights)	
10.	Verification report from NIWE for Wind Data	
<b>B.</b>	<b>Details of wind data to be furnished along with the offer</b>	
1.	Annual frequency distribution in tabular form	
2.	Annual wind rose data in tabular form	
3.	Annual average Air Density (mention source)	
4.	Annual average power law index (mention source)	

**Signature of Bidder**

Tender No -----

**SCHEDULE OF PRICE-I**  
(For offered model and site)

Location:-----

Capacity -----

Sl. No.	Particulars (Firm & Fixed)	Unit Price (INR)
1	Design, engineering, manufacture, supply & delivery at site of WEGs consisting of nacelle assembly including generator, control panels, power & control cables, blades, tower etc; Central Monitoring and Control System (CMCS) on sharing basis, Power evacuation system up to interfacing with grid sub- station on sharing basis; arranging various insurances till commissioning, all other works of the wind power project, complete in all respects as per the tendered scope of work, inclusive of various taxes, duties, levies etc. and cost of land.	
2	No. of WEGs offered	
3	Total Price	

**Total Price in words.....**

**NOTE :**

1. The Price should be written both in words & figures. No correction in price should be done.
2. Any item of work not mentioned in the above particulars but written elsewhere in the scope of work or in Technical Specification or essentially required for completion of works, proper operation and maintenance of wind farm, safety of equipment and operating personnel shall be deemed to have been included in the above particulars.
3. The prices mentioned at this page shall be taken into consideration for evaluation of bids. Any variation observed elsewhere in the bids shall be ignored while evaluation the bids.
4. The prices quoted should be inclusive of all taxes, duties and levies including VAT/ WCT/ Cess. **However, the break-up of taxes and other statutory levies included above should be indicated separately.**

**Signature of Bidder**

**SCHEDULE OF PRICE-II**

(Operation and Maintenance Charges for Wind Farm Project, Separate sheet for each block)

Comprehensive charges of operation and maintenance of the wind farm facility project after the date of successful completion of warranty period for 8 years (3<sup>rd</sup> year to 10<sup>th</sup> year) as per scope of work. Year wise price to be furnished.

**A) Comprehensive Operation & Maintenance Charges:**

(In Rs.)

Particulars	O&M Charges per WEG per Annum				No. of WEGs	Total O&M charges for WPP (inclusive of taxes & duties)
	Basic Annual O&M Charges / WEG	VAT / WEG	Service Tax / WEG	O&M charges / WEG (inclusive of taxes & Duties)		
Year	B	C	D	E=(B+C+D)	F	G= (E x F)
A	B	C	D	E=(B+C+D)	F	G= (E x F)
1 <sup>st</sup>	Nil	Nil	Nil	N		N
2 <sup>nd</sup>	Nil	Nil	Nil	N		N
3 <sup>rd</sup>						
4 <sup>th</sup>						
5 <sup>th</sup>						
6 <sup>th</sup>						
7 <sup>th</sup>						
8 <sup>th</sup>						
9 <sup>th</sup>						
10 <sup>th</sup>						
TOTAL (in figures)						
TOTAL (in words)						

**B) Statutory & Other Charges for Wind Power Project payable by Kamarajar Port Limited on completion of defect liability period :**

Particulars	Statutory & other charges per annum for the wind farm						Annual S&F Charges for the wind farm *		
	Year	Lease Rental Charges	CEIG Charges	Meter calibration charges	DISCOM Charges	Any other charges, if any (1)	Total Statutory & other charges	Basic S&F Charges	Service Tax
A	B	C	D	E	F	G=Sum of B to F	H	I	J=(H+I)
1 <sup>st</sup>	Nil	Nil	Nil	Nil	NIL	NIL			
2 <sup>nd</sup>	Nil	Nil	Nil	Nil	NIL	NIL			
3 <sup>d</sup>									
4 <sup>th</sup>									
5 <sup>th</sup>									
6 <sup>th</sup>									
7 <sup>th</sup>									
8 <sup>th</sup>									
9 <sup>th</sup>									
10 <sup>th</sup>									

\* The S&F (Scheduling & Forecasting) charges shall be payable from the 1<sup>st</sup> year of comprehensive O&M. IN case the same is done by the utility these charges will not be paid to operator.

