

Strategy for Establishment of Offshore Wind Energy Projects

1.0 Background:

Government of India notified National Offshore Wind Energy Policy-2015 on 6 October 2015 for the development of offshore wind power in the country. The policy provides framework for offshore wind power development up to a seaward distance of 200 nautical miles from the baseline, i.e. up to the country's Exclusive Economic Zone (EEZ). As per policy, Ministry of New & Renewable Energy (MNRE) is the Nodal Ministry, and the National Institute of Wind Energy (NIWE) is the Nodal Agency for the development of Offshore Wind Energy in India.

Preliminary studies carried out by NIWE across the coastline of India indicate good potential both off the Southern tip of the country and the West coast for offshore wind farm development in India. The offshore wind potential was assessed by the FOWIND (Facilitating Offshore Wind in India) consortium with NIWE as a knowledge partner. Based on a multi-criteria approach involving assessment of various parameters such as wind resource, bathymetry etc., eight zones each off the coast of Gujarat and Tamil Nadu were identified as potential offshore wind energy zones. The identified eight zones off the coast of Tamil Nadu & Gujarat and their locations are shown in Figure 1 and Figure 2 respectively.

Keeping in view the requirement of the holistic development of offshore wind farms in the country and to fast-track the process, the following three models are proposed: -

Model-A (VGF Model)	This approach will be followed for demarcated offshore wind zones for which MNRE/NIWE has carried out or proposed to carry out detailed studies/surveys. Presently, part of identified Zone B3 (365 Sq.km) equivalent to 0.5 GW off the coast of Gujarat and 0.5 GW equivalent site off TN coast will be considered in phase-1 of this model. MNRE through its implementing agencies will come up with bid for procurement of offshore wind power capacity under this model. Necessary central financial assistance in the form of Viability Gap Funding (VGF) would be available to achieve a predetermined power tariff.
Model- B (Non-VGF but with exclusivity over seabed during the	This approach will be followed for sites identified by NIWE. Proposed offshore wind sites demarcated within identified zones would be allocated for a fixed period on a lease basis through single-stage two envelope bidding. Project development shall be carried out by the prospective developer in these sites without any Central Financial Assistance (CFA). The power generated from such projects shall be either used for captive consumption under open access mechanism or sold to any entity through a bilateral power purchase agreement or

study/survey period)	sold through Power Exchanges. Government may also call for bids for procurement of power for DISCOMs on the basis of tariff after two years. Benefits like provision of power evacuation infrastructure from the off shore pooling delivery point, waiver of transmission charge and additional surcharge, Renewable Energy Credits with Multipliers, Carbon Credit benefits etc. as determined by GoI/ State Govt's from time to time shall be applicable.
Model- C (Non-VGF and without exclusivity over seabed during the study/survey period)	<p>In this model, Developer may identify any offshore wind site within the EEZ excluding the sites considered under Model-A & Model-B and carry out studies and surveys. The Government will come up with bid for project development/allocation of the seabed. The bidding may include any one of the following methods;</p> <ol style="list-style-type: none"> 1. Bidding on lease/allocation fee or revenue sharing in case of projects for captive consumption/third party sale/sale through exchange under open access mechanism. 2. Tariff based competitive bidding in case of power procurement by DISCOMs or Central Govt. or State Govts. 3. Any other transparent bidding mechanism identified by the Government. <p>Government of India may also designate any Central/state Government/agency to carry out the bidding on its behalf wherein the concerned state government/agency assures the power offtake from the proposed offshore wind project.</p> <p>The developer who has conducted the study/survey of respective sites may also submit the proposal for project development and allocation of offshore sites under this model. In this case, site specific bidding would be conducted with a first right of refusal to the developer who had conducted study/survey. However, Project development shall be carried out by the prospective developer in this zone without any Central Financial Assistance (CFA). Benefits like provision of power evacuation infrastructure from the off shore connecting point, waiver of transmission charges, Renewable Energy Credits with Multipliers, Carbon Credit benefits etc. as determined by GoI/ State Govt's from time to time shall be applicable.</p>

