

Indian Renewable Energy Sector

RE capacity addition estimated at 12.5 GW and 16.0 GW in FY22 & FY23; growth prospects robust with India's commitment to reducing emissions

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Capacity addition estimate for FY22 stands at 12.5 GW and for FY23 at ~16 GW

Cost pressure arising from increase in module prices, increase in GST rate, execution challenges and delays in payments from discoms remain as key headwinds



- The outlook for the capacity addition in the renewable energy (RE) sector remains strong with a large project pipeline of over 55 GW and highly competitive tariffs along with the commitment to climate change goals announced by the Prime Minister at the recent COP26 summit.



- The capacity addition witnessed a strong recovery with 8.2 GW added in 8M FY2022 against 7.4 GW in the full year FY2021, led by the solar power segment. The capacity addition estimate for FY22 stands at 12.5 GW and for FY23 at ~16 GW. The downside risks arise from the execution headwinds and supply chain challenges for procuring modules & wind turbine generators (WTGs).



- Notwithstanding the increase in module prices and the recent hike in GST rate for solar power equipment from 5% to 12%, the solar bid tariffs continue to remain highly competitive with the latest tender by SECI witnessing a tariff of Rs. 2.17 per unit in December 2021. The ability of the developers to secure modules at less than 25 cents/watt and cost of debt funding at less than 8.5% remains important to make these projects viable.



- The Solar Energy Corporation of India (SECI) has shown significant progress in signing of power sale agreements (PSAs) & power purchase agreements (PPAs), with the capacity pending for signing of PSA/PPAs coming down to 9.6 GW (excluding the recent 2.5 GW RTC tender by SECI) as of Dec'21 from 18.8 GW since Aug'21 led by the progress achieved by the SECI in signing of PSAs/ PPAs for the manufacture-linked tender.



- The funding requirement remains large at over US\$300 billion towards achieving the non-fossil capacity target of 500 GW by 2030, with another US\$150-200 billion towards the transmission and storage infrastructure. Hence, the availability of adequate funding avenues is important.



- The overall dues to RE IPPs from discoms in the eight key states have gone up by 43% between Jul'21 & Dec'21. This can be attributed to the liquidity issues faced by discoms in these states arising from inadequate tariffs & operating inefficiencies. Reforms key to improve discom finances.

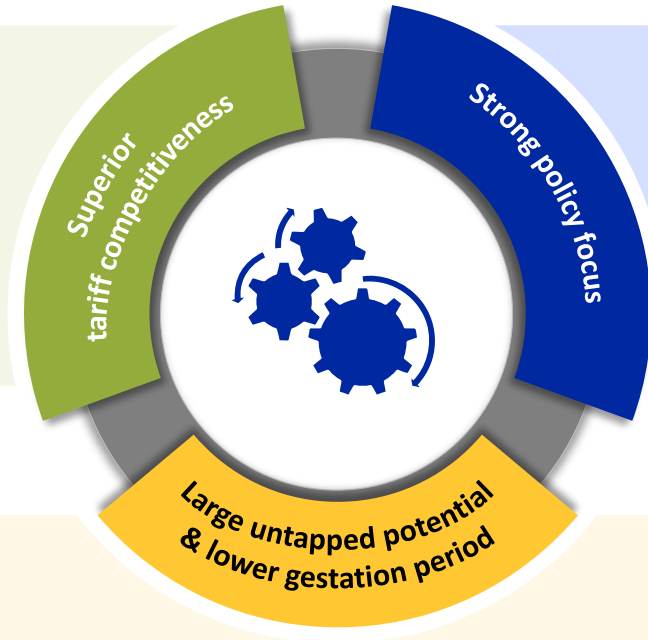


Outlook

Outlook remains Stable for renewable energy sector

ICRA's outlook for renewable energy sector remains Stable

Solar power tariffs even after BCD impact and rise in module prices to remain well below Rs. 3/unit; wind tariffs remain below Rs.3.0 per unit; competitive against marginal cost of generation from thermal sources



Highly supportive policy & regulatory framework. Government has set a target to achieve 450 GW RE capacity by FY2030. RPO framework in place. Project pipeline remains over 55 GW providing visibility on near term capacity addition. Progress achieved in signing of PPA/PSAs by SECI

The presence of strong intermediate procurers like SECI and NTPC is supporting the growth of solar and wind capacities despite the challenges associated with discoms' finances

Solar power potential in India estimated at 748 GW; similarly, wind power potential estimated at 695 GW