**C) Grand Total of annual charges for WPP (inclusive of taxes & duties)**

<b>Year</b>	<b>Total O&amp;M charges for WPP (inclusive of taxes &amp; duties)</b>	<b>Total Statutory &amp; other charges</b>	<b>Total S&amp;F charges (incl. of service tax)</b>	<b>Grand Total of annual charges for WPP (inclusive of taxes &amp; duties)</b>
<i>Ref.</i>	<i>From Table A, Col. G</i>	<i>From Table B, Col. G</i>	<i>From Table B, Col. J</i>	
1	2	3	4	5=(2+3+4)
1 <sup>st</sup>	NIL	NIL		
2 <sup>nd</sup>	NIL	NIL		
3 <sup>rd</sup>				
4 <sup>th</sup>				
5 <sup>th</sup>				
6 <sup>th</sup>				
7 <sup>th</sup>				
8 <sup>th</sup>				
9 <sup>th</sup>				
10 <sup>th</sup>				
<b>Total in figures</b>				
<b>Total in Words</b>				

**Note:**

1. The Price should be written in both in words & figures. No correction in price should be done.
2. The O&M charges should be quoted on 'Firm' Basis.
3. Statutory & other charges should be indicated separately as per the above format, prevailing as on bid due date or extension if any. These charges shall be directly paid by Kamarajar Port Limited.
4. Any item of work not mentioned in the above particulars but written elsewhere in the scope of work or technical specifications or essentially required for efficient operation and maintenance of wind farm, safety of equipment and operating personnel, shall be deemed to have been included in the above particulars.
5. The prices mentioned at this page shall be taken into consideration for evaluation of bids. Any variation observed elsewhere in the bid shall not be applicable.
6. Any incentive subsidy granted by Central/State Government shall be to the benefit of Kamarajar Port Limited.
7. In column 'C', S & F Charges are for providing the services of Scheduling and Forecasting for the wind farm.

**Signature of Bidder**

Tender No. -----

**SCHEDULE OF PRICE-III**  
**BREAK-UP OF PRICE FOR SUPPLY OF EQUIPMENT**

No.	Item	Qty.	Basic Price	Custom Duty / Excise Duty	VAT/ CST	Total Price inclusive of taxes & duties
1	Supply of Wind Electric Generators complete in all respect: Break up price: (a) Nacelle assembly (b) Rotor Blades (c) Tubular Tower (d) Transformer					
2	Supply of balance equipment, material and associated electrical work complete in all respects.					
3	Supply of equipments, and material for grid extension work which includes transmission line from wind farm to grid substation of State utility and augmentation of the utility sub-station.					
4	Any other item not covered above (to be clearly specified by the Bidder)					
	Total (in figures)					
	Total (in words)					

**Note:** 1. The Price should be written in both in words & figures. No correction in price should be done.

2. At the point of inter connection with State grid system, the work shall need to be carried out as per the approval of power utility and is included in the above price.
3. The work shall be carried out as per the I. E. Rules & Code of practice and prudent utility practices along with the approvals of statutory authority.
4. The work of liaisoning with power utility for interconnection and its approval from them shall be the responsibility of the Contractor.
5. Providing of any/all items as required by the power utility for interconnection of wind farm with grid is deemed to be inclusive in above rates.
6. Details of proposed power evacuation, i.e. type of power line and substation, etc. proposed along with single line diagram should be provided with the Bid Response Sheet no. 16.
7. The total of the break-up price (PIII + PIV) should match with the lump sum total price quoted on EPC basis in the price bid (Bid Response Sheet No. P-I). In case of any discrepancy, the price quoted in the price bid (Bid Response Sheet No. PI) shall be considered final for evaluation of bids.

**Signature of Bidder**

Tender No. -----

**SCHEDULE OF PRICE-IV****BREAK-UP OF COST FOR CONSTRUCTION, ERECTION & COMMISSIONING**

Sl. No.	ITEM	Qty.	Basic Price	VAT	Service Tax	Total Price inclusive of all
1	Providing suitable Land for setting up of wind power project.					
2	Civil works within the wind farm complete in all respect including WTG foundation, transformer plinth & other associated civil work for the wind farm.					
3	Erection, Testing & Commissioning of Wind Electric Generators					
4	Erection, Testing & Commissioning of unit sub-station and shared internal lines for evacuation of power.					
5	Erection, Testing & Commissioning of external evacuation system (EHV pooling sub-station, EHV line or bay extension work, as applicable) up to the point of interconnection with State grid.					
6	Infrastructure development charges payable to government.					
7	All fees/charges towards application, approval, clearances etc.					
8	Any other item not covered above (to be clearly specified by the Bidder)					
	Total (in figures)					
	Total (in words)					

The total of the break-up price (P-III + P-IV) should match with the lump sum total price quoted on EPC basis in the price bid (Bid Response Sheet No. P-I). In case of any discrepancy, the price quoted in the price bid (Bid Response Sheet No. P-I) shall be considered final for evaluation of bids.

**Signature of the Bidder**

**BID FORM****To**

Kamarajar Port Limited,  
Vallur (Post),  
Chennai – 600 120 India

Sub: Engineering, Procurement and Construction (EPC) contract of 25(±5%) MW capacity Wind Energy Project at suitable site in any wind potential State in India with its Comprehensive Operation & Maintenance for 20 years.

**Dear Sir,**

After examining / reviewing the Bidding Documents For installation and commissioning of 25(±5%) MW Wind Power Project on EPC basis with O&M for 20 years. Including "Specifications & Scope of Work", "Special Conditions of Contract [SCC]" and "Schedule of Rates [SOR]", etc. the receipt of which is hereby duly acknowledged, we, the undersigned, pleased to offer to execute the whole part of the work and in conformity with the said Bid Documents, including Addenda / Corrigenda

We confirm that this Bid is valid for a period of **6 months** "from the bid due date or extension if any", and it shall remain binding upon us and may be accepted by any time before the expiry of that period.

