



**Year End Round-Up: Renewable Energy**

If you have questions or would like additional information on the material covered in this Newsletter, please contact the authors:

By: Alfred Adebare, Of Counsel  
([aadebare@lexcounsel.in](mailto:aadebare@lexcounsel.in))

LexCounsel, Law Offices C-10,  
Gulmohar Park New Delhi 110 049,  
INDIA. Tel.:+91.11.4166.2861  
Fax:+91.11.4166.2862

**Year End Round-Up: Renewable Energy**

In furtherance of its commitment to clean energy, India has undertaken the largest renewable energy capacity expansion programme in the world through initiation of various schemes, programmes and policy measures during the last 2 years.

According to the Ministry of New and Renewable Energy (“MNRE”), a capacity addition of 14.30 GW of renewable energy was reported during the last 2½ years under grid connected systems – 5.8 GW from solar, 7.04 GW from wind, 0.53 GW from (small) hydro and 0.93 GW from bio-power. A total of 7.52 GW of grid-connected power generation capacity from renewable energy sources has been added so far this year (January 2016 to October 2016) as stated below:

Sector	Capacity Addition (MW) (January- October 2016)
<b>Grid Interactive Power (Capacities in MW)</b>	
Wind Power	3,191.21
Solar Power	3,848.77
Small Hydro Power	146.47
Bio-Power (Biomass & Gasification and Bagasse Cogeneration)	331.78
Waste to Power	7.50
<b>Total</b>	<b>7,525.73</b>

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The total cumulative capacity from renewable energy sources is 46.33 GW, accounting for about 15% of the total installed power capacity.

### Summary of major Government initiatives

To achieve its ambitious targets, several initiatives have been taken by the Government as follows:

#### Solar Power

- Various schemes and programmes (such as solar park scheme, solar defence scheme, solar rooftop scheme, canal bank/canal top scheme, etc.) have been launched under the National Solar Mission, which are under various stages of implementation. For example, under the defence scheme, against a target of 300 MW, 347 MW is sanctioned; under the central public sector undertakings (“CPSUs”) scheme, against a target of 1,000 MW, all capacity is sanctioned; under the canal bank/canal top schemes, against targets of 2,000 MW and 5,000 MW, respectively, all capacity sanctioned; and under 20,000 MW solar park scheme, 34 solar parks in 21 States with an aggregate capacity of 20,000 MW have been approved.
- With respect to solar rooftop, a massive grid connected solar rooftop programme with a 40GW target by 2022 has been launched. Regulations for net-metering/feed-in-tariff mechanism have been notified by the State Electricity Regulatory Commissions of 30 States/Union Territories. As of September 2016, 500 MW solar rooftop capacity has been installed and about 3,000 sanctioned MW is under installation. Various CPSUs have collectively committed to deploying about 5,938 MW of rooftop solar capacity for their internal power consumption. SECI is aggregating demand for a part of this requirement and has issued a tender for development of 1,000 MW rooftop solar capacity on pre-identified Government owned buildings. It is the largest such tender in India’s rooftop solar market. The MNRE has arranged with the Indian Space Research Organisation for geo-tagging of all rooftop projects.

#### Wind

- During 2015-16, wind power capacity addition of about 3.42 GW, exceeding target by 43%. During 2016-17, a total 1.50 GW has been added till October 2016. The present wind power installed capacity in India is around 28.28 GW. India now ranks 4<sup>th</sup> in the world in wind power installed capacity, after USA, China and Germany.
- Presently in India, there are 20 approved manufacturers with 53 models of wind turbines upto a capacity of 3 MW single turbines.
- The wind power potential of India has been reassessed by the National Institute for Wind Energy, and is estimated to be 302 GW at 100 meter hub-height.

- Comprehensive guidelines for development of on-shore wind power projects have been formulated and issued on October 22, 2016, as also the guidelines for implementation of “Scheme for Setting up of 1000 MW Inter-State Transmission System (ISTS) - connected Wind Power Projects”. A policy for repowering of wind power projects was issued on August 5, 2016 to promote optimum utilization of wind energy resources by creating a facilitative framework for repowering.

#### **Off-Grid Solar Applications**

A total of 31,472 solar pumps were installed in 2015-16, higher than the total number of pumps installed since the beginning of the programme in 1991. So far, 92,305 solar pumps have been installed in India as of October 2016.

#### **Other initiatives**

Other initiatives taken by the Government include:

- Solar tariff of ₹3 per unit has been achieved (quoted by Amplus Energy Solutions in an auction for rooftop solar power conducted by SECI).
- Amendments have been made to the Tariff Policy to promote renewable energy, including enhancement of solar renewable purchase obligations to 8% by 2022; re-notification of long term growth trajectory of renewable purchase obligations for solar and non-solar energy; and non-levy of inter-State transmission charges and losses for solar and wind power.
- A ₹380 billion green energy corridor is being set up to ensure evacuation of renewable energy. Towards this, the Power Grid Corporation of India Limited has sought a loan assistance of US\$ 1 billion from the Asian Development Bank (ADB) which would be utilized for funding transmission projects and green energy corridor projects.
- A skill development (Surya Mitra) scheme has been launched for creating 50,000 trained solar photovoltaic technicians by March 2020. A total number of 5,492 Surya Mitras have already been trained as on September 2016 and more than 3,000 are undergoing training. Short term training programmes for small hydro, entrepreneurship development, operation and maintenance of solar energy devices and boiler operations in co-generation plants have also been organised from time to time.
- Cess (levy) on coal increased to realize funds for supporting and incentivizing development of clean energy projects.

	<p>Lastly, we may point out that foreign direct investment up to 100% is permitted under the automatic route for renewable energy generation and distribution projects, subject to provisions of the Electricity Act, 2003 (as amended from time to time).</p>
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