

RENEWABLE ENERGY SEGMENT

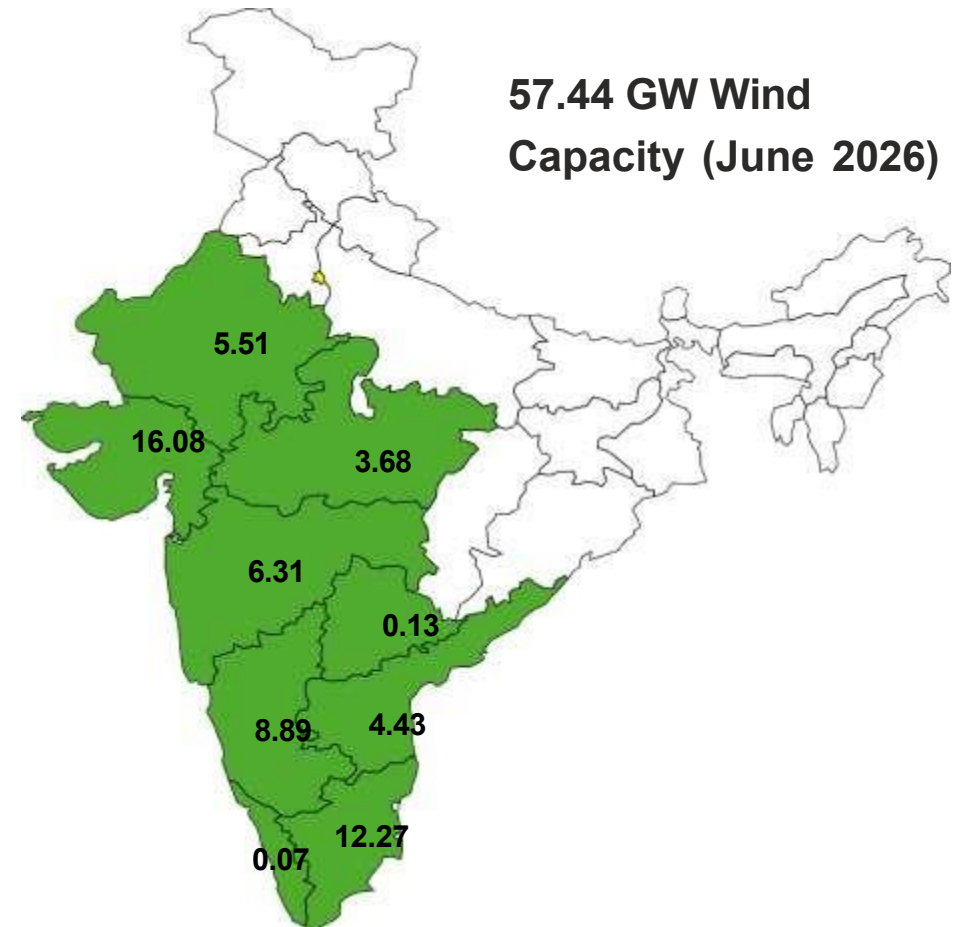


Snapshot

Indicator	Value
Total Installed RE Capacity	282.7 GW
Installed Wind Energy Capacity	57.44 GW
Installed Solar Capacity	157GW
Share of RE in Grid	53%

- India has surpassed 539.16 GW of installed Power Capacity
- 53% (291.5 GW) of total installed capacity is from Non- Fossil sources, including 8.78 GW of Nuclear and 51.9 GW of large hydro as well.
- 636.35 MW Wind capacity addition in June 26.
- 1348.55 MW Wind capacity addition in FY2026-27 (Q1) and 6057.02 MW Wind capacity added in FY2025-26.

Last three-year quarter average (MW)	
Q1	1039.70
Q2	855.68
Q3	912.99
Q4	1536.28



RE tendering and PPA signing

Status of Wind Capacity in competitive bids (Apr'19 - Jun'26)				
	Project Awarded Capacity / LOA GW	Project Cancelled Capacity GW	Commissioned Capacity GW	Balance Capacity GW
PPA Signed	33.3	4.1	11.3	17.9
PPA Not Signed	10.54	0	0	10.54
Total	44.04	4.1	11.3	28.44

Status of RE Capacity in competitive bids (Apr'19 - Jun'26)				
	Project Awarded Capacity / LOA GW	Project Cancelled Capacity GW	Commissioned Capacity GW	Balance Capacity GW
PPA Signed	75.58	28	24.37	23.21
PPA Not Signed	51.52	0	0	51.52
Total	121.18	28	24.37	68.81

Source : IWTMA research

Note For RE Capacity: The data presented in the above dataset is available only at the REIA level and covers the period from April 2019 to Jun 2026. It includes renewable energy capacity across solar, wind, hybrid, hybrid-RTC, FDRE and standalone storage projects.

