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Indian Renewable Energy Sector

FDRE and RTC projects expected to be key drivers of capacity addition in renewable energy

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Agenda

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Highlights

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FDRE / RTC projects are expected to drive the tendering and capacity addition in the sector, given the competitive tariffs and assured supply.

Viability of these projects remains linked with the capital costs, wind PLFs and the merchant tariffs. The surplus power generation from oversizing exposes the developers to merchant tariffs.

- With the rise in the renewable energy (RE) capacity over the next six years, ICRA estimates the share of RE plus large hydro in the all-India electricity generation to increase to over 35% in FY2030 from 21% in FY2024. The availability of round-the-clock (RTC) and firm and dispatchable supply from RE (FDRE) remains important to achieve such high level of RE share, given their intermittent generation. This can be made possible through use of hybrid RE projects complemented with energy storage systems.
- The RTC tenders by the central nodal agencies include annual availability requirement of 75-85% with time block-wise availability of 50%. For the FDRE (peak) tender, the requirement is the capacity utilisation factor of 40% along with availability of 90% of capacity during peak period (4 hours) of the day. The FDRE (load curve) tenders require monthly demand fulfilment ratio (DFR) of at least 80% for each time block of 15 minutes.
- The Central nodal agencies along with Railways Energy Management Company Limited (REMC) have bid out close to 10 GW of RTC / FDRE projects. The tariffs discovered in these tenders largely vary between Rs. 4.0/unit and Rs. 5.0/unit, depending on the tender conditions for supply. The tariffs discovered in the SECI FDRE tenders are relatively high compared to other FDRE tenders owing to the load curve requirement for each time block of 15 minutes, which varies across the 12 months.
- The RTC/FDRE requirement can be met by oversizing the wind and solar capacity by 2.50-3.5 times over the contracted capacity, along with energy storage. The proportion of wind and solar capacities and storage capacity is dependent on the demand profile/availability needs of the buying entities. These projects are expected to remain key drivers of capacity addition in the RE sector.
- The returns for the winning developer under the RTC/FDRE bids remain linked with capital cost associated with the wind and solar components along with cost of storage. The recent reduction in battery prices is a positive for the developers. Also, the viability is highly sensitive to the wind PLFs, given the higher variability involved compared to solar PLFs and the tariff realisation from sale of surplus power in the merchant market due to surplus power generation from the capacity oversizing.

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Thank You!