

Offshore Wind Power

Offshore wind power is a potential source of electricity generation primarily due to better quality wind resources along with the absence of land constraints. However as of today, the costs of installation and operation are more than those of onshore wind power. These costs are set to decline with technological improvement including increased hub heights, turbine capacity, CUFs, and floating turbines. MNRE announced a medium and long term wind energy target of 5 GW by 2022 and 30 GW by 2030 in June, 2018 for India. Two regions where preliminary studies have been conducted are off coast of Gujarat and that of Tamil Nadu. Wind resource data collected for the coastline of Rameswaram and Kanyakumari in Tamil Nadu had shown reasonable potential. The preliminary assessment had suggested a potential to establish around 1 GW capacity wind farm each along the coastline of Rameswaram and Kanyakumari in Tamil Nadu. Higher costs, transmission infrastructure and reliable integration of variable generation would be key factors that may limit the uptake of offshore wind power in the future.

Level 1

Level 1 assumes that offshore wind takes off very slowly, which can be due to higher cost and other barriers especially with regard to regulatory and associated clearances etc. Installations of identified capacity along the Tamil Nadu coast progress slowly. The Capacity reaches a mere 1.1 GW by 2050.

Level 2

Level 2 assumes that without any further improvement in technology and offshore wind potential assessment the sector witnesses a gradual growth in capacity addition reaching 5.2 GW by 2050.

Level 3

Level 3 assumes that Tamil Nadu will gradually build up its offshore wind capacity to 1.6 GW in 2030 and 14.9 GW by 2050. This could be because of the improvement in potential offshore site identification and cost reductions. This would require significant investments in the transmission and evacuation infrastructure.

Level 4

Level 4 assumes that Tamil Nadu would follow an aggressive strategy towards construction and operation of offshore wind farms leading to installation of 35.2 GW by 2050. This could be because offshore wind power does not face any economic or physical constraints and hence sees a rapid growth in capacity addition.