Until a final Agreement is prepared and executed, the Bid together with your written acceptance thereof in your **Letter of Intent** shall constitute a binding Agreement between us.

We understand that Bid Document is not exhaustive and any action and activity not mentioned in Bid Documents but may be inferred to be included to meet the intend of the Bid Documents shall be deemed to be mentioned in Bid Documents unless otherwise specifically excluded and we confirm to perform for fulfillment of "Agreement" and completeness of the Work in all respects within the time frame and agreed price.

**We understand that you are not bound to accept the lowest priced or any Bid that you may receive.**

Place: [Signature of Authorized Signatory of Bidder]

Date: Name:  
Designation:  
Seal:

Duly authorized to sign Bid for and on behalf of \_\_\_\_\_

**PROFORMA FOR BANK GUARANTEE FOR EARNEST MONEY DEPOSIT**

(To be executed on non-judicial stamped paper of appropriate value)

B. G. No. \_\_\_\_\_

Date:

1. WHEREAS M/s Kamarajar Port Limited, having its Corporate Office at Vellore (Post) Chennai (hereinafter called "The Company Owner" which expression shall unless repugnant to the subject or context includes its legal representatives, successors and assigns) has issued tender paper vide its Tender No.....for  
-----  
(hereinafter called "the said tender") to M/s.....  
(hereinafter called the said Tenderer(s)" which expression shall unless repugnant to the subject or context includes their legal representatives, successors and assigns and as per terms and conditions of the said tender, the tenderer shall submit a Bank guarantee for Rs. .... (Rupees ..... only) towards earnest money in lieu of cash.
2. WE.....Bank having its branch office at .....do hereby undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Company stating that in the opinion of the company which is final and binding, the amount claimed is due because of any withdrawal of the tender or any material alteration to the tender after the opening of the tender by way of any loss or damage caused to or would be caused or suffered by the Company by reason of any breach by the said tenderer(s) of any of the terms and conditions contained in the said tender or failure to accept the letter of Intent Agreement or that the amount covered under this Guarantee is forfeited. Any such demand made on the Bank by the owner shall be conclusive as regards the amount due and payable by the Bank under this guarantee, However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.....(Rupees.....only).
3. We undertake to pay to the Company any money so demanded notwithstanding any dispute or disputes raised by the tenderer(s) in any suit or proceeding pending before any office, court or tribunal relating thereto our liability under this present guarantee being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder. Our liability to pay is not dependent or conditional on the owner proceeding against the tenderer.
4. The guarantee herein contained shall not be determined or affected or suspended by the liquidation or winding up, dissolution or change of constitution or insolvency of the said tenderer(s) but shall in all respect and for all purposes be binding and operative until payment of all money due or liabilities under the said contract(s)/ Order(s) are fulfilled.
5. WE .....Bank Ltd. further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the finalisation of the said tender and that it shall continue to be enforceable till the said tender is finally decided and order placed on the successful tenderer(s) and or till all the dues of the company under or by virtue of the said tender have been fully paid and its claims satisfied or discharged or till a duly authorised officer of the company certifies that the terms and conditions of the said tender have been fully and properly carried out by the said tenderer (s) and accordingly discharges the guarantee.

6. That the Owner Company will have full liberty without reference to us and without affecting this guarantee to postpone for any time or from time to time. The exercise of any of the power of the owner under the tender.
7. Notwithstanding anything contained herein before, our liability shall not exceed Rs.....(Rupees.....only) and shall remain in force till.....Unless a demand or claim under this Guarantee is made on us within three months from the date of expiry we shall be discharged form all the liabilities under this guarantee.
8. We.....Bank, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Company in writing. We further undertake to keep this Guarantee renewed from time to time on the request of Tenderer(s).

Date.....

.....Bank

Corporate Seal of the Bank

By its constitutional Attorney

Signature of duly  
Authorised person  
On behalf of the Bank  
With seal & signature code

Note: BGs to be furnished from any of the banks listed at Annexure- VI of Volume I

**PROFORMA FOR CONTRACT SECURITY CUM PERFORMANCE GUARANTEE BY  
SELLER/CONTRACTOR.**

(To be executed on non-judicial stamped paper of approximate value)

B.G. No.....

Date.....