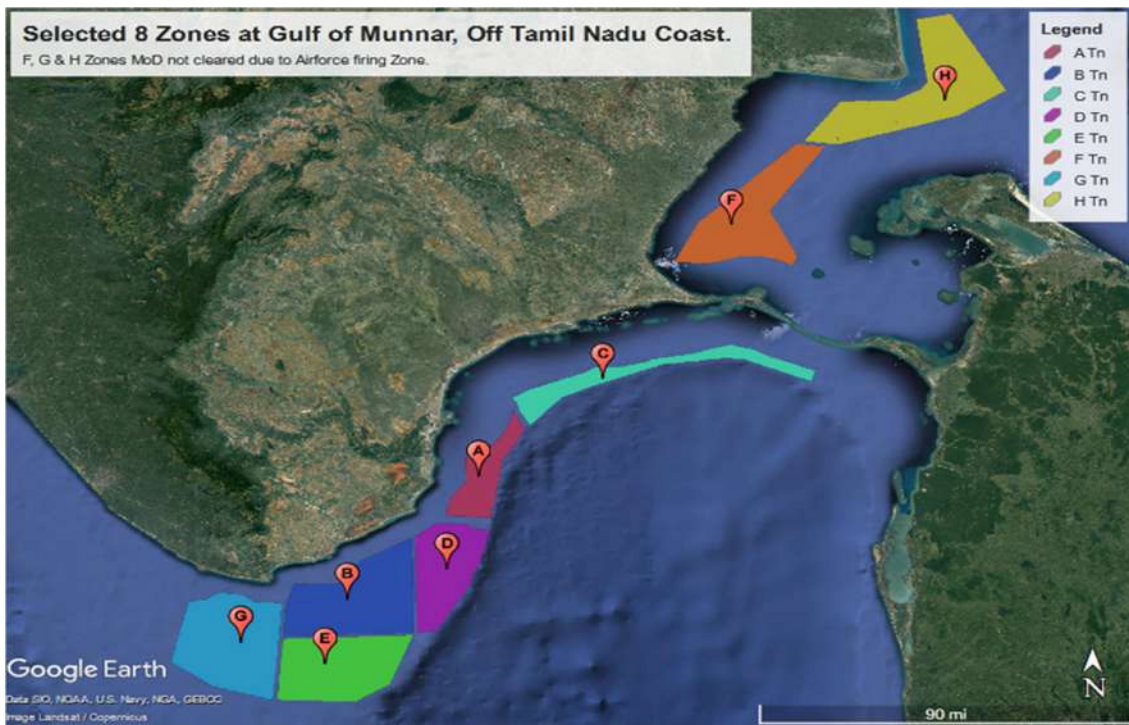


Fig. 1: Demarcated Offshore Wind Energy Zones at Tamil Nadu



Fig. 2: Demarcated Offshore Wind Energy Zones at Gujarat off Coast

For the initial offshore wind power projects under Model A, it is envisaged that VGF (viability gap funding) or any other financial incentive as decided by GoI may be made

available to bridge the gap between the actual tariff and power purchase tariff by the designated entity.

Considering the above three models of development, and to fast track the process to achieve the offshore wind energy target, an indicative auction trajectory is indicated in Table 1.

Table 1: Indicative auction trajectory for offshore wind

Year	Auction Capacity under Model-A (in GW)	Auction Capacity under Model-B (in GW)	Auction Capacity under Model-C (in GW)	Total Auction Trajectory (in GW)
2023-24	0.5	4	-	4.5
2024-25	0.5	3	-	3.5
2025-26	-	3	4	7
2026-27	-	3	4	7
2027-28	-	1	4	5
2028-29	-	-	5	5
2029-30	-	-	5	5
Total	1	14	22	37

The detailed approach for the above three models are elaborated below:-

2.0 Model-A (Demarcated offshore zones for which MNRE/NIWE has carried out or proposed to carry out studies/surveys and project development with VGF support)

- This model of offshore wind project development shall be applicable to the offshore wind zones for which MNRE/NIWE have already carried out or proposed to carry out sufficient studies/ surveys that will enable developers to bid and commence the development of offshore wind projects.
- For the development of this project a single bid two stage process followed by an e-Reverse Auction (e-RA) will be adopted. The bidding will be carried out by SECI. The e-RA will be based either on the tariff or the VGF amount required for making the project viable with a pre-determined tariff.