Tender Issued

In **Q1 FY2027**, a total of **9.34 GW** of renewable energy capacity was tendered, with **Storage emerging as the dominant segment (3.48 GW; 37.3%)**, followed by **Wind (2.35 GW; 25.2%)**. **Solar (1.34 GW; 14.4%)** and **FDRE (1.20 GW; 12.8%)** also recorded significant procurement, while **Hybrid (0.82 GW; 8.8%)** and **Hybrid-RTC (0.15 GW; 1.6%)** accounted for smaller shares. **No Small Hydro tenders were issued during the quarter**. Overall, the procurement mix reflects a strong shift toward **storage-backed and dispatchable renewable energy solutions**, with **Storage and Wind together contributing over 62% of the total capacity**.

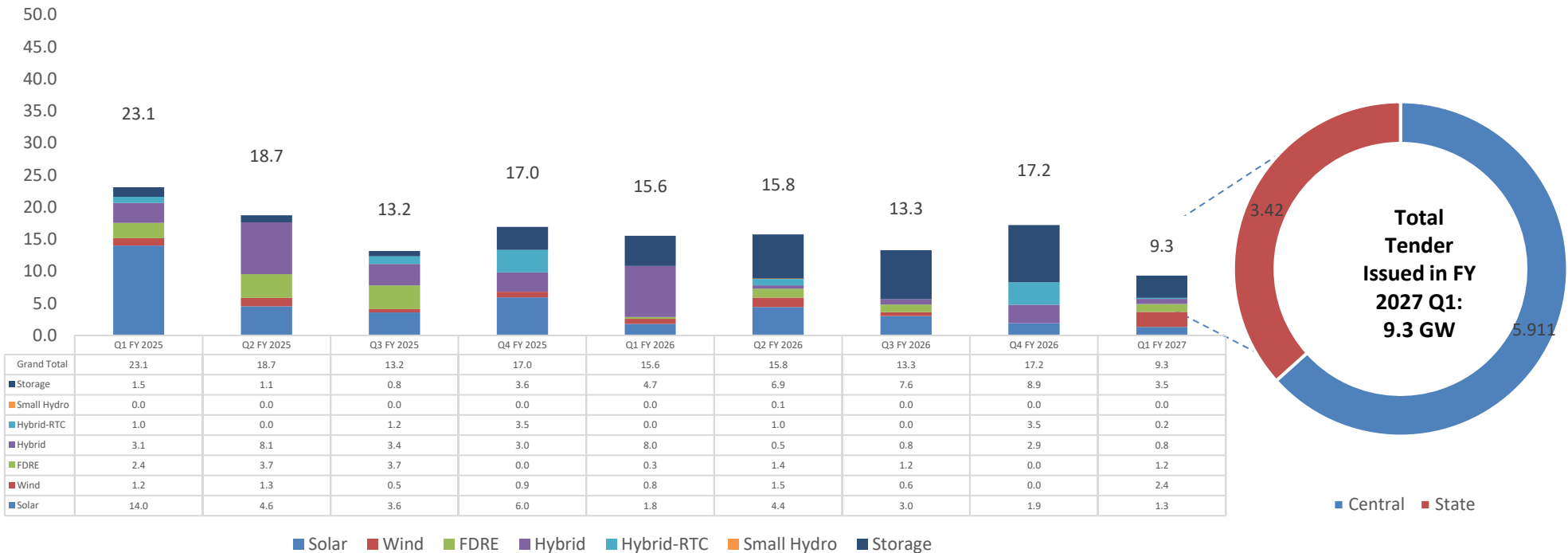
Between **Q1 FY2026 and Q1 FY2027**, the total renewable energy capacity tendered **declined significantly by 6.22 GW (40.0%)**, decreasing from **15.56 GW to 9.34 GW**. This reduction was primarily driven by a **sharp contraction in Hybrid tenders**, which fell from **7.98 GW to 0.82 GW**, representing a decline of **7.16 GW (89.7%)**. **Solar procurement** also decreased by **0.48 GW (26.2%)**, while **Storage tenders** declined by **1.23 GW (26.1%)**, indicating comparatively lower procurement activity in these segments during the quarter.

Despite the overall slowdown, **Wind** and **FDRE** recorded substantial growth. **Wind capacity** increased from **0.80 GW to 2.35 GW**, an addition of **1.55 GW (193.8%)**, making it the second-largest technology segment in Q1 FY2027. **FDRE tenders** rose sharply from **0.25 GW to 1.20 GW**, reflecting a **380% increase**, highlighting the growing emphasis on firm and dispatchable renewable energy solutions. Additionally, **Hybrid-RTC** procurement emerged for the first time with **0.15 GW**, while **Small Hydro** remained absent in both quarter.

