F. No. 66/183/2016 -WE
Ministry of New & Renewable Energy

To ensure healthy and orderly growth of wind power sector in the country, Ministry had issued revised guidelines for onshore wind power projects in June 1996. Clarifications and modification in these guidelines are being issued by the Ministry from time to time. However, with advancement in the wind turbine technology and requirement to comply various standards and regulations issued by CERC, CEA and other regulatory bodies, it is felt to issue comprehensive guidelines for development of onshore wind power projects in the country. Accordingly, draft guidelines for development of onshore wind power projects have been prepared and are being placed on the website of the Ministry for comments/suggestions/views of the stakeholders.

The comments/suggestions/views on the draft guidelines may please be sent through email (preferably in word format) by 27 May 2016 to:

Shri J. K. Jethani
Scientist-D
Ministry of New & Renewable Energy
Blcok-14, CGO Complex, Lodhi Road
New Delhi-110003
Tel/Fax- 24362728
Email: jethani.jk@nic.in

Draft Guidelines for Development of Onshore Wind Power Projects

I. Introduction

To ensure healthy and orderly growth of wind power sector in the country, the Ministry of New & Renewable Energy issued guidelines for development of wind power projects from time to time. In addition the Government has taken various initiatives to encourage wind power development in the country. All these efforts have resulted in wind power installed capacity of around 26.8 GW by the end of FY 2016 and now, India is globally placed at 4th position in terms of wind power installed capacity.

Most of the wind power development in India took place over the last 20 years and during this period the wind turbine technology has evolved from low capacity less efficient turbines of 225 kW to high capacity more efficient turbines of 3 MW being manufactured in India. Wind being intermittent in nature the large scale deployment of wind power has posed challenges on grid integration. The regulatory authorities have tightened regulation for grid integration of wind turbines.

Further, the Government has set an ambitious target of reaching 60 GW of wind power installed capacity in the country by 2022. To achieve the target the current rate of deployment of wind power capacity is required to be more than doubled.

With the technology development, new regulations and requirement of accelerated growth of wind power sector, it is felt to issue comprehensive guidelines for development wind power projects in the country in consultation with various stakeholders.

II. Objective

The objective of these guidelines is to facilitate the development of wind power projects in an efficient, cost effective and environmentally benign manner taking in to account the requirements of project developers, State and national imperatives.

III. Site Selection and Feasibility

The process of wind power project development starts with site selection. Identification of suitable sites depends upon land use permission, availability of wind resource, technically and commercially feasible grid connectivity, transport logistics and environmental acceptability.

(a) **Land Use Permission:** The project developer should ensure the land being selected for the wind power project can be legally used for the purpose.

(b) **Availability of wind resource:** The project developer is required to ensure the availability of wind resource at the site based on the various parameters measured for the purpose.

(c) **Technically and commercially feasible grid connectivity:** The project developer should ensure that grid connectivity is technically and commercially feasible at the site selected.

(d) **Transport logistics:** The project developer should ensure that components of the wind power project can be transported to the site selected with existing infrastructure and in case any addition is required the same would be created without any legal issues.

(e) **Environmental acceptability:** If the site being selected falls in the area of forest land or in the vicinity of civil aviation, defence and heritage establishments the project developer should ensure availability of necessary clearance from concerning authorities.

IV. Type certification and quality assurance

Type certification is to confirm that the wind turbine type is designed, documented and manufactured in conformity with design assumptions, specific standards and other technical requirements. For manufacturers of wind turbines and components, type and quality certification by an internationally recognized certification body will be a mandatory requirement. Further, the type and quality certification should also include the manufacturing facility situated in India.

No wind turbine model will be allowed for installation in the country until it has obtained type and quality certification as mentioned above. To facilitate SNAs, investors, lenders and developers, the National Institute of Wind Energy (NIWE) will bring out the list of type and quality certified wind turbine models eligible for installation in the country. The list will be regularly updated by NIWE.

V. Micrositing

Micrositing is the optimization of energy production through the correct placement of wind turbine generators in the wind farm area, considering all physical constraints of the area.

Micrositing criteria is prescribed as under, however, with improvement in technology NIWE may revise the Micrositing criteria, if required.

The distance between the proposed Wind Turbine Generator (WTG) with adjacent existing WTG, formed in row should be minimum three times (3D) the diameter of the rotor. Row should be formed in such way that it is perpendicular to the predominant wind direction. The distance between the rows should be at least five times diameter (5D) of the Rotor, so that performance of the WTGs should not be affected in any manner.

VI. Grid connectivity

For establishment of the evacuation arrangement and grid connectivity, the respective Electricity Regulatory Commission Order/Regulation will be applicable.

VII. Compliance of Grid Regulations

Wind Turbine control equipment should be certified for the compliance of the grid regulations including Active/Reactive power control, Low Voltage Ride Through (LVRT), power quality and other applicable requirements.

VIII. Metering and Real Time Monitoring

It will be necessary for the project developer to install Availability Based Tariff (ABT) compliant meter with telecommunication facility at the pooling station to enable implementation of forecasting and scheduling regulation. It will be mandatory to communicate vital grid parameters on real time basis to respective Regional/State Load Despatch Centre.

IX. Online Registry and Performance Reporting of Wind turbines

An online registry of wind turbines installed in the country will be created by NIWE. Monthly performance report of the wind turbine will be uploaded on the web-portal created by NIWE for this purpose.

X. Health & Safety

In order to ensure health and safety of people working/residing near the wind power

installations the NIWE will prescribe criteria for noise and shadow flicker.

XI. Size of turbine and Generation

Keeping in view optimum utilisation of wind energy resources available in the country, the project proponent should judiciously select the size of the wind turbine for a particular site considering the wind recourse available at that site. The annual average Capacity Utilization Factor (CUF) from a wind turbine should not be less than 20% in any case.

XII. Hybridization

Wind being intermittent in nature and having low CUF, its hybridisation with other renewable and storage technologies would result in reduced intermittency and efficient utilisation of transmission infrastructure. The project developer may prudently use hybrid technologies.

XIII. Repowering

Based on the improved wind turbine technology available the project developer may opt for repowering of the wind turbine in line with Policy issued for the purpose.

XIV. Decommissioning Plan

The proposal to establish wind power project should necessarily include decommissioning plan of the wind turbine after completion of its useful life. The NIWE will formulate guidelines for decommissioning of the wind turbines.