Key constraints for the sector are the execution challenges, availability of funding at competitive cost and delays in signing of PPAs/PSAs. Further, the recent cost pressure from higher module prices and delays in module delivery would be a key headwind for the developers in the near term



Capacity Addition Trends & Key Demand Drivers

Capacity addition recovers in first eight months of FY2022 driven by the solar power segment

Solar segment remains the key driver of RE capacity addition

Exhibit 1: Trends in cumulative installed renewable capacity (MW)

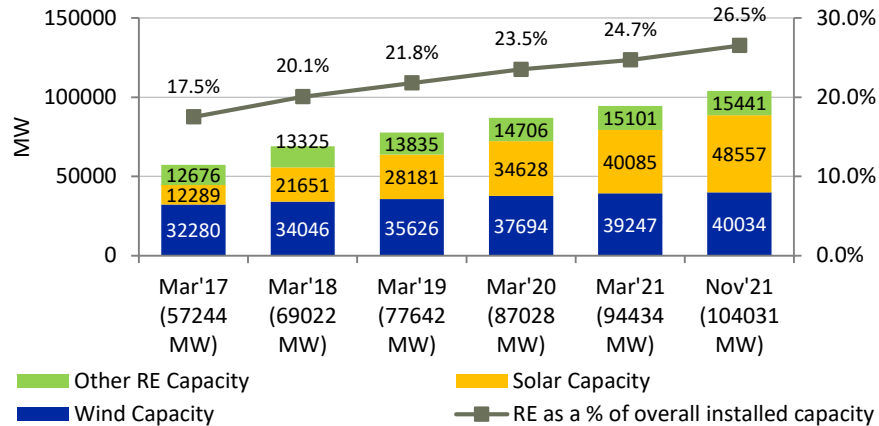
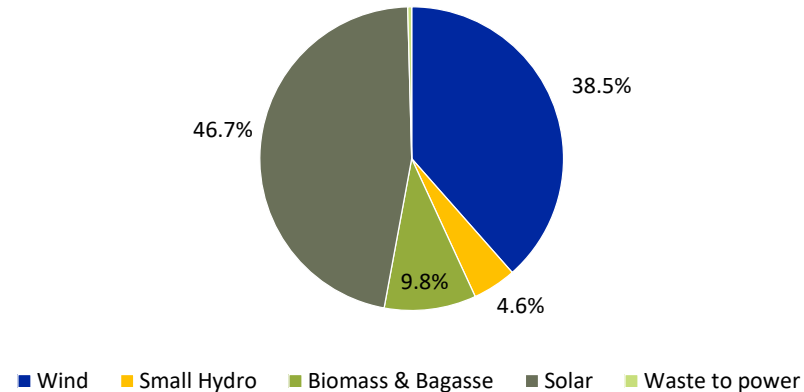


Exhibit 2: Mix of renewable capacity (104 GW) as of November 2021

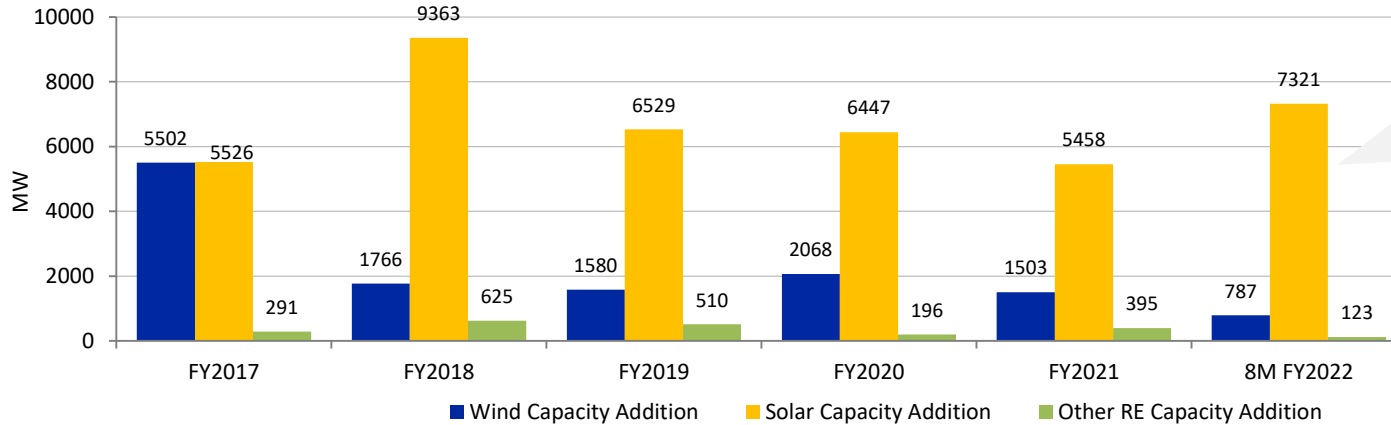


Source: ICRA Research, Central Electricity Authority (CEA), Ministry of New & Renewable Energy (MNRE)