Overall, the procurement pattern indicates a **strategic shift in renewable energy tendering**. While the exceptional volume of **Hybrid tenders** seen in Q1 FY2026 was not sustained, procuring agencies increasingly focused on **Wind, FDRE, and Storage-backed renewable projects** to improve grid reliability and ensure firm power supply. Although total tender capacity declined, the technology mix became more diversified, reflecting evolving market priorities toward reliable and dispatchable renewable energy rather than capacity expansion alone.

Tender Issued

FY Quarter Wise Renewable Energy Tender Issuance Trajectory by Fuel Wise in GW



In Q1 FY2027, a total of **9.34 GW** of renewable energy capacity was tendered, with **Storage emerging as the dominant segment (3.48 GW; 37.3%)**, followed by **Wind (2.35 GW; 25.2%)**. **Solar (1.34 GW; 14.4%)** and **FDRE (1.20 GW; 12.8%)** also recorded significant procurement, while **Hybrid (0.82 GW; 8.8%)** and **Hybrid-RTC (0.15 GW; 1.6%)** accounted for smaller shares. **No Small Hydro tenders were issued during the quarter**. Overall, the procurement mix reflects a strong shift toward **storage-backed and dispatchable renewable energy solutions**, with **Storage and Wind together contributing over 62% of the total capacity**

Tender Issued

During **Q1 FY2027 (April–June 2026)**, renewable energy tendering totaled **9.34 GW** across **36 tenders**, with procurement increasingly shifting towards **storage-backed and dispatchable renewable energy**.

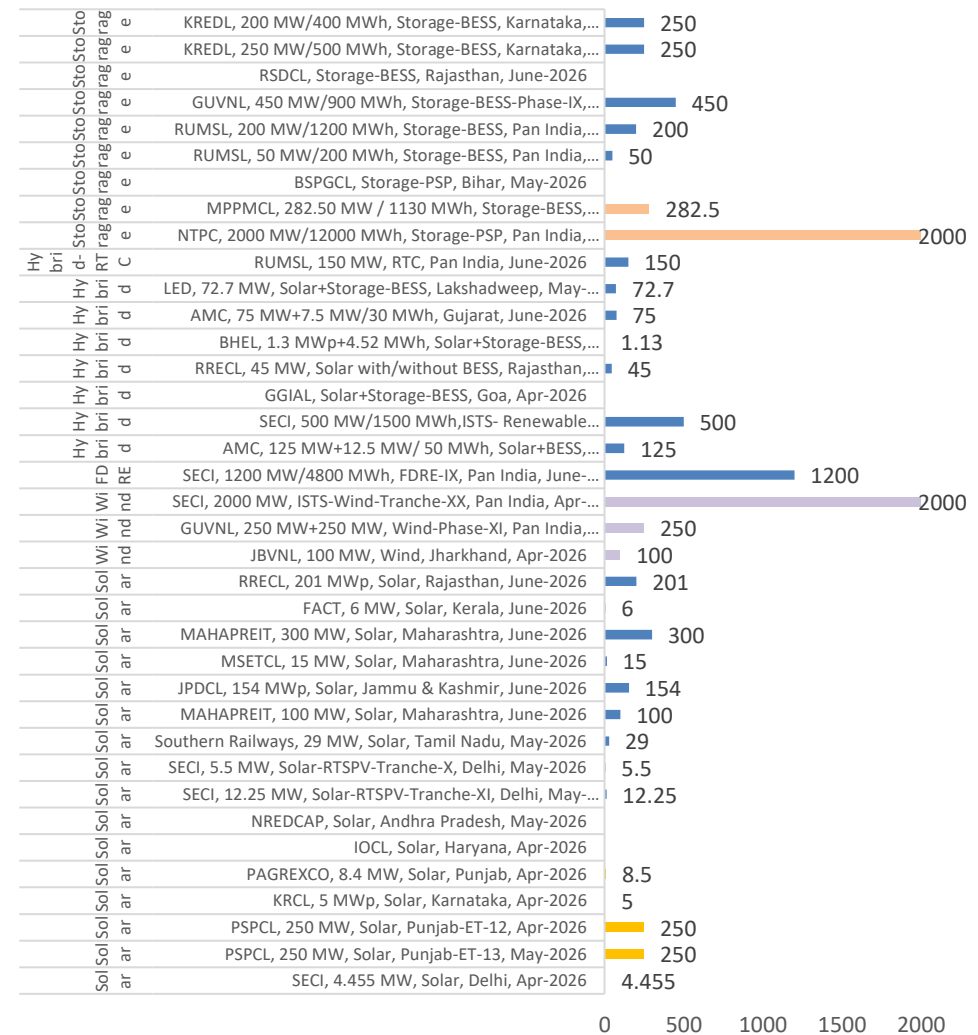
Wind procurement totaled 2.35 GW, led by **SECI's 2,000 MW ISTS Wind Tranche-XX**, along with **GUVNL's 250 MW** and **JBVNL's 100 MW** wind tenders. **FDRE** also gained momentum with **SECI's 1,200 MW FDRE-IX** tender, highlighting the growing focus on firm and dispatchable renewable power.