1. WHEREAS M/s Kamarajar Port Limited, having its Corporate Office at Vallur (Post), Chennai – 600 120 (hereinafter referred to as “The Company/Owner” which expressions shall unless repugnant to the subject or context includes its legal representatives, successors and assigns) has entered into a contract with M/s. .... / has placed a purchase order on M/s.....(hereinafter referred to as “Contractor(s)/ Seller(s)” which expression shall unless repugnant to the subject or context includes their legal representatives, successors and assigns ) for .....on the terms and conditions as set out inter alia, in the Company’s LOA No./ P.O.No.....date .....and various documents forming part thereof hereinafter referred to as the “said contract” which expression include all amendments, modifications and/ or variations thereto and whereas the Contractor(s)/ Seller(s) has agreed for due execution of the entire contract and guarantees its performance including any parts executed through any other agencies/ subcontractors

AND WHEREAS one of the conditions of the “said contract” is that “contractor(s)/seller(s) shall furnish to the owner a Bank Guarantee from a bank for ....% (.....percent) of the total value of the “said contract” against due and faithful performance of the “said contract” including performance guarantee obligations of the contractor(s)/seller(s) for execution/ supplies made under the “said contract.”

2. We .....Bank having its branch office at .....do hereby agree and undertake to pay the amount due and payable under this guarantee without any demur merely on a demand from the Company stating that in the opinion of the Company, which is final & binding, the amount claimed is due by reason of default made by the Contractor(s)/ Seller(s) in performing any of the terms & conditions of the said Contract including defect liability obligations, in fulfilling the performance guarantee obligation or loss or damage caused to or would be caused to or suffered by the Company by reason of any breach by the said Contractor (s)/ Seller(s) of any of the terms & conditions of the contract. Any such demand made on the Bank by the owner shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However our liability under this guarantee shall be restricted to Rs... (Rupees.....only).
3. We undertake to pay to the Company any money so demanded notwithstanding any dispute or disputes raised by the contractor(s)/ Seller(s) in any suit or proceeding pending before any office, court or tribunal relating thereto our liability under this present guarantee being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under. Our liability to pay is not dependent or conditional on the owner proceeding against the Contractor(s)/ Seller(s).
4. The guarantee herein contained shall not be determined or affected or suspended by the liquidation or winding up, dissolution or change of constitution or insolvency of the said

Contractor(s)/ Seller(s) but shall in all respect and for all purposes be binding and operative until payment of all money due or liabilities under the said contract(s)/ Order(s) are fulfilled.

5. We .....Bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract(s)/ Order(s) and that it shall continue to be enforceable till all the dues of the company under or by virtue of the said Contract(s)/Order(s) have been fully paid and its claims satisfied or discharged or till a duly authorised officer of the Company certifies that the terms and conditions of the said Contract(s)/Order(s) have been fully and properly carried out by the said contractor(s) and accordingly discharges the guarantee.
6. We .....Bank further agree with the Company that the company shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract(s)/ Order(s) or to extend the time of performance by the said Contractor(s) Seller(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Company against the said Contractor(s)/ Seller(s) and to forbear or enforce any of the terms and conditions relating to the said Contract(s)/ Order(s) and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor (s) / Seller(s) or for any forbearance, act or omission on the part of the Company or any indulgence by the Company to the said Contractor(s)/ Seller(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have affect of so relieving us.
7. Notwithstanding anything contained herein before, our liability shall not exceed Rs..... (Rupees.....only) and shall remain in force till.....Unless a demand or claim under this Guarantee is made on us within three months from the date of expiry we shall be discharged form all the liabilities under this guarantee.
8. We.....Bank, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Company in writing. We further undertake to keep this Guarantee renewed from time to time at the request of Contractor(s)/ Sellers(s).

Date.....  
Corporate Seal of the Bank

.....Bank  
By its constitutional Attorney

Signature of duly  
Authorised person  
On behalf of the Bank  
With seal & signature code

Note: BGs to be furnished from any of the banks listed at Annexure -VI of Volume I.

**BANK GUARANTEE FOR ADVANCE PAYMENT**

(To be executed on non-judicial stamped paper appropriate Value)

B. G. No..... Date:.....

1. In consideration of Kamarajar Port Limited, having its Corporate Office at Vallur (Post), Chennai - 600120 (hereinafter called "The Company Owner" which expression shall unless repugnant to the subject or context includes its legal representatives, successors and assigns) having agreed to make an advance payment of Rs..... (Rupees.....only) to M/s. .... (hereinafter called "the said Contractor (s)/ Seller(s)" which expression shall unless repugnant to the subject or context includes their legal representatives, successors and assigns) from the demand, terms and conditions of Contract/Order dated. ....on production of a bank guarantee of equivalent amount.
2. We .....Bank having its branch office at .....do hereby agree and undertake to pay the amount due and payable under this guarantee without any demur, merely on a demand from the Company stating that in the opinion of the Company which is final and binding, the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Company by reason of non-payment / adjustment of any part of the said advance or any dues to the company or any breach by the said Contractor(s)/seller(s) of any of the terms and conditions contained in the said contract(s) orders(s) or by reasons of the Contractor(s)/ Seller(s) failure to perform the said Contract(s)/ Order(s). Any such demand made on the Bank by the owner shall be conclusive as regards the amount due and payable by the Bank under this guarantee, However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.....(Rupees.....only).
3. We undertake to pay to the Company any money so demanded not withstanding any claim dispute or disputes raised by the contractor (s)/ Seller(s) in any suit or proceeding pending before any office, court or tribunal relating thereto our liability under this present guarantee being absolute and unequivocal. The payment so made by us under this bond shall be valid discharge of our liability for payment thereunder. Our liability to pay is not dependable or conditional on the owner proceeding against the Contractor(s)/ Seller(s).
4. The guarantee herein contained shall not be determined or affected or suspended by the liquidation or winding up, dissolution or change of constitution or insolvency of the said Contractor(s)/Sellers but shall in all respect and for all purposes be binding and operative until payment of all money due or liabilities under the said Contract(s)/Order(s) are fulfilled.
5. We .....Bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract(s)/Order(s) and that it shall continue to be enforceable till all the dues of the company under or by virtue of the said Contract(s)/Order(s) have been fully paid and its claims satisfied or discharged or till a duly authorised officer of the Company certifies that the terms and conditions of the said Contractor(s)/ Order(s) have been fully and properly carried out by the said Contractor(s)/Seller(s) and accordingly discharges the guarantee.

