

MINISTRY OF NEW & RENEWABLE ENERGY

INTRODUCTION

- ❑ The Government of India has embarked upon an ambitious journey on green energy front with scaling up of target of installing renewable energy capacity to 175 GW by the year 2022 which includes 100 GW from solar, 60 GW from wind, 10 GW from Bio-power and 5 GW from Small Hydro power.
- ❑ As on March 2018, a total of 69.68 GW of renewable power capacity has been installed which includes 34.04 GW from wind power, 21.65 GW from solar power, 9.5 GW from Bio-power & 4.48 GW from small hydro power. With 69.68 GW installed renewable power capacity, the renewable power has a share of over 20% of the total installed capacity in the country.
- ❑ The capacity addition of over 34 GW grid connected renewable power has been achieved during last four years (2014-15 to 2017-18) which includes 19.01 GW from Solar Power, 13 GW from Wind Power, 0.68 GW from Small Hydro Power and 1.46 GW from Bio-power. The cumulative renewable energy installed capacity has increased from 35.51 GW as on 31.03.2014 to 69.68 GW as on 31.03.2018.
- ❑ This accelerated deployment has been achieved through the process of transparent bidding and industry facilitation which has resulted in historic low tariff rates viz. Rs. 2.44 per unit in case of solar and Rs. 2.43 per unit in case of wind power.
- ❑ The Government has bid out over 20000 MW of solar power and 12500 MW of wind power capacity in the year 2017-18.

SOLAR POWER

- ❑ During 2017-18, highest ever total of 9362.64 MW capacity has been added till 31.03.2018, taking cumulative achievement to 21651.46 MW.
- ❑ Solar tariff has declined to lowest level of Rs 2.44 /kWh at Bhadla Phase-III Solar Park in Rajasthan, which is approaching close to grid parity. The chronology of down ward trend in Solar tariff during recent times is as given below:

S. No	Period	Capacity	Lowest Tariff (Rs./KWh)	Scheme	State
1	February-2017	750 MW	3.30	State Scheme	Madhya Pradesh (REWA Solar park)
2	May-2017	250 MW	2.62	VGF Scheme	Rajasthan (Bhadla IV Solar park)

3	May-2017	500 MW	2.44	VGF Scheme	Rajasthan (Bhadla III Solar park)
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4	Aug-17	500 MW	2.65	State Scheme	Gujarat (Non-Solar Park)
5	Dec-17	250 MW	2.48	VGf Scheme	Rajasthan (Bhadla IV Solar park)
6	Dec-17	500 MW	2.47	VGf Scheme	Rajasthan (Bhadla III Solar park)

- ☐ New innovative approaches towards solar power such as floating solar, wind solar hybrid and solar power coupled with manufacturing being attempted.

SOLAR PARKS

- ☐ Capacity of the scheme for “Development of Solar Parks and Ultra Mega Solar Power Projects” has been enhanced from 20,000 MW to 40, 000 MW.
- ☐ Under Solar Park Scheme, 40 Solar Parks in 21 states with aggregate capacity of over 21 GW have been sanctioned.
- ☐ Kurnool Solar Park in Andhra Pradesh with 1000 MW capacity and Bhadla Phase II solar park in Rajasthan with 680 MW capacity have already been commissioned and is operational. With commissioning of 1000 MW capacity at single location, Kurnool Solar Park has emerged as the World’s Largest Solar Park.

ROOFTOP SOLAR PROGRAM

- ☐ Ministry is implementing Grid Connected Rooftop and Small Solar Power Plants Programme which provides for installation of 2100 MW capacity through central financial assistance (CFA) / incentive in the residential, social, Government/PSU and Institutional sectors.
- ☐ So far sanctions for over 2009 MWp capacity solar rooftop projects have been issued as on 31.03.2018 and around 1063.63 MWp capacity has been installed including projects with and without subsidy.
- ☐ MNRE has allocated Ministry wise expert PSUs for implementation of RTS projects in various Ministries/Departments.
- ☐ All the 36 State / UT ERCs have notified net/gross metering regulations and/or tariff orders for rooftop solar projects
- ☐ Concessional loans of around 1375 million US dollars from World Bank (WB), Asian Development Bank (ADB) and New Development Bank (NDB) have been made available to State Bank of India (SBI), Punjab National Bank (PNB) and Canara Bank for solar rooftop projects.
- ☐ A new online tool, Solar Photovoltaic Installation (SPIN), has been developed for tracking and implementation of Rooftop Programme (RTS).
- ☐ Launched mobile app ARUN (Atal Rooftop Solar User Navigator) for ease of access of beneficiaries for request submission and awareness.

