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, the present cost of installation and operation are almost twice as 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 has come out with a draft offshore wind policy in 2013. The policy suggests setting up 2 GW of capacity along the southern coast to begin with. While a detailed resource potential for the country is yet to be done, some studies suggest that it could be in the range of 350-500 GW, which is a significant resource. Higher costs, transmission infrastructure and reliable integration of variable generation would be key factors. Looking to pressures on land, offshore wind may be viable even with lower CUFs. This analysis envisages the likely growth of this sector under 4 different scenarios, offering a viable RE option, to the user of this Tool.

Level 1

Level 1 being the 'Least effort scenario' assumes that offshore wind takes off very slowly due to higher cost and other barriers, especially with regard to regulatory and associated clearances etc. Installation of identified capacity of 2 GW along the southern coast is delayed and completed only after 2030. Capacity by 2047 is 4 GW.

Level 2

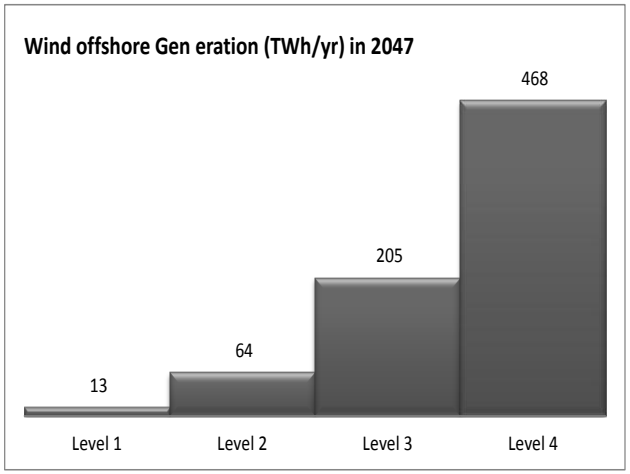
Level 2 assumes that the MNRE policy target of 2 GW is achieved by 2025. Without any further improvement in technology and offshore wind potential assessment, the sector witnesses a gradual growth in capacity addition reaching 19.5 GW by 2047.

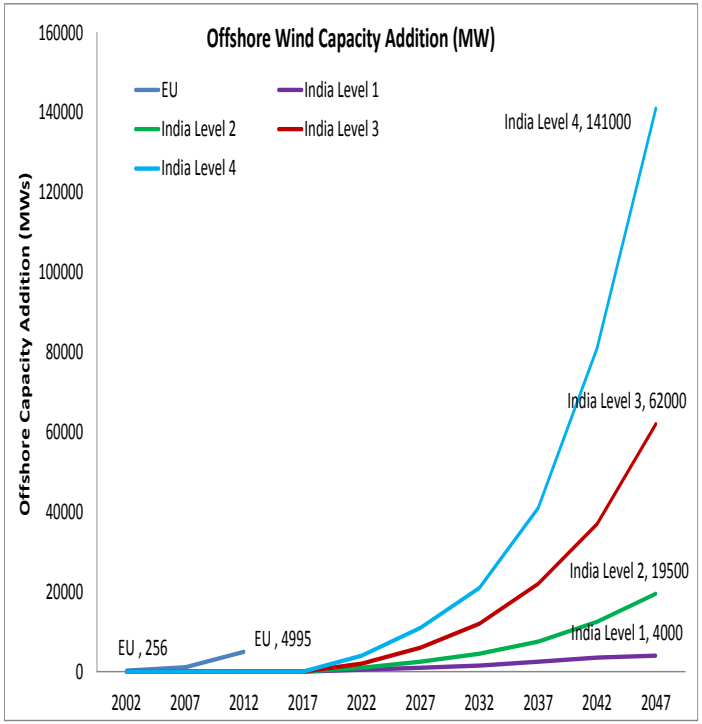
Level 3

Level 3 assumes that with improvement in assessment of potential, offshore site identification and cost reductions, India would gradually built up its offshore wind capacity to 2 GW in 2022 meeting MNRE offshore wind policy targets, and then rapidly to 35 GW by 2040 and 62 GW by 2047. This results in roughly 205 TWh of generation in 2047. Significant investments would be needed in the transmission and evacuation systems.

Level 4

Level 4, the 'Heroic effort scenario' assumes that offshore wind power does not face any economic or physical constraints, resultantly sees a rapid growth in capacity addition. Under the Level 4 assumptions, India would follow an aggressive strategy towards construction and operation of offshore wind farms leading to generation of 141 GW by 2047. The resulting generation would be roughly 468 TWh.





Note: Please see detailed documentation for references.