NIWE has carried out the following investigations for a 365 Sq.km seabed area (which is sufficient for a 1.0 GW project capacity) of Zone B3, Gulf of Khambhat, off the coast of Gujarat:

1. Lidar-based offshore wind resource assessment for two years and data published on the NIWE website.

2. Geophysical investigation and Geotechnical investigation for 3nos of representative boreholes up to 60m soil depth#.
3. Rapid EIA study (Report published in NIWE website)
4. Oceanographic (Wave, Tide & current) for one month #.

#-Data will be shared after the concurrence of MOD (Ministry of Defence)

This model can be further extended to other zones where other developers who have relinquished the capacity, have carried out the necessary studies & surveys and data is available for sharing subject to project viability and availability of required CFA.

2.1 Offshore wind development process under Model-A.

MNRE/designated agency will float a bid for 0.5 GW capacity each in the part of demarcated sites off the coast of Gujarat and Tamil Nadu wherein the stage-1 clearances have already been accorded. The details of proposed sites are given in **Annexure-I**.

Gujarat:

- i. MNRE or its designated agency will enter into the 'Lease Agreement' for 35 years with the successful bidders (Offshore Wind Power Developer (OWPD)) in accordance with 'lease rules' to be notified. The OWPD shall be required to pay the annual floor lease fee of Rs 1.0 lakhs/Sq.km/year for the entire lease period.
- ii. The successful bidders, shall file the relevant information necessary for obtaining the Stage II clearances, subsequent to which Stage II clearances for the installation and commissioning of the offshore wind farm and transmission infrastructure shall be undertaken.
- iii. MNRE or its designated agency shall enter into the Offshore Wind project 'Concession Agreement' with the OWPD.
- iv. The OWPD shall commission the project within four years from the date of the "Concession agreement". (A period of four years is considered sufficient for the OWPD to establish an offshore wind farm once the Stage II Clearances are obtained for the site, subject to any of extenuating circumstances like non-availability of evacuation arrangements, etc., that are beyond the control of the developer, in which case this could be extended but in any case the project must be set up within 5 years)
- v. The sale of power shall be through Solar Energy Corporation of India Ltd. (SECI) / Implementing agency. A back-to-back Power Sale Agreement will be signed with the State DISCOM of Gujarat / Any other State DISCOM for procuring the power from this particular project.
- vi. Eligible OWPDs shall be able to avail suitable financial incentives such as VGF or any other financial mechanism as decided by MNRE from time to time.

Tamil Nadu:

A site with an equivalent capacity of 1.0 GW has been identified for the proposed first project. NIWE will carry out the necessary study/survey within the identified site and the bid for a 500 MW project would be floated within this site after carrying out required study/survey by NIWE. The procedure for project development would be similar to project development process of Gujarat as mentioned above.

3.0. Model-B (Allocation of offshore wind sites under a lease with site exclusivity over seabed during study/survey period and project development without any VGF support)

This model envisages offshore wind project development for sale of power under open access/captive/third party sale without any VGF assistance from Govt. of India.

- Ministry of New and Renewable Energy / Nodal Agency through a competitive process shall allocate identified offshore wind energy sites to prospective OWPDs under an exclusive lease for a period of five years to carry out study/survey and setting up the offshore wind energy project. The lease period may further be extended by one year on case to case basis. The power offtake from the offshore wind energy project will be the responsibility of the OWPD. The allocation of seabeds shall be through a competitive bidding carried out under a single stage two envelop process; a technical bid to assess bidders' techno-financial capability and a financial bid for the lease rentals/site allocation fee with a minimum floor price @ Rs. 1 Lakh/ sq km/year for the bided offshore sites.