- The RE-based power generation capacity increased at a CAGR of 17.0% over the past 5.7 years and stood at 104 GW as of November 2021, constituting 26.5% of the overall power generating capacity, led by strong policy support and improving tariff competitiveness. The solar power segment remained the key driver of capacity addition in the RE sector, with significant capacity addition over the past six years, which in turn increased its share in the overall RE mix to 46.7% as of November 2021 from 15.8% as of March 2016.

RE segment added 8.2 GW in 8M FY22 crossing the capacity addition of FY2021

Exhibit 3: Trends in annual renewable energy-based capacity addition



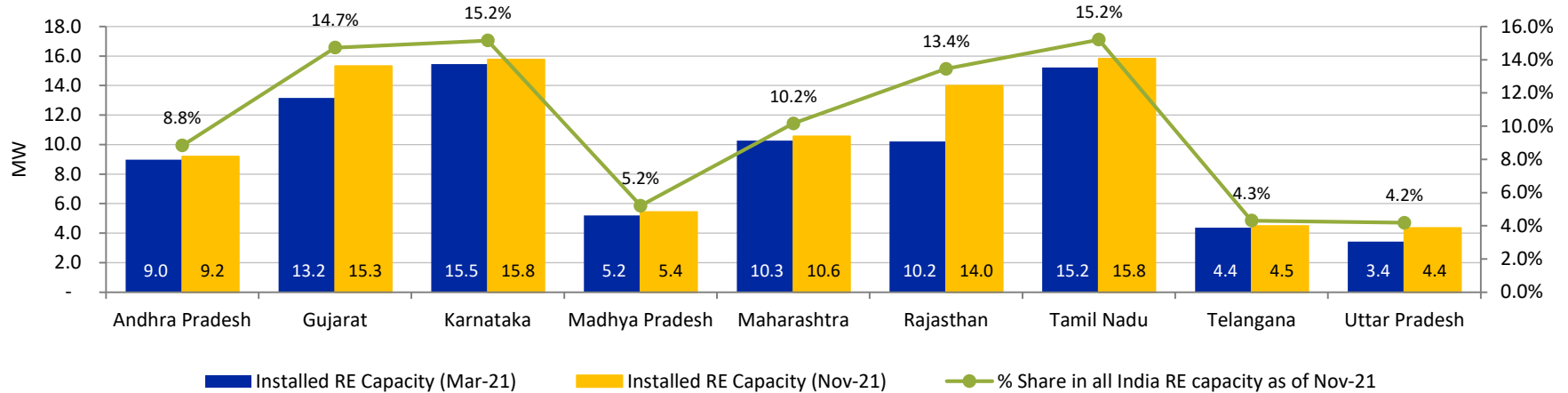
Solar segment expected to achieve all time high in annual capacity addition in FY2022 crossing the previous peak of FY2018

Source: ICRA Research, CEA, MNRE

- While the capacity addition slowed down in FY2021 amid the Covid-19 pandemic, the capacity addition witnessed a strong recovery in the FY2022 YTD, with 8.2 GW added in the first eight months of FY2022 against 7.4 GW added in the full year FY2021. This is led by the solar segment, which constituted 89% of the RE capacity added in 8M FY2022, adding 7.3 GW in 8M FY2022. The wind segment continues to witness subdued capacity addition owing to execution headwinds, financing challenges for few developers, delays in approval for tariff adoption from the regulators and weak financial profile of some of the OEMs leading to supply side constraints.