- 6.. Notwithstanding anything contained herein before, our liability shall not exceed Rs.....  
.....(Rupees.....only) and shall remain in force till.....  
.....Unless a demand or claim under this Guarantee is made on us within three  
months from the date of expiry we shall be discharged form all the liabilities under this  
guarantee.
7. We.....Bank, lastly undertake not to revoke this guarantee during its currency  
except with the previous consent of the Company in writing. We further undertake to keep  
this Guarantee renewed from time to time on the request of the Contractor(s)/ Seller(s).

Date.....  
Corporate Seal of the Bank

.....Bank  
By its constitutional Attorney

Signature of duly  
Authorised person  
On behalf of the Bank  
With seal & signature code

Note: BGs to be furnished from any of the banks listed at Annexure -VI of Volume I.

ANNEXURE-V

**PROFORMA OF BANK GUARANTEE FOR**  
**"CONTRACT PERFORMANCE FOR OPERATION & MAINTENANCE"**  
(ON NON-JUDICIAL STAMP PAPER OF APPROPRIATE VALUE)

B. G. No.....

Date.....

1. WHEREAS M/s Kamarajar Port Limited, having its Corporate Office at Vallur (Post), Chennai (hereinafter referred to as "The Company/Owner" which expressions shall unless repugnant to the subject or context includes its legal representatives, successors and assigns) has entered into a Contract with M/s..... (hereinafter referred to as "Contractor" which expression shall unless repugnant to the subject or context includes their legal representatives, successors and assigns)for ----- on the terms and conditions as set out interalia, in the Company's Contract No./ P.O. No. ....date .....and various documents forming part thereof hereinafter referred to as the "said Contract" which expression include all amendments, modifications and/or variations thereto and whereas the Contractor has agreed for due execution of the Operation & Maintenance Contract and guarantees its performance including any parts executed through any other agencies/ subcontractors.

**AND WHEREAS** one of the conditions of the "said Contract" is that "Contractor" shall furnish to the owner a Bank Guarantee from a bank -----% (---- percent) of Operation & Maintenance Value for each year of the "said Contract" against due and faithful performance of the "said Contract" including defect liability obligations" and the performance guarantee obligations of the Contractor for execution/ supplies made under the "said Contract."

2. We .....Bank having its branch office at .....do hereby agree and undertake to pay the amount due and payable under this guarantee without any demur merely on a demand from the Company stating that in the opinion of the Company, which is final & binding, the amount claimed is due by reason of default made by the Contractor in performing any of the terms & conditions of the said Contract including defect liability obligations, in fulfilling the performance guarantee obligation or loss or damage caused to or would be caused to or suffered by the Company by reason of any breach by the said Contractor of any of the terms & conditions of the Contract. Any such demand made on the Bank by the owner shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However our liability under this guarantee shall be restricted to Rs..... (Rupees.....only).
3. We undertake to pay to the Company any money so demanded notwithstanding any dispute or disputes raised by the Contractor in any suit or proceeding pending before any office, court or tribunal relating thereto our liability under this present guarantee being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under. Our liability to pay is not dependent or conditional on the owner proceeding against the Contractor
4. The guarantee herein contained shall not be determined or affected or suspended by the liquidation or winding up, dissolution or change of constitution or insolvency of the said

Contractor but shall in all respect and for all purposes be binding and operative until payment of all money due or liabilities under the said Contract/ Order are fulfilled.