3.1 Bidding Process for allocation of Sites

- Ministry in consultation with NIWE will identify offshore sites to cater to the project capacities as per the set trajectory given above. These offshore sites will be opened up for allocation through a bidding process from time to time.
- Each offshore site will be assigned with a minimum offshore installable wind power capacity that must be established by the selected developer. However, the selected OWPD is free to establish any additional capacity over and above the assigned capacity within the allocated seabed to optimize the offshore wind site utilization.
- The bids would comprise of a technical qualification criterion to evaluate the techno-commercial capability of the bidders.
- The offshore wind energy sites will be allocated to the bidder based on the lease rentals/site allocation fee.
- The sites shall be provisionally allocated to the successful bidders for a period of five years to carry out study/survey and setting up the offshore wind energy project. The lease period may further be extended by one year on case to case basis for commissioning of the project.
- MNRE or its designated agency would issue the 'Letter of Consent' to the selected OWPD for carrying out the offshore wind measurements and other surveys after obtaining requisite clearances from concerned Ministries/Departments as per the National Offshore Wind Energy policy.
- OWPD need to submit DPR and enter into concession agreement with NIWE for project development and sale of power under open access/captive/third party sale regime. NIWE will monitor the activities/progress of project development during the above period of lease. Government may also call for bids for procurement of power for DISCOMs on the basis of tariff after two years.
- Post commissioning of the project the lease will be extended for the operational life of the project and decommissioning of the project. The OWPD will have to pay the quoted lease rentals/site allocation fee for the period starting from the lease agreement till COD of the project. Thereafter the OWPD would continue to pay the lease fee as per the floor price @ Rs. 1 Lakh/sq km/year for the remaining operation period from the date of commissioning.

- The developer may exit from the project development during the initial 5 years of lease period (in case the developer not able to commission the project) subject to;
 - Submission of the study/survey data to NIWE.
 - Forfeiture of the submitted Bank Guarantee.
- The site allocation fee paid by developer up to project commissioning over and above the floor price would partially returned to the developer, if developer commission the project within scheduled commissioning date.

Post expiry of the lease period, all clearances issued to the relevant OWPD shall be withdrawn and the OWPD will be required to relinquish the lease and deposit the data acquired during the study/survey.

The initial potential sites for 14 GW equivalent offshore wind capacity that is proposed to be offered under Model-B are given in **Annexure-II**. Out of these 14 GW, the first bid for 4.0 GW capacity (site nos. 2,3, 4 and 7 in the map at Annexure-II) is tentatively planned to be floated on 1st of February, 2024 and the second bid is planned to be floated for 3 GW (site nos. 5,6 and 8 in the map at Annexure-II) in the financial year 2024-25.

4.0 Model-C (Study/survey without exclusivity over seabed during the study/survey period and project development without any VGF support)

This model will be followed for the sites identified by the developers within the Exclusive Economic Zone (EEZ) of the country excluding the sites already identified under Model-A and Model-B, for which studies/surveys are completed, in progress or yet to be commenced by developer. The process followed for offshore wind power project development under this model shall be as follows:

- a. OWPD may select any site/sites within EEZ of the country excluding the sites already identified under Model-A and Model-B and submit a proposal for study/survey to NIWE with the details of identified site and required details as per Guidelines for Wind Power Assessment Studies/Surveys issued by NIWE.
- b. NIWE will facilitate as a single-window (one-stop-shop) and will coordinate with different authorities for stage – 1 and stage – 2 clearances.
- c. In case more than one OWPD proposed to conduct the study/survey in the same site, there will be a minimum gap of one km between the mast location/ LIDAR site & bore holes of one developer and the mast location/site & bore holes of another developer. The sites for wind mast/LiDAR will be allocated to developers on the basis of a first come first serve basis.
- d. Based on the stage – 1 and stage – 2 clearances from various authorities, NIWE will issue an in-principle approval and consent letter respectively.
- e. The study/survey will be commenced only after Consent Letter is received from NIWE. The time limit for study / survey in this case will be for three years.
- f. The Government will come up with bid for project development/allocation of the seabed. The bidding may include any one of the following methods;
 - Bidding on lease/allocation fee or revenue sharing in case of projects for captive consumption/third party sale/sale through exchange under open access mechanism.
 - Tariff based competitive bidding in case of power procurement by DISCOMs or Central Govt. or State Govts.

