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Indian Renewable Energy Sector

From fixed to flexible: Evolving models for sale of power by renewable power IPPs

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Highlights

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India's renewable energy sector is increasingly adopting flexible, market-linked models. Developers are moving beyond fixed-tariff structures toward dynamic approaches like short-term trading, strategic peak-hour dispatch, and virtual PPAs that enable RCO compliance without open access. These models offer greater commercial agility but also bring tariff volatility.

- **The energy transition goals set by the Government of India (GoI) are driving the country towards a renewable future.** India's renewable energy (RE) capacity is projected to witness significant growth over the current decade, with the combined share of renewable and hydro generation in the all-India electricity generation expected to exceed **35% by 2030**. This transition is accompanied by evolving models for power sale in the RE sector.

- **Short-term electricity trading is gaining momentum, with growing volumes in Real-Time Market (RTM) and Term-Ahead Market (TAM) segments.** Although spot tariffs moderated in FY2026, they remain high during peak hours, especially during evening hours. Leading power producers are increasingly targeting merchant market expansion to capitalise on these dynamics.

- **While merchant projects offer operational flexibility, they are exposed to tariff volatility,** both intra-day and seasonal. This unpredictability presents challenges for revenue stability, especially for solar projects that generate power during hours of lower pricing.

- **The economics of battery storage are aligning with market requirements, amid the rising share of renewables in generation.** Falling battery costs make **solar-plus-storage** a more viable investment model. Integrating storage enhances tariff realisation, stabilises cash flows, and improves Debt Service Coverage Ratio (**DSCR)** metrics. It also supports grid reliability, positioning hybrid configurations as a preferred choice for future RE investments.

- **Virtual Power Purchase Agreements (VPPAs) are emerging as a strategic tool to mitigate tariff risks for merchant-based RE projects.** These contracts allow corporate buyers to meet their Renewable Consumption Obligations (RCOs) without requiring physical open access to power. For RE generators, VPPAs offer more predictable cash flows and reduced exposure to market fluctuations, enhancing the bankability of projects.

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