OFF-GRID SOLAR APPLICATIONS

- ☐ Apart from grid connected solar power, decentralized or distributed solar energy can provide economical option for meeting electricity, lighting, motive and heating needs through deployment of SPV home lighting systems, Solar Street lights, Solar Pumps, power packs and other solar applications.
- ☐ As on 31.03.2018 over 53.86 lakh Solar Lighting Systems, 1.71 lakh Solar Pumps and power packs of 185.9 MWeq capacity have been installed in the country.
- ☐ Ministry also Launched Atal Jyoti Yojna for Solar LED Street Lights in five States. Under the scheme, a total of 92,238 solar street lights have been installed as on 27.03.2018.

WIND POWER

- ☐ Largest ever wind power annual capacity addition of 5502.39 MW in 2016-17.
- ☐ During 2017-18, a total of 1766.25 MW capacity has been added till 31.03.2018, taking cumulative achievement to 34046 MW.
- ☐ Now, in terms of wind power installed capacity India is globally placed at 4th position after China, USA and Germany.
- ☐ The lowest tariff of Rs 3.46 per kWh was determined through 1st round of e-reverse auction for 1000 MW of wind power projects.
- ☐ Further, the wind tariff in India touched lowest ever level of Rs. 2.43 per kWh in the bid conducted by the Gujarat utility.
- ☐ Wind Bidding Guidelines were issued in December, 2017 to ensure transparency in bidding and low tariffs.
- ☐ India has long coastline where there is a good possibility for developing offshore wind power projects. The National Offshore Wind Energy Policy was notified on 6th October 2015 to provide facilitative framework for development of off-shore wind power in the country.
- ☐ First LiDAR has been installed and commissioned off Gujarat coast for gathering off- shore wind resource data.

SMALL HYDRO POWER

- ☐ A capacity addition of 682.06 MW has been reported under Grid Connected Small Hydro Power plants during last four years, taking cumulative small hydropower projects capacity to 4485.80 MW from 1097 projects in the country
- ☐ The Ministry is also giving special emphasis to promote use of new and efficient designs of water mills for mechanical as well as electricity generation and setting up of micro hydel projects up to 100 KW for remote village electrification.

BIO ENERGY

- ❑ A cumulative installed capacity of 8700.80 MW has been achieved from biomass power/bagasse cogeneration and 662.81 MW from biomass captive power/non bagasse cogeneration as on 31.03.2018.
- ❑ Family Type Biogas Plants mainly for rural and semi-urban households are being set up under the National Biogas and Manure Management Programme (NBMMP).
- ❑ During 2017-18, 0.46 lakh biogas plants installations has been achieved making a cumulative achievement to 50.05 lakh biogas plants as on 31.03.2018.

GREEN ENERGY CORRIDOR

- ❑ In order to facilitate integration of large scale renewable generation capacity, a new scheme of “Green Energy Corridors” has been launched.
- ❑ This scheme involves strengthening of Intra state (being implemented by the STUs) and interstate transmission system (being implemented by the POWERGRID). Further, it also envisages setting up of control infrastructure comprising of forecasting of renewable generation, dynamic compensation, establishment of Renewable Energy Management Centres (REMC) at State/Regional and National levels.
- ❑ The intra state transmission scheme (InSTS) is being implemented by eight renewable rich State’s Transmission Utilities (of Andhra Pradesh, Gujarat, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Tamil Nadu) with total project cost of Rs. 10141 crores, with funding mechanism consisting of 20% State Equity, 40% Government of India Grant (total 4056.67 crores) and 40% KfW loan (500 million EUR).
- ❑ The InSTS project includes about approx. 9400 ckm transmission lines and Substations of total capacity of approx. 19000 MVA to be completed by March 2020. The purpose is to evacuate approx. 20,000 MW of large scale renewable power and improvement of the grid in the implementing States.
- ❑ Projects worth Rs. 7120 crore have been awarded and approx. Rs. 1440 crores have been disbursed to the States from the Government of India share for InSTS GEC.

