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Executive Summary

The installed generating capacity from non-fossil sources as on 28th February, 2026, was 275 GW, which was about 52.5% of the total installed capacity of 524 GW. As per demand projections, the peak electricity demand and electrical energy requirement are estimated to reach about 459 GW and 3365 MU, respectively, by 2035–36. To meet this growing demand in a reliable and sustainable manner, generation expansion planning studies indicate that the likely installed capacity (IC) in the country may reach about 1121 GW by 2035–36, out of which about 786 GW is expected to be from non-fossil fuel–based sources. A significant share of this capacity addition is expected to come from renewable energy, with solar and wind capacity together projected to reach about 664 GW by 2035–36 (Solar: 509 GW and Wind: 155 GW).

For enabling continuous growth of Renewable Energy (RE) capacity, areas which have high solar and wind energy potential, needs to be connected to Inter-State Transmission System (ISTS), so that the power generated could be evacuated to the load centers. The gestation period of wind and solar based generation projects being much less than the gestation period of associated transmission system, transmission system has to be planned well in advance.

As a significant step towards successfully achieving the planned RE capacity, transmission system has been planned in this report for evacuation of power from over 900 GW of non-fossil capacity by the year 2035-36 more than the required non-fossil capacity in view of challenges faced in implementation of the transmission system. The implementation decision has to be taken depending on the progress of development of RE integration. The report provides visibility for the RE project developers and other stakeholders for transmission system planned to integrate the RE capacity into the grid.

The length of the transmission lines and sub-station capacity planned under ISTS and Intra-state for integration of additional wind and solar capacity during 2026-27 to 2035–36 has been estimated as 1,37,500 ckm and 8,27,600 MVA respectively at an estimated cost of Rs. 7,93,300 crores.