Hybrid procurement reached 0.82 GW, driven by **SECI's 500 MW Renewable with/without ESS** tender and **Solar+BESS** projects from **AMC, RRECL, LED, and BHEL**, indicating continued adoption of integrated renewable and storage solutions.

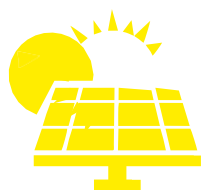
Storage led the market with 3.48 GW (37.3%), driven by **NTPC's 2 GW PSP** and multiple **BESS** tenders from **GUVNL, MPPMCL, RUMSL, and KREDL**. **Wind accounted for 2.35 GW (25.2%)**, primarily supported by **SECI's 2 GW ISTS Wind Tranche-XX**, while **FDRE contributed 1.2 GW (12.8%)** through **SECI's FDRE-IX** tender, reflecting growing demand for firm renewable power.

Although **Solar recorded the highest number of tenders (16)**, its cumulative capacity was limited to **1.34 GW (14.4%)**, indicating a greater focus on distributed and medium-scale projects rather than large utility-scale procurement. Overall, the quarter highlights a **clear market transition from standalone renewable projects toward storage-integrated and reliable clean energy solutions**, with **Storage, Wind, and FDRE accounting for over 75% of the total tendered capacity**.

Renewable Energy tender issued in FY Q1 2027 in MW

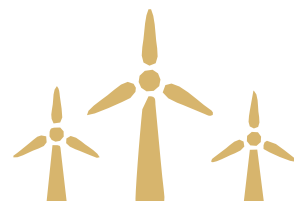


Tender Issued



Solar:

Standalone solar tendering continued with **1.34 GW** of announced capacity across **16 tenders**, making it the most active technology by the number of tenders. Key procurements included **PSPCL's 500 MW (across two tenders)**, **MAHAPREIT's 400 MW**, **RRECL's 201 MWp**, **JPDCL's 154 MWp**, **Southern Railway's 29 MW**, and multiple rooftop solar tenders by **SECI**, along with projects from **KRCL, PAGREXCO, FACT, and MSETCL**.



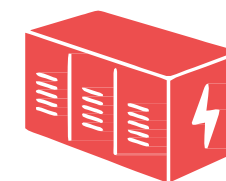
Wind:

Wind tendering gained strong momentum in Q1 FY2027, with 2.35 GW of capacity tendered, accounting for 25.2% of the total quarterly capacity. The segment was dominated by **SECI's 2,000 MW ISTS Wind Tranche-XX tender**, supplemented by **GUVNL's 250 MW** and **JBVNL's 100 MW** procurements. The concentration of large utility-scale tenders indicates continued preference for **high-capacity ISTS-connected wind projects** to accelerate renewable energy deployment.



Hybrid, FDRE and RTC:

FDRE, Hybrid, and Hybrid-RTC collectively contributed **2.17 GW (23.2%)** of the total tendered capacity in **Q1 FY2027**, reflecting the growing emphasis on **firm, dispatchable, and storage-integrated renewable energy**. The segment was led by **SECI's 1,200 MW FDRE-IX** and **500 MW Renewable with/without ESS** tenders, alongside **RUMSL's 150 MW RTC** project and several **Solar+BESS** tenders from **AMC, RRECL, LED, and BHEL**. This trend highlights the market's increasing preference for reliable renewable power capable of supporting grid stability and round-the-clock energy supply.



Storage:

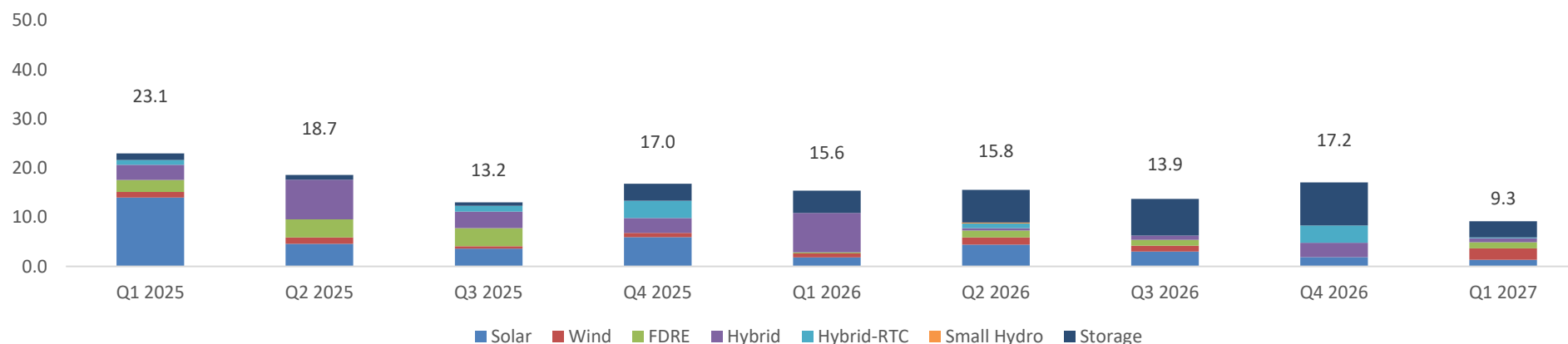
Storage procurement emerged as the dominant segment, accounting for 3.48 GW (37.3%) of the total tendered capacity. Major issuances included **NTPC's 2,000 MW/12,000 MWh Pumped Storage Project (PSP)**, **GUVNL's 450 MW/900 MWh BESS**, **MPPMCL's 282.5 MW/1,130 MWh BESS**, **RUMSL's 250 MW/1,400 MWh BESS (combined)**, and **KREDL's 450 MW of BESS projects**, highlighting the growing emphasis on both battery energy storage systems (BESS) and pumped hydro storage to support renewable integration..