5. We .....Bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract Order and that it shall continue to be enforceable till all the dues of the company under or by virtue of the said Contract / Order have been fully paid and its claims satisfied or discharged or till a duly authorised officer of the Company certifies that the terms and conditions of the said Contract/Order have been fully and properly carried out by the said Contractor and accordingly discharges the guarantee.
6. We .....Bank further agree with the Company that the company shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract/ Order or to extend the time of performance by the said Contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the company against the said Contractor and to forbear or enforce any of the terms and conditions relating to the said Contract/ Order and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor or for any forbearance, act or omission on the part of the Company or any indulgence by the Company to the said Contractor or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have affect of so relieving us.
7. Notwithstanding anything contained herein before, our liability shall not exceed Rs..... (Rupees.....only) and shall remain in force till.....Unless a demand or claim under this Guarantee is made on us within three months from the date of expiry we shall be discharged from all the liabilities under this guarantee.
8. We.....Bank, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Company in writing. We further undertake to keep this Guarantee renewed from time to time at the request of Contractor.

Date.....  
Corporate Seal of the Bank

.....Bank  
By its constitutional Attorney

Signature of duly  
Authorized person  
On behalf of the Bank  
With seal & signature code

Note: BGs to be furnished from any of the banks listed at Annexure -VI of Volume I

## LIST OF APPROVED BANKS

<b><u>SCHEDULED PUBLIC SECTOR BANKS (INDIAN)</u></b>	<b><u>SCHEDULED FOREIGN BANKS</u></b>
<ol style="list-style-type: none"> <li>1. State Bank of India.</li> <li>2. State Bank of Bikaner and Jaipur</li> <li>3. State Bank of Hyderabad</li> <li>4. State Bank of Mysore.</li> <li>5. State Bank of Patialia.</li> <li>6. State Bank of Travancore.</li> <li>7. Allahabad Bank</li> <li>8. Andhra Bank</li> <li>9. Bank of Boroda</li> <li>10. Bank of India</li> <li>11. Bank of Maharashtra</li> <li>12. Canara Bank</li> <li>13. Central Bank of India</li> <li>14. Corporation Bank</li> <li>15. Dena Bank</li> <li>16. Indian Bank</li> <li>17. Oriental Bank of Commerce</li> <li>18. Punjab National Bank</li> <li>19. Punjab and Sind Bank</li> <li>20. Syndicate Bank</li> <li>21. Union Bank of India</li> <li>22. UCO Bank</li> <li>23. Vijaya Bank.</li> <li>24. IDBI Bank</li> </ol>	<ol style="list-style-type: none"> <li>1. American Express Bank Ltd.</li> <li>2. Bank of American NT &amp; SA</li> <li>3. Bank of Tokyo Ltd.</li> <li>4. BNP Paribas</li> <li>5. Barclays Bank Plc</li> <li>6. Citi Bank NA.</li> <li>7. Deutsche Bank A.G.</li> <li>8. Hongkong &amp; Shanghai Banking Corporation</li> <li>9. Standard Chartered Bank</li> <li>10. JP Morgan Chase Bank NA</li> </ol>
<b><u>SCHEDULED PRIVATE SECTOR BANKS (INDIAN)</u></b> <ol style="list-style-type: none"> <li>1. Kotak Mahindra Bank</li> <li>2. Axis Bank Ltd.</li> <li>3. SBI Commercial &amp; International Bank Ltd.</li> <li>4. ICICI Bank</li> <li>5. HDFC Bank</li> <li>6. Yes Bank</li> <li>7. IndusInd bank</li> </ol>	

## ANNEXURE –VII

**PREFERRED VENDOR LIST FOR ELECTRICAL ITEMS**

SI No.	Item Description	Approved Vendor List
1.	Cables: Control-PVC (130D)	<ol style="list-style-type: none"> <li>1. ASSOCIATED FLEXIBLES AND WIRES (P) LTD- A132</li> <li>2. CMI LTD- C019</li> <li>3. CORDS CABLES INDUSTRIES LTD- C144</li> <li>4. DELTON CABLES LTD- E012</li> <li>5. ELKAY TELELINKS LTD- E063</li> <li>6. EVERSHINE ELECTRICALS- E024</li> <li>7. FINOLEX CABLES LTD- F013</li> <li>8. GEMSCAB INDUSTRIES LTD- G146</li> <li>9. GOYOLENE FIBRES (INDIA) PVT. LTD- G142</li> <li>10. HAVELL'S INDIA PVT. LTD- H060</li> <li>11. KEI INDUSTRIES LTD- K082</li> <li>12. NICCO CORPORATION LTD.- N033</li> <li>13. NORTH EASTERN CABLES PVT. LTD- N112</li> <li>14. PARAMOUNT COMMUNICATIONS LTD- P-243 (MANUFACTURING UNIT- PARAMOUNT CABLES CORPORATIONS)</li> <li>15. POLYCAB WIRES PVT. LTD – P-244</li> <li>16. RADIANT CABLES PVT. LTD- R047</li> <li>17. RAVIN CABLES LTD. – R179</li> <li>18. SUYOG ELECTRICALS LTD. – S304</li> <li>19. TORRENT CABLES LTD- T124</li> <li>20. UNIVERSAL CABLES LTD. – U003</li> <li>21. ASSOCIATED CABLES PVT. LTD- A034</li> <li>22. ECKO CABLES PVT. LTD- E169</li> <li>23. HINDUSTAN VIDYUT PRODUCT- H122</li> <li>24. THERMO CABLES LTD. – T212</li> <li>25. LAPP INDIA LTD.</li> </ol>
2.	SWITCH BOARDS- MV:MCC/PCC/ PMCC- DRAWOUT (13BC)	<ol style="list-style-type: none"> <li>1. BCH ELECTRIC LTD- B002 (TYPE:MCC)</li> <li>2. CONTROLS &amp; SCHEMATICS LTD-C024 (TYPE:MCC,PCC,PMCC)</li> <li>3. CONTROLS &amp; SWITCHGEAR LTD-C007 (TYPE MCC,PCC,PMCC)</li> <li>4. GE INDIA INDUSTRIAL (P) LTD- G147 (TYPE MCC,PCC,PMCC)</li> <li>5. LARSEN &amp; TOUBRO LTD- L001C (TYPE MCC,PCC,PMCC)</li> <li>6. SCHNEIDER ELECTRIC INDIA PVT. LTD- S0440 (TYPE MCC,PCC,PMCC)</li> <li>7. SIEMENS LTD- S003 ( TYPE MCC,PCC,PMCC)</li> </ol>

