

Subject

**White papers on developing a road map for achieving 60,000 MW wind power capacity by year 2022.**

## **Background**

With the current and future aspirations for progression, India is poised for the highest growth rate in the emerging countries. The road towards achieving such growth largely depends on the kind of infrastructure that facilitates enhancing business environment in the country; and in that context electricity supply has a cardinal role to play. The global and domestic energy landscape is undergoing significant changes as alternative sources of energy are evolving as major contributors to the energy basket. At the same time, impetus to increase the share of renewable energy sources to address climate concerns is also contributing to an increase in the share of such low carbon source in the overall energy mix. Out of the varied sources of replenish-able energy, wind power has emerged as the clear leader, mainly because the mechanics behind was very well known, leading to which development started far early compared to other sources of energy.

With around 2.5 GW of on-shore wind power installation, India has approximately 6% of the world's installed wind power capacity. That puts India on the 5<sup>th</sup> rank in the world. At present the share of wind power is about 10% in the overall energy mix; which, on the other hand is whopping 65% out of the renewable energy pie in the country. India's robust domestic market has transformed the Indian wind industry into a significant global player. Newer policies, such as indirect tax benefits, GBI and RPO, encourage independent power producers and private investors to establish large-scale commercial wind plants that enable wind to be a more significant part of the power mix.

Recently the estimated wind energy potential in the country was revised (Dec, 2015) from 102 GW at 80m to 302 GW at 100m hub height<sup>1</sup>, on account of newer technologies including wider rotor diameters and taller hub heights being used. Apparently only fraction of the said potential is achieved so far, which means there is a long way to go. Other latest developments include announcement of the off-shore wind power policy (Oct, 2015), reinstatement of accelerated depreciation benefits (July, 2014) and GBI etc.

With the government targeting to add 60 GW of wind power by 2022 – also committed under India's INDC, the manufacturing as well as development sector needs to gear-up for the acceleration development and deployment. In such case, a road map is needed which helps not only the government to plan, but also developer community to amplify efforts for increasing their capacity.

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<sup>1</sup> The estimated potential does not cover the off-shore wind power potential.

## Objective

Taking the cue from government's will for accelerating wind power development in India, the objective of this assignment is to develop, publish and distribute Co-branded White Papers defining the roadmap for achieving 60 GW installed capacity by 2022.

## Scope of work

The scope of work would entail completion of 4 white papers covering the following subjects-

### Work package 1: Policy and regulatory review

1. Policy and regulatory environment in India both at state and center
  - Current Policy and regulations scenario at Centre and at State level and trends
  - Issues with existing support framework and policy requirements to achieve target.
  - Introduction of competitiveness in procurement
2. Impact of national level RPO compliance by state governments.
  - Calculation of power required if all states comply with national RPO and current RPO.
  - Existing business models with REC, Captive power, Feed-in-tariffs, IPPs.
  - Possibilities under RGO: how real are they
3. Power evacuation and grid integration.
  - National and state level transmission planning and needs of wind sector
  - Need for technical standards and its uniform applicability
  - Status of Green Energy Corridor
  - Green corridor Ph II (which is being designed presently for solar)
  - Scheduling and forecasting challenges. Major players and case study of Gujarat.
  - Institutional capacity of SLDCs, RLDC, and NLDCs in terms of expertise, infrastructure and monitoring.
  - Development of protocol for telemetry with SLDCs

Case study and lessons learnt from instances of backing down of 'must-run' wind power plants (curtailment risk)

### Work package 2 : Challenges in Financing, Power sale, and Business models

1. Challenges of Financing in the sector.
  - Current financing models and suggestion of innovative models.
    - Investor types, securing finance, impact of policy, role of public sector in financing
    - Project development issues
    - Issues in project siting (land acquisition), performance risk, grid access etc
    - Interstate sale of Power.
  - Viability of Interstate sale with current charges applicable and with exemptions proposed in draft tariff policy.
2. Emergence of new business models: interstate sale of Power
3. Wind – Solar hybrids
  - Costing strategy, technical standards and modifications
4. Re-powering

Work package 3 : Challenges associated with recent policy developments

1. Analysis of value chain – challenges, barriers and opportunities.
2. Skill Development for the sector.
3. Impact of the sector if targets are achieved in the areas of GDP, employment, Make-In-India, Environment, Electrification and CSR, Environmental and Social guidelines.
4. Relevance of 'Make-in-India' initiative can be for the wind sector. Carrying out SWOT analysis on this subject.
5. Duties and tax structure: impact of GST.