Allocated/Awarded Capacity

Q1 FY2027 recorded **9.34 GW** of renewable energy tenders, the **lowest quarterly capacity** during the analysis period. Despite the lower overall volume, the procurement mix shifted significantly towards **Storage (3.48 GW; 37.3%)**, **Wind (2.35 GW; 25.2%)**, and **FDRE/Hybrid/Hybrid-RTC (2.17 GW; 23.2%)**, indicating a growing preference for **dispatchable and storage-backed renewable energy**. While **Solar remained the most active technology by number of tenders**, its capacity was limited to **1.34 GW (14.4%)**, reflecting fewer large-scale standalone solar procurements.

During **FY2026**, quarterly tender volumes remained relatively stable between **13.91 GW and 17.22 GW**. **Storage emerged as the dominant technology**, increasing from **4.72 GW in Q1 to 8.92 GW in Q4**, driven by large **BESS and Pumped Storage Project (PSP)** tenders. **Hybrid procurement peaked in Q1 FY2026 (7.98 GW)** before declining sharply, while **Hybrid-RTC rebounded to 3.50 GW in Q4 FY2026**. **Solar procurement remained moderate throughout the year**, whereas **Wind and FDRE recorded consistent but relatively lower procurement**.

FY Quarter Wise Renewable Energy Tender Alloted Trajectory by Fuel Wise in GW



In **FY2025**, renewable energy tendering reached its highest levels, with quarterly volumes ranging from **13.17 GW to 23.12 GW**. **Solar dominated early procurement**, peaking at **14.00 GW in Q1 FY2025**, while **Hybrid (8.07 GW in Q2 FY2025)**, **FDRE (3.70 GW in Q2 and Q3 FY2025)**, and **Hybrid-RTC (3.52 GW in Q4 FY2025)** also witnessed strong activity. During this period, procurement was primarily focused on **capacity expansion through standalone solar and hybrid projects**, with comparatively limited emphasis on energy storage.

The moderation in FY 2026 allotments reflects delays in PSA finalization, prolonged DISCOM approval cycles, and weaker tender-to-award conversion amid unsecured offtake arrangements. Heightened risk aversion, regulatory and tariff approval delays, and bankability concerns—particularly for variable renewable projects—continued to constrain awards, pushing procurement toward fewer but more execution-ready, storage-backed projects..

