DRAFT NATIONAL OFFSHORE WIND ENERGY POLICY

MINISTRY OF NEW AND RENEWABLE ENERGY
Government of India
Wind Energy – Global Deployment Status

• Developing countries have more than 1/3\textsuperscript{rd} global wind power capacity.

• In India - onshore wind energy deployment has crossed 19600 MW - attracted $16.5$ billion of investment in 2012, created 179,000 ‘green collar’ jobs in manufacturing, project development, installation, operation, maintenance, consulting etc., saving 131 million tons CO2/year.

• Estimated that by 2030, installed capacity could reach 191 GW.

• Centre for Wind Energy Technology has reassessed India’s onshore wind power potential as 102,778 MW (at 80 metres height and 2% land availability).
Off shore Wind Power Development

- Advantages: higher power density compared to land; high PLFs; cost competitive electricity to coastal region.
- Europe is the global leader in offshore wind energy installation.
- Globally installations have reached over 5,000 MW (Europe: 4995 MW followed by China: 390 MW and Japan: 25 MW).
  - India has significant off shore wind power potential - Offshore wind potential of Tamil Nadu estimated as 127 GW at 80 m height in a WISE study (needs further validation).
  - Preliminary assessment conducted by Scottish Development International - Tamil Nadu has potential of about 1 GW in north of Rameswaram and 1 GW in south of Kanyakumari.
Offshore Wind Energy – Technology

- Technology for offshore turbines same as that of onshore turbines and their operational life also same (~ 20 years).
- The rated capacity of turbines higher than that of onshore - in range of 3 MW-5 MW.
- Off shore wind farms in water depths from 0.8 to 220 m with monopile, jacket, tripod and floating technologies.
- At different depths, turbine installations require different type of bases for stability.
- Monopile base is used for water upto 30 m depth, whereas turbines installed on tripod or steel jacket base for 20-80 m depths.
Offshore Wind Turbine Development for Deep Water

- Onshore Wind Turbine
- Monopile Foundation depth 0 – 30 m
- Tripod fixed bottom depth 20 - 80 m
- Floating Structure depth 40 – 900 m
Beatrice Demonstration Project
Scotland – using Jacket Type Base
India is blessed with coastline of about 7600 Km.

United Nations Convention on Law of the Sea gives India exclusive rights over its Exclusive Economic Zone (200 nautical miles from baseline) to develop offshore wind energy.

Efforts so far limited to preliminary resource assessment.

C-WET has measured near shore wind data at 54 locations along the coast.
• Preliminary studies by C-WET and Indian National Centre for Ocean Information Services (INCOIS), Hyderabad suggest potential along Tamil Nadu, Gujarat and Maharashtra coasts.

• Scottish Development International’s study done in January, 2012 has indicated potential of 1 GW each at Kanniyakumari and North of Rameshwaram.

• These results required validation by setting up of offshore masts to measure 2-3 years wind data.

• C-WET to carry out 100 m anemometry at Dhanuskodi, Rameshwaram (near the sea).
India’s Exclusive Economic Zone

10-1000m depths in EEZ
Potential Locations at Rameshwaram and Kanniyakumari suggested by Scottish Consultant

Figure 4-6: 2 Indicative 1GW layouts for Palk Strait
Offshore Wind Energy Development in India—Relevant Issues

- High Cost- The cost of offshore wind farms almost 1.5 – 2 times than that of onshore wind farms.

- Offshore resource characterization required for firming up potential.

- Development of a policy framework including the regulatory process.

- Capability creation for understanding the nuances of turbine and array design consideration and grid integration.
• Creation of support services infrastructure - specialized turbine installation vessels; under sea electricity transmission including additional grid infrastructure.

• Developing an approval protocol.

• Involvement of multiple agencies for clearances.

• Manufacturing industry
Initiative by Government for Development of Policy

MNRE constituted Offshore Wind Energy Steering Committee (OWESC) associating stakeholder Ministries/Departments under the Chairmanship of Secretary, MNRE, to propose:

- policy framework required for offshore wind energy development
- requirements of inter-agency coordination
• Sub-committee constituted in March, 2012 under the Chairmanship of Chairman, Tamil Nadu Electricity Board - to suggest draft policy guidelines for development of offshore wind energy activities.

• Sub-committee submitted report in September, 2012.
Draft National Offshore Wind Energy Policy
(available on www.mnre.gov.in)

Objectives:

• To Promote Deployment of Offshore Wind Farms up to 12 nautical miles from coast.
• To Promote Investment in the Energy Infrastructure.
• To Promote Spatial Planning and Management of Maritime Renewable Energy Resources in the Exclusive Economic Zone.
• To Achieve Energy Security and to reduce Carbon Emissions.
• To Encourage Indigenization of the Offshore Wind Energy Technology.
• To Promote R&D in the Offshore Wind Energy Sector.
• To Develop Skilled Manpower and Employment in the industry.
Draft Policy: Geographical Coverage

• Up to 12 Nautical miles from the baseline – where the sea is relatively shallow (territorial waters)

• R&D activities up to 200 Nautical miles (Exclusive Economic Zone of the country)
Salient Features of Policy

- Preliminary Resource Assessment and demarcation of blocks.
- EIA study of proposed wind farms regarding aquatic life, fishing etc., studies relating to navigation, undersea mining and related exploration/exploitation activities and other users of the sea.
- Oceanographic studies - to determine construction costs for special foundations, special ships for both operation and maintenance requirements.
- Sea Bed Lease Arrangement.
- Single Window Procedure for Statutory Approvals (NOWA).
- Grid Connectivity and Evacuation of Power
- Technology
- Fiscal and Monetary Incentives
- Security & Confidentiality of data collected during studies and surveys.
MNRE to act as nodal ministry for development of offshore wind energy in the country.