3.	SWITCH BOARDS- MV:MCC/ASB/LDB- FIXED TYPE (13BB)	<ol style="list-style-type: none"> <li>1. BCH ELECTRIC LTD- B002 (TYPE: MCC, LDB,ASB)</li> <li>2. CONTROLS &amp;SCHEMATICS LTD-C024 (TYPE: MCC, LDB,ASB)</li> <li>3. CONTROLS &amp; SWITCHGEAR LTD-C007 (TYPE: MCC, LDB,ASB)</li> <li>4. GE INDIA INDUSTRIAL (P) LTD- G147 (TYPE: MCC, LDB,ASB)</li> <li>5. L&amp;T LTD- L001C (TYPE: MCC, LDB,ASB)</li> </ol>
<b>SI No.</b>	<b>Item Description</b>	<b>Approved Vendor List</b>
		<ol style="list-style-type: none"> <li>6. M.K. ENGINEERS &amp; CONTROLS PVT. LTD- M138 (TYPE: MCC, LDB,ASB)</li> <li>7. SCHNEIDER ELECTRIC INDIA PVT. LTD- S0440(TYPE: MCC, LDB,ASB)</li> <li>8. SIEMENS LTD- S003 (TYPE: MCC, LDB,ASB)</li> </ol>
4.	TRANSFORMERS- DISTRIBUTION- UPTO 4MVA (13KB)	<ol style="list-style-type: none"> <li>1. BHARAT BIJLEE LTD – B048</li> <li>2. CROMPTON GREAVES LTD –C010</li> <li>3. EMCO LTD- E014</li> <li>4. INDO TECH TRANSFORMERS LTD -1178</li> <li>5. KANO HAR ELECTRICAL PVT. LTD- K017</li> <li>6. KIRLOSKAR POWER EQUIPMENTS LTD. – K134</li> <li>7. TRANSFORMERS &amp; RECTIFIERS (I) LTD. – T129</li> <li>8. VIJAY ELECTRICALS LTD. –V076</li> <li>9. VOLTAMP TRANSFORMERS (P) LTD –V003</li> <li>10. AREVA T&amp;D INDIA LTD. – A347</li> <li>11. RIME TRANSFORMERS &amp; CONDUCTORS PVT. LTD – R163</li> </ol>
5.	SIGNAL CABLES (14CB)	<ol style="list-style-type: none"> <li>1. ASSOCIATED FLEXIBLES AND WIRES (P) LTD – A132</li> <li>2. CMI LIMITED –C019</li> <li>3. CORDS CABLES INDUSTRIES LTD. – C144</li> <li>4. DELTON CABLES LIMITED – D102</li> <li>5. ELKAY TELELINKS LTD.- E063</li> <li>6. FINE CORE CABLES PVT. LTD- F139</li> <li>7. GOYOLENE FIBRES (INDIA) PVT. LTD- G142</li> <li>8. KEI INDUSTRIES LIMITED – K082</li> <li>9. LAPP CABLES INDIA LTD, BANGALORE</li> <li>10. NETCO CABLE INDUSTRIES PVT. LTD- N094</li> <li>11. NICCO CORPORATION LTD.- N033</li> <li>12. PARAMOUNT COMMUNICATIONS LTD – P243</li> <li>13. POLYCAB WIRES PVT. LTD- P244</li> <li>14. RADIANT CABLES PVT. LTD- R047</li> <li>15. SUYOG ELECTRICALS LTD. – S304</li> <li>16. THERMOCABLES LTD. (FORM T-140)- T212</li> <li>17. UNIVERSAL CABLES LTD. – U003</li> <li>18. ASSOCIATED CABLES PVT. LTD. – A034</li> </ol>
6.	NEUTRAL GROUNDING RESISTORS- H.V. (13 RA)	<ol style="list-style-type: none"> <li>1. BCH ELECTRIC LTD. – B002</li> <li>2. RESIITECH ELECTRICALS PVT. LTD. – R062</li> <li>3. RSI SWITCHGEAR PVT. LTD. – R001</li> <li>4. SR NARKHEEDE ENGINEERING PVT. LTD. – S146</li> </ol>