RE Key Winners

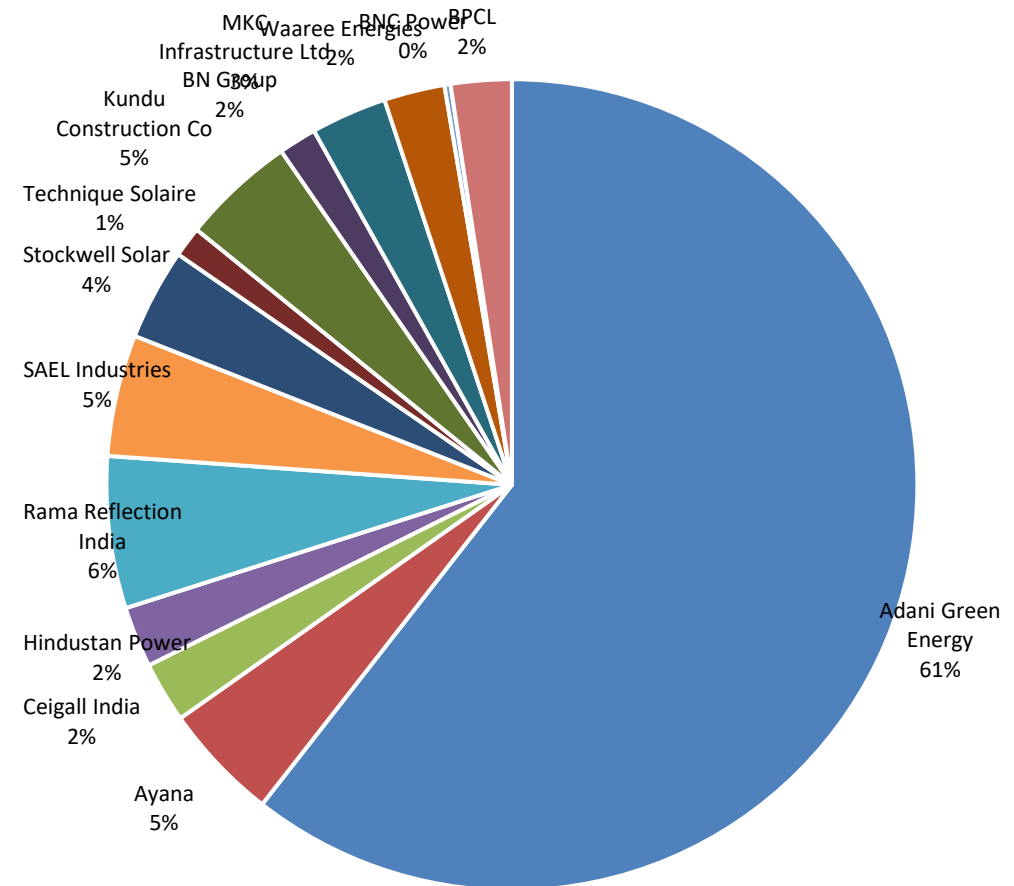
In **FY 2027 Q1 (April–June 2026)**, renewable energy capacity awards based on result announcement dates totaled **~4.1 GW**, reflecting relatively concentrated award activity led by a few large developers.

large players, with **Adani Green Energy** emerging as the clear market leader by securing **2,500 MW**, accounting for the majority of the awarded capacity. This was followed by **Rama Reflection India (250 MW)**, **SAEL Industries (200 MW)**, **Ayana (193 MW)**, and **Kundu Construction Co. (187.5 MW)**, reflecting a healthy mix of established independent power producers (IPPs) and emerging renewable developers.

Several developers, including **Waaree Energies**, **Hindustan Power**, **Ceigall India**, and **BPCL**, secured **100 MW** each, while **MKC Infrastructure Ltd (125 MW)**, **Stockwell Solar (150 MW)**, **BN Group (62.5 MW)**, **Technique Solaire (50 MW)**, and **BNC Power (10 MW)** received comparatively smaller allocations.

Overall, the allocation pattern indicates strong market concentration, with Adani Green Energy dominating capacity awards, while the remaining projects were distributed across a diverse group of developers, reflecting continued participation from both large and mid-sized renewable energy companies.

**Projects Won by Developers in RE Segment in Q1
FY 2027**



PPA Status Overview (FY April 2019 – June 2026)

REIAs	REIA Wise PPA Status in terms of Capacity in MW				
	Cancelled	PPA Status			Grand Total
		Conditional Yes	No	Yes	
NHPC	30	12760		8895	21655
NTPC	120	11596	1300	6037	19053
SECI	2285	6000	2909	52853.8	64614.8
SJVN		4750	3928	7795	16473
Grand Total	2435	35106	10503	75580.8	123674.8

From **FY 2019 to June 2026**, renewable energy tenders issued by major RE Implementing Agencies (REIAs) have created a substantial pipeline of **247.25 GW**. However, conversion into executed **Power Purchase Agreements (PPAs)** remains uneven, with a significant portion of capacity still progressing through regulatory and approval stages.

At an aggregate level, **75.58 GW has achieved executed PPAs**, while **48 GW remains without signed PPAs**. This includes **35.10 GW where petitions for tariff adoption or PPA approval have been filed and are awaiting regulatory or offtake clearances**, and **only 10.5 GW where filings are yet to be initiated**. In addition, **2.43 GW of capacity has been cancelled**, indicating limited but persistent attrition within the tendered pipeline.

SECI continues to lead in scale, with **66.41 GW under executed PPAs**, though it still has **11.27 GW pending across regulatory and filing stages**, along with cancelled capacity, reflecting execution complexities. **NTPC shows a notable execution gap**, with **19 GW pending against 6.03 GW executed**, largely due to approval timelines and offtake delays. **NHPC has executed 21.68 GW**, while **8.89 GW remains under regulatory stages**, indicating slower conversion. **SJVN reflects a similar trend**, with **4.7 GW executed and 16.47 GW awaiting closure**, highlighting ongoing regulatory and offtake challenges.

Policy Analysis: Addressing Unsigned PPAs to Accelerate Renewable Energy Deployment

The **MNRE's proposed One-Time Relief Package** represents a significant policy initiative to unlock approximately **44.8 GW of renewable energy capacity** that remains stranded due to **unsigned PPAs/PSAs** despite the issuance of Letters of Award (LoAs). The package aims to accelerate project execution by providing developers with a **90-day window** to conclude PPAs/PSAs, supported by a comprehensive set of financial, regulatory, and contractual relief measures.