Functions:

• Overall monitoring of the offshore wind development in the country.
• Co-ordination with other Ministries/Departments.
• Issuing guidelines/directives for development of offshore wind energy.
• Oversee working and to provide necessary support to National Offshore Wind Energy Authority (NOWA) for smooth functioning.
• Promoting indigenous research for technology development.
National Offshore Wind Energy Authority (NOWA)

National Offshore Wind Energy Authority (NOWA) to be established under the aegis of MNRE - to be responsible for the following:

- Carry out Resource Assessment and Surveys in the EEZ of the country.
- Enter into contract with the project developers for development of offshore wind energy project in the territorial water (12 nm).
- Single Window Agency to facilitate clearances.
Role of Other Agencies/Bodies

• Offshore Wind Energy Steering Committee, under the Chairmanship of Secretary, MNRE to oversee overall development of Offshore Wind Energy.

• Ministry of Shipping (for major ports), State Maritime Board/state designated agency to provide port related logistical support.

• State Electricity Board/state designated agency to undertake onshore power evacuation.

• CERC & SERCs to finalize guidelines for transmission, distribution and purchase of power from Offshore Wind Energy Projects.
Modality of Development

• Preliminary Resource Assessment, EIA and Oceanography Survey will be carried out by NOWA for demarcation of offshore wind energy blocks.

• Request for clearances to be submitted through NOWA as single window agency.

• Offer of blocks for exploration/exploitation to be made through International Competitive Bidding (ICB) Process.

• Successful bidder would enter into a contract with the NOWA for a stipulated time period limited to exploration and exploitation of wind energy in the allocated block(s).
• State designated nodal agency/distribution utility will sign PPA as per CERC/SERC guidelines. Evacuation infrastructure up to first onshore substation responsibility of developer.

• Certificate for commencement of operation of wind farm to be approved by NOWA to enable verification of all statutory and regulatory guidelines before commissioning.

• Monitoring by various agencies in different phases of development with overall monitoring by OWESC.

• Developer/owner to submit a decommissioning programme to NOWA before any offshore construction works begins.
Other Features of Draft Policy

• Incentives available to onshore wind projects viz. tax holidays, concessional customs/excise duty etc. may be available to offshore wind projects.

• Government may call for proposals for development of offshore wind energy demonstration project(s) in specified block(s).

• Permission may be granted on case to case basis to interested private players for Surveys and Assessment for offshore wind energy projects. Data security aspect to be examined by Ministry of Defence.

• Existing lease holders of seabed for other purposes such as oil & gas exploration and exploitation, seabed mining etc. who are interested in installation of offshore wind farm on their existing lease to route proposal through NOWA.
Request for Clearances

• NOWA to receive application as a single window agency for getting approval from the concerned Ministries/Departments.


• Priority on clearances for resource assessment, EIA and oceanographic study.

• After identifying the site as techno economic feasible, other clearances to be obtained routing through NOWA.
Agencies whose clearance required for offshore wind projects

- MoEF – EIA, CRZ clearance
- Ministry of Defence – Security clearance
- Coast Guard – Security and hazard issue of installations
- Directorate General of Shipping – Approval for hiring vessels
- State Maritime Boards/Ministry of Shipping for port clearances
- Directorate General of Lighthouse and Lightships – Clearance for onshore construction
- Directorate General of Hydrocarbons – Clearance to operate outside oil and gas exploration zones
• MoPNG - Clearance to operate outside oil/gas exploration zones
• Ministry of Civil Aviation – Aviation Safety
• DoT – Clearance for operating outside subsea cable zones
• Geology and Mining Department – Seabed and environment issues
• Dept. of Animal Husbandry, Dairying and Fisheries – Impact on fishing grounds
• Ministry of Earth Sciences – Impact on areas identified for long term scientific research
• MHA – Declaring offshore wind energy exploitation zones.
• State Government – Clearance for working under Coastal Zone Management Plans
• District Commissioner – Land use permission, public hearing for environmental clearance.
Monitoring

- Ministry of Shipping *(for major ports)*, State Maritime Board/State designated agency to monitor offshore wind farm installation during construction phase – related with movement of ships and goods and construction activity at port.

- State Electricity Board/State designated agency to monitor during the operation phase will receive daily/weekly/monthly data on units generated and units evacuated at sub-station.

- NOWA to conduct periodic meetings with SMB, SEB and developer to review progress.

- Overall monitoring to be done by OWESC headed by Secretary, MNRE - regular monitoring of progress for development of offshore wind energy project activities.
THANK YOU