OTHER INITIATIVES

In order to achieve 175 GW RE targets, various initiatives have been taken by the Government which inter-alia includes:

- ❑ To ensure that quality of the solar equipment’s are not compromised, the Govt. has notified a Quality Control Order of Solar Photovoltaic Systems, Devices and

Components Goods on 30.08.2017 under BIS Act. This Order will ensure that low quality products do not enter the Indian market.

- ☐ Suryamitra program was launched for creation of a qualified technical workforce in 2015 and over 18 thousand suryamitras have been trained under the programme up to 31.03.2018.
- ☐ Solar Bidding Guidelines has been issued to ensure transparency in bidding and low tariff through reverse auction.
- ☐ Framework has been notified on forecasting, scheduling and imbalance handling for Renewable Energy at inter-state level for large scale grid integration.
- ☐ Issued order for waiving the Inter State Transmission System charges and losses for inter-state sale of solar and wind power for projects to be commissioned by March 2022;
- ☐ suitable amendments to the Electricity Act and Tariff Policy for strong enforcement of Renewable Purchase Obligation (RPO) and for providing Renewable Generation Obligation (RGO);
- ☐ Declared Renewable Generation Obligation on new coal/lignite based thermal plants;
- ☐ Foreign Direct Investment (FDI) up to 100% is permitted under the automatic route for renewable energy generation and distribution projects subject to provisions of The Electricity Act, 2003.

INTERNATIONAL SOLAR ALLIANCE (ISA)

- International Solar Alliance (ISA) was launched by Shri Narendra Modi Hon'ble Prime Minister of India and Mr. François Hollande former President of France on 30th November, 2015 in Paris, France. The Paris Declaration on ISA declared ISA as a common platform for cooperation among solar resource rich countries lying fully or partially between the Tropics of Cancer and Capricorn, and intended to make joint efforts for mobilizing more than US \$ 1000 billion of investments needed by 2030 for massive deployment of solar energy.
- In conformity with the Framework Agreement of the International Solar Alliance (ISA), 30 days after ratification by the 15th country, on 6 December 2017, ISA became the treaty based international intergovernmental organization. Till date 61 countries have signed and 33 countries have ratified the ISA Framework Agreement.
- The Founding Conference of the ISA was co-chaired by Shri Narendra Modi, Hon'ble Prime Minister, Government of India and Shri Emmanuel Macron, Hon'ble President of France, on 11 March 2018 held in New Delhi. At the event, Hon'ble Prime Minister highlighted India's target to achieve 175 GW of renewable energy, out of which 100 GW would be solar energy. He emphasized upon the need for developing latest technology, reducing solar tariffs, ensuring proper storage technology, mass manufacturing and innovation in the domain.

- At present ISA is implementing three programmes Scaling Solar Applications for Agriculture Use, Affordable Finance at Scale and Scaling Solar Mini-grids. These programmes will help in achieving the overall goal of increased solar energy deployment in the ISA member countries for achieving universal energy access and speeding up economic development. ISA now plans to launch two more programmes one for Scaling Solar Roof Top and the second for Scaling Solar supported e- mobility. In addition, a large number of organizations such as the World Bank, the UNDP, European Investment Bank, the European Bank for Reconstruction and Development, Climate Parliament etc. have signed Joint Declarations for forging partnerships with ISA for development and deployment of solar energy globally.
- India has offered to meet ISA Secretariat expenses for initial five years. The Government of India has allotted 5 acres of land to the ISA in NISE Campus, Gurugram, and released a sum of Rs 130 crore for creating a corpus fund, building infrastructure and meeting day to day recurring expenditure. Besides, the Ministry of External Affairs, Government of India has set aside US\$2 Billion for solar projects in Africa out of Government of India's US\$10 Billion concessional Line of Credit (LOC) for Africa.
- ISA Secretariat is located in the National Institute of Solar Energy (NISE) campus, Gwalpahari, Gurugram, Haryana.