Gujarat and Rajasthan remain key drivers of RE capacity addition in FY2022

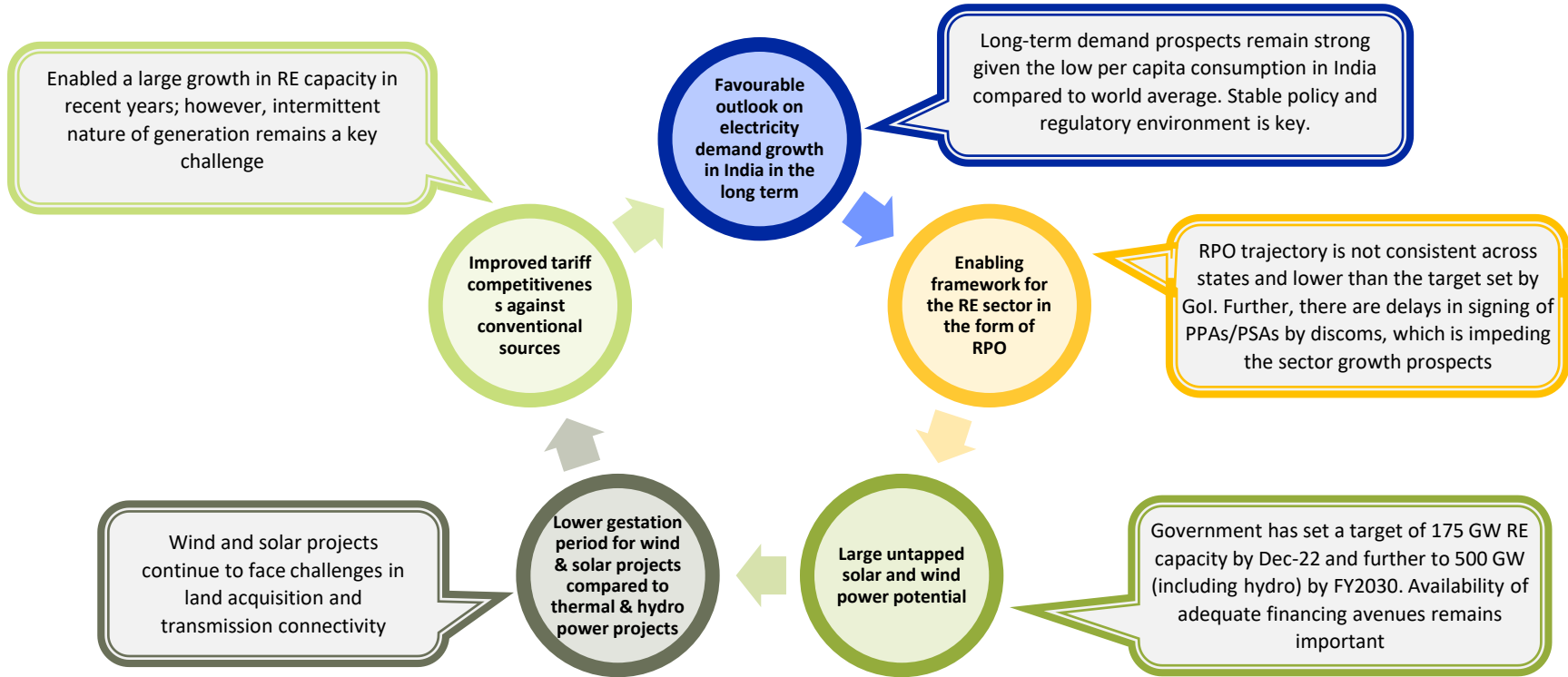
Exhibit 4: State wise installed RE capacity as of November 2021



Source: ICRA Research, MNRE

- The geographic concentration of RE capacity in the eight states in the southern and western regions of the country is because of the wind & solar resource availability and favourable state policies. Within these states, the share of Karnataka & Tamil Nadu is the highest followed by Gujarat and Rajasthan. The capacity addition in FY2022 was primarily driven by Rajasthan and Gujarat, mainly led by the ISTS-connected projects awarded by central nodal agencies and projects in the rooftop segment for supply to C&I customers.

Demand drivers remain intact for RE sector



Demonstration of cost competitiveness of storage systems (battery / pumped hydro) to further improve the prospects for RE

The Hon'ble Prime Minister has presented five nectar elements, 'Panchamrit', to deal with the climate change challenge

Increase the non-fossil power capacity to 500 GW by FY2030

50% of energy requirement from renewable sources by 2030

India will reduce the total projected carbon emissions by one billion tonnes from now till 2030

Reducing the carbon intensity of economy by less than 45% by FY2030

India will achieve the target of Net Zero by 2070

The Prime Minister's announcement at COP26 further strengthens the investment prospects in the renewable energy sector. Easing of execution challenges and availability of adequate funding avenues remains important