7.	LIGHTING FIXTURES FOR NON-HAZARDOUS AREA (14LB)	<ol style="list-style-type: none"> <li>1. BAJAJ ELECTRICALS LTD. – B011 (MANUFACTURER- M/S ALPINE ELECTRICAL MFG.CO.PVT.LTD)</li> <li>2. CROMPTON GREAVES LTD. –C010</li> <li>3. PHILIPS INDIA LTD. – P-037</li> <li>4. HAVELL'S INDIA LTD. – H060</li> <li>5. M/S VENTURE LIGHTING INDIA, CHENNAI</li> </ol>
8.	CABLES: HIGH VOLTAGE- XLPE (130A)	<ol style="list-style-type: none"> <li>1. INDUSTRIAL CABLES (I) LTD- 1028</li> <li>2. NICCO CORPORATION LTD. – N033</li> <li>3. POLYCAB WIRES PVT. LTD. – P244</li> <li>4. TORRENT CABLES LTD. – T124</li> <li>5. UNIFLEX CABLES LTD. – U084</li> <li>6. UNIVERSAL CABLES LTD. – U003</li> </ol>
9.	H.V. – CAPACITORS	<ol style="list-style-type: none"> <li>1. ABB LTD, BANGALORE – A200</li> <li>2. BHEL, BHOPAL- B041A</li> <li>3. KAPSALES ELECTRICALS LTD.- K029</li> <li>4. SHREEM CAPACITORS PVT. LTD. – S266</li> <li>5. UNIVERSALS CABLES LTD. – U003</li> <li>6. MADHAV CAPACITORS (P) LTD., PUNE</li> </ol>
10.	SWITCH BOARDS- HV (INDOOR) WITH VCB ITEM (13BA)	<ol style="list-style-type: none"> <li>1. ABB LTD., NASIK –A300</li> <li>2. BHEL, BHOPAL –B041A</li> <li>3. CROMPTON GREAVES LTD. –C010</li> <li>4. SIEMENS LTD. – S003</li> <li>5. AREVA T&amp;D INDIA LTD. –A347</li> <li>6. JYOTI LTD. –J001</li> </ol>

**ANNEXURE -VIII**

**(To be submitted in duplicate)  
MANDATE FORM FOR ELECTRONIC PAYMENT THROUGH INTERNET & RBI**

**To**

**Kamarajar Port Limited,  
Vellur (Post), Chennai**

**Dear Sir,**

Sub: Authorization for release of payment due from KAMARAJAR PORT LIMITED, \_\_\_\_\_  
\_\_\_\_\_ through Electronic fund transfer(RBI-EFT)/Internet / RTGS.

Refer Order No.....dt.....and/or  
Tender/Enquiry/Letter No..... dt.....

(Please fill in the information in CAPITAL LETTERS. Please TICK wherever it is applicable)

1. Name of the Party :
2. Address of the party :  
:  
:  
:  
City: ..... Pin Code: .....  
E-mail Id: .....  
Permanent Account Number: .....

3. Particulars of Bank:

Bank Name		Branch Name	
Branch Place		Branch City	
Pin Code		Branch Code	
MICR No			
(9 Digits code number appearing on the MICR Band of the cheque supplied by the Bank. Please attach Xerox copy of a cheque of your bank for ensuring accuracy of the bank name, branch name and code number)			
Account Type	Savings	Current	Cash Credit
Account Number (as appearing in the Cheque Book)			
RTGS / IFSC Code			

4. Date from which the mandate should be effective:

I hereby declare that the particulars given above are correct and complete. If any transaction is delayed or not effected for reasons of incomplete or incorrect information, I shall not hold Kamarajar Port Limited responsible. I also undertake to advise any change in the particulars of my account to facilitate updation of records for purpose of credit of amount through RBI EFT / Internet / RTGS.

Place:

Date:

Signature of the party/Authorized Signatory

-----  
----- Certified that particulars furnished above are correct as per our records.

Bank's Stamp:

Date:

(Signature of the Authorized Official from the Banks)

**N.B. : RTGS charges if any, is to be borne by the party**

**VENDOR INFORMATION**

1. Name of the bidder(s)
2. Address
  - Street
  - City
  - Postal Code
  - State
3. Contact numbers :
  - Tel No
  - Mobile
  - Fax No
  - E mail id
4. Excise Details :
  - ECC No
  - Excise Reg No
  - Excise Range
  - Excise Division
  - Excise Commissionerate
5. SSI Status
6. CST No
7. LST No
8. Permanent Account Number
9. VAT Registration /TIN No
10. Bank Account No

Signature of the Bidder