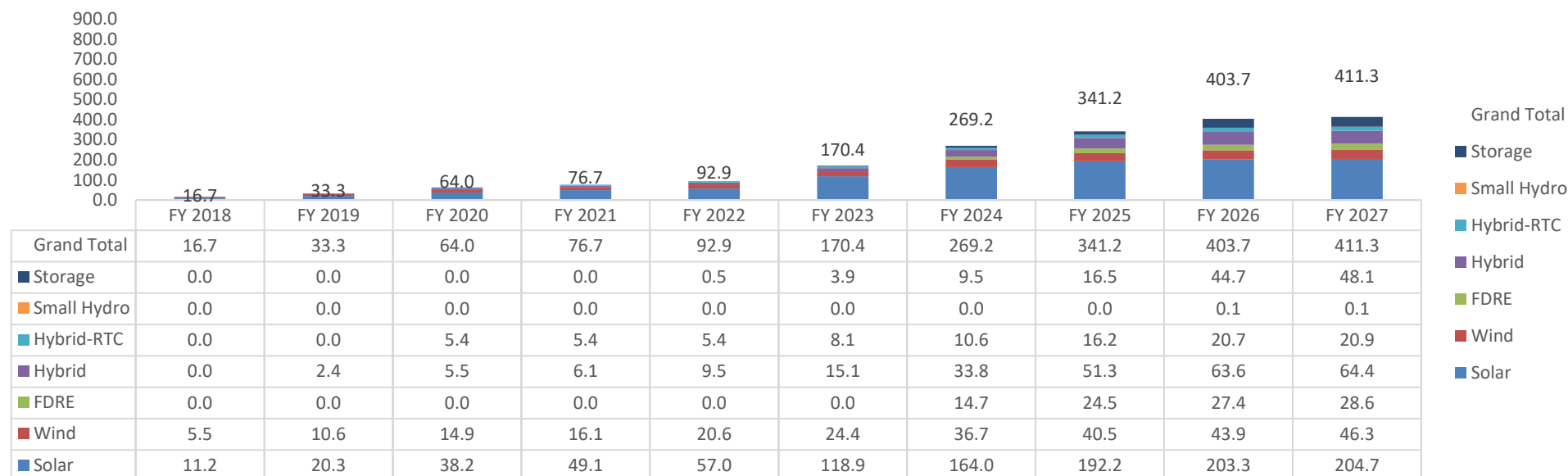
Key incentives include a **100% waiver of ISTS transmission charges**, support for **Battery Energy Storage Systems (BESS)**, access to **State Transmission Utility (STU) connectivity**, **deemed RPO/RCO compliance** for procuring entities, and **deemed tariff adoption**, thereby improving project bankability and reducing regulatory uncertainties. These measures are expected to enhance the commercial viability of delayed projects and facilitate faster financial closure.

The proposal also introduces greater contractual flexibility through provisions such as **LoA substitution**, **retention of granted connectivity**, and **penalty-free exit** for eligible developers. These reforms are intended to enable the transfer of stalled projects to capable developers while preserving valuable transmission infrastructure and minimizing execution delays.

Overall, the relief package is expected to reduce the backlog of unsigned PPAs/PSAs, improve investor confidence, accelerate renewable energy project commissioning, and support India's long-term clean energy and energy transition targets by ensuring that awarded projects are successfully implemented rather than remaining stranded.

Tender Issued Over the Years - Cumulative

Tender Issued By Fuel Type Year On Year Basis



From **FY 2018 to FY 2020**, renewable energy tendering in India was largely driven by **standalone solar and wind**, rising from **16.7 GW in FY 2018 to 64.0 GW in FY 2020**. Procurement structures during this period were relatively simple, supported by clearer offtake visibility and faster PPA closures, enabling smoother execution, while hybrid and RTC formats remained limited.