- Any other transparent bidding mechanism identified by the Government.

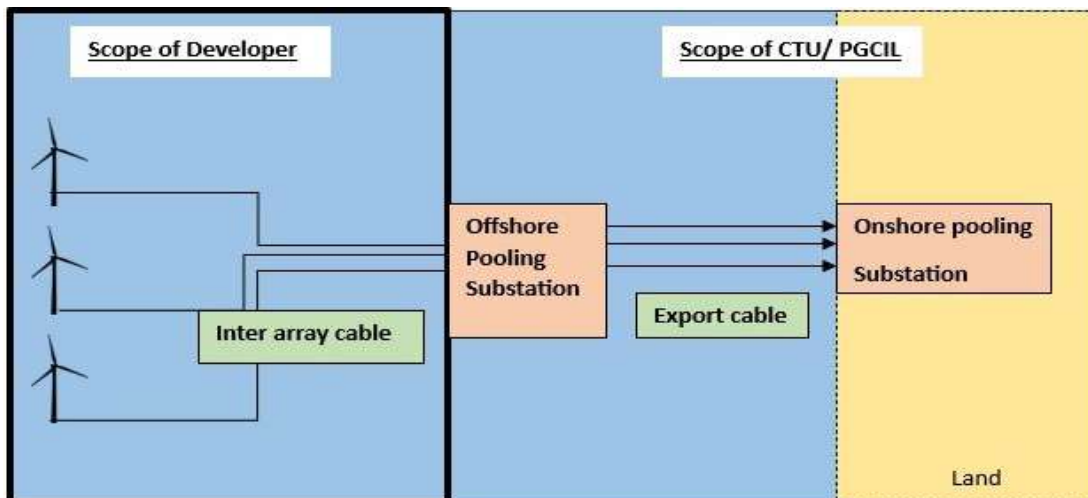
Government of India may also designate interested state Government/agency to carry out the bidding on its behalf wherein the concerned state government/agency assures the power offtake from the proposed offshore wind project.

- g. The developer who has conducted the study/survey may also submit the proposal for project development and allocation of offshore sites. In this case, site specific bidding would be conducted with a first right of refusal to the developer who had conducted study/survey. However, Project development shall be carried out by the prospective developer in this zone without any Central Financial Assistance (CFA). Government of India may also designate interested state Government/agency to carry out the bidding and power offtake by the concerned state government/agency.
- h. MNRE or its designated agency will enter into the concession agreement and ‘Lease Agreement’ for 35 years with the successful bidders.
- i. The OWPD shall commission the project within four years from the date of the “Concessionaire agreement”. (A period of four years is considered sufficient for the OWPD to establish an offshore wind farm once the Stage II Clearances are obtained for the site)
- j. OWPD shall not share the study/ survey data with any third party other than its own affiliates, subsidiaries, or holding/parent company.

The offshore wind map within EEZ is given in **Annexure-III**.

5.0 Connectivity with the Grid

Evacuation of power up to the offshore meeting/interconnection point shall be the responsibility of developer. The developer shall set up the offshore wind project(s) including inter-array cables to connect the project with offshore sub-station at the specified voltage level (to be decided by CTU). The offshore sub-station and beyond transmission infrastructure would be developed by CTU. Metering for the purpose of energy accounting shall be done at respective connecting point as per the metering regulation. The benefit of Inter State Transmission System (ISTS) Waiver and exemption of additional surcharge will be applicable for the projects commissioned till 31st December, 2032.



6.0 Review of the ‘Strategy for Establishment for Wind Energy Projects’

The ‘Strategy for Establishment for Wind Energy Projects’ may be reviewed by Ministry of New and Renewable Energy (MNRE) from time to time.