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COVER STORY - APRAAVA ENERGY



PLI scheme is a significant step in the right direction to promote Make in India.

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How do you assess the RE adoption trend in various segments?

India is on a steady journey of green transformation since it set a target of 175 GW by 2022 from renewable sources in the year 2015. With support from the government to achieve this goal, the country's renewable energy (RE) sector has caught the attention of investors worldwide. The current installed RE capacity stands at 118 GW as of September 2022 end. While the country has met the specific individual targets for bio-power and small-hydro projects on which little thrust was given, solar and wind capacity additions are far behind.

India is now embarking on its next phase of RE adoption with a goal of 500-GW capacity by 2030 and has also set a clear target of achieving net-zero emissions by 2070. To meet this ambitious target by increasing the non-fossil installed capacity, additions in solar, wind, storage, and hybrid systems remain the biggest opportunities. Government initiatives such as the PLI scheme for 'National Programme on High Efficiency Solar PV Modules' which focus on residential rooftop, net metering, offshore wind

projects, and strengthening energy infrastructure will boost renewable deployment. India is also targeting to produce 5 million tonnes of green hydrogen by 2030 which entails around 100 GW capacity of RE. Additionally, corporates are also adopting energy efficiency measures and 100% renewable electricity consumption targets (RE100) which contribute to the green ecosystem.

How is PLI scheme promoting Make in India in solar PVs?

On November 11, 2020, the Government of India approved the Production Linked Incentive (PLI) Scheme on 'National Program on High Efficiency Solar PV Modules' with an aim to achieve manufacturing capacity of Giga Watt (GW) scale in high efficiency solar PV modules. The initial financial outlay for it was Rs 4,500 crores with a target of ~10 GW domestic solar PV manufacturing capacity for which bids to the tune of 54.5 GW cumulative capacity were received. Accordingly, the government enhanced funding under the PLI scheme for domestic solar cells and module manufacturing to Rs. 24,000 crores from the existing Rs. 4,500 crores which will reduce import dependence and make India an exporting nation. This is a significant step in the right direction to promote Make in India.

How is wind power segment performing in the country? What are the future market opportunities and challenges?

India currently has the fourth-highest wind installed capacity in the world with a total installed capacity of 41.66 GW (as on 30th September 2022). India's wind power segment has shown considerable growth over the years and its expansion has resulted in creating a strong ecosystem, project operation capabilities, and manufacturing base of about 10,000 MW per



annum. Further, the Government of India is also providing its support for promoting the wind power segment by incentivizing private sector investment through various fiscal incentives such as the Accelerated Depreciation Benefit and concessional custom duty exemption on certain components of wind electric generators.

From an opportunity's perspective, India has a coastline of ~7,600 km and massive offshore wind potential that can be tapped to meet both the energy demand as well as India's sustainability targets. While onshore development of wind projects has been streamlined, the availability and accessibility of land will increasingly challenge this potential from the perspective of commercial and technical viability. To balance this, offshore wind, with average utilization factor of ~50%, can help India in mitigating climate change. In comparison with onshore renewable energy, offshore wind projects will remain marginally more expensive and could potentially also be utilized for targeted coastline-based demand plug-ins, such as for desalination plants, hydrogen recovery plants, and the cooling requirements of large data centers. This will reduce the overall cost and improve efficiency. Further, the draft National Wind Repowering Policy has been issued recently which estimates a potential of ~25GW capacity addition by installing 3MW+ wind turbines.

What is the possibility of green hydrogen as a viable renewable energy source?

Green hydrogen has the potential to play a significant role in furthering India's 2070 net-zero carbon target, as it can help the country reduce its carbon emissions by 3.6 giga tonnes between now and 2050.

India's National Hydrogen Mission, as announced by our Hon'ble Prime Minister Shri Narendra Modi, is the country's first major step towards the adoption of green hydrogen. Through the mission, the Prime Minister has laid out a 25-year roadmap for the development of hydrogen in the country and stated his intention to develop India into a global hub for green hydrogen production and export. Other initiatives in this direction include the Green Hydrogen Mobility Project in Leh, as well as the Kavas green hydrogen blending with natural gas project in Gujarat. Additionally, the Ministry of Power notified the 'Green Hydrogen Policy' in February 2022 to regulate and facilitate transition from fossil fuels to green hydrogen. To further supplement this policy, the government is also working on extending the PLI scheme for indigenization of electrolyzers.

Given India's tall targets for renewable energy addition in the next decades, installation of



hydrogen production units with large capacities of electrolyzers seems the way forward to handle grid system imbalances. Similar to any other emerging sector, government handholding is essential in the initial phase of green hydrogen capacity building which include tax incentives, VGF, and facilitating R&D. As highlighted in NITI Aayog's report of June 2022 on green hydrogen, supply-demand chain has to be augmented which may be achieved by creating numerous small hydrogen hubs which contain production and end-use within close vicinity which will avoid the costs and risks associated with storage and transportation. India is also currently in initial talks with the governments of other countries to export green hydrogen even as challenges remain in adapting the clean-burning fuel. These dedicated efforts for the adoption of green hydrogen are likely to result in green hydrogen becoming India's main source of energy in the future.

How is the growing demand for electric vehicles and EV charging infrastructure driving the growth of renewable energy in India?

India has set a target of ~80% EV penetration by 2030 which translates to ~8 crore EVs thereby requiring ~39 lakh charging stations. The electricity used to charge EVs can often come from conventional fuels like coal or natural gas. The 'Green Energy Open Access Rules' notified by the Ministry of Power in June 2022 enables consumers to purchase green energy directly from RE producers paving the way for charging EVs using renewable energy.

The government and private sector can together bolster the transition to charging EVs using renewable energy by adopting various mechanisms such as network charging, on-site renewables, time-of-use incentive (for tapping peak supply), etc. As the share of EVs grows in the coming years, renewable energy powered EVs are the best combinations to tackle higher oil costs, rising pollution, and meeting international commitments towards climate change. **C**

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