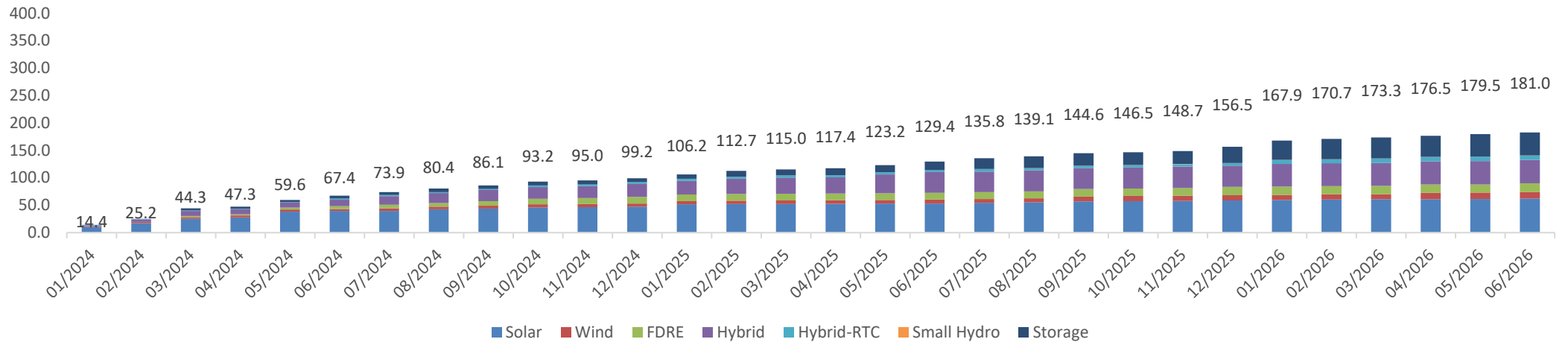
FY2021–FY2024: Renewable energy tendered capacity increased substantially from **76.68 GW in FY2021 to 269.22 GW in FY2024**, driven by rapid growth in **Solar (49.13 GW to 164.04 GW)** and **Wind (16.10 GW to 36.67 GW)**. **Hybrid** capacity expanded from **6.05 GW to 33.76 GW**, while **Hybrid-RTC** nearly doubled to **10.56 GW**. **Storage** procurement gained momentum, increasing from **0 GW to 9.47 GW**, and **FDRE** was introduced in **FY2024** with **14.73 GW**, reflecting a strategic shift toward firm, dispatchable, and storage-integrated renewable energy procurement.

FY2025–FY2026: Renewable energy tendered capacity increased from **341.22 GW to 403.66 GW**, driven by continued growth across all major technologies. **Solar** crossed **200 GW**, **Hybrid** expanded to **63.56 GW**, **Wind** reached **43.92 GW**, and **FDRE** increased to **27.38 GW**. The most significant growth was observed in **Storage**, which surged from **16.52 GW to 44.65 GW**, while **Hybrid-RTC** increased to **20.73 GW** and **Small Hydro** recorded its first procurement (**0.095 GW**), highlighting the growing emphasis on storage-backed and dispatchable renewable energy solutions.

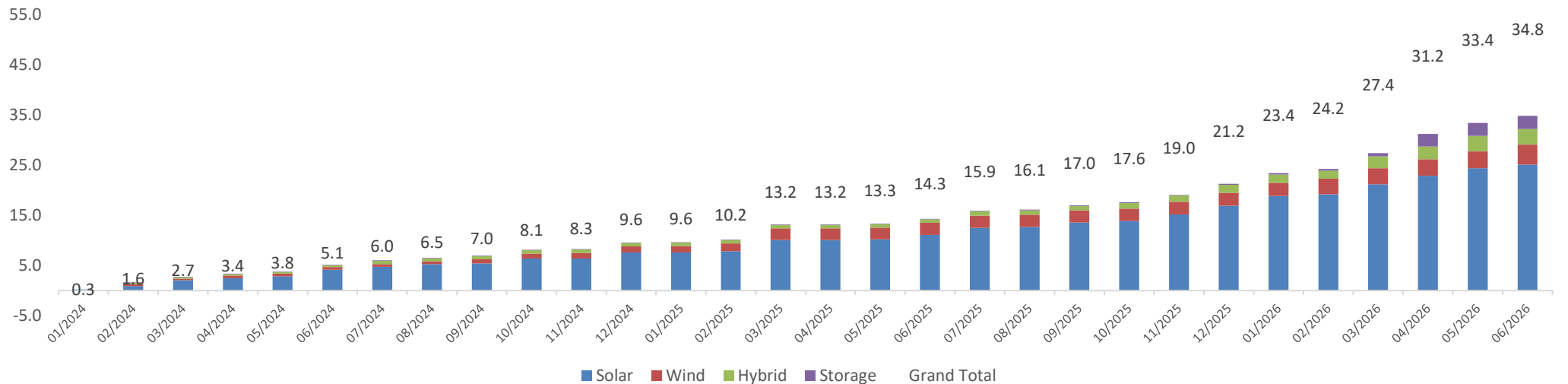
FY2027 (Q1): Cumulative renewable energy tendered capacity reached **411.31 GW**, led by continued additions in **Storage (48.14 GW)**, **Hybrid (64.37 GW)**, **Wind (46.27 GW)**, **FDRE (28.58 GW)**, and **Solar (204.68 GW)**. Although incremental capacity additions were relatively modest compared to FY2026, the procurement mix continued to shift toward **storage-backed, firm, and dispatchable renewable energy**, highlighting the sector's increasing focus on grid reliability and energy security.

Tender Issued and Project Commissioned Analysis- MOM Basis

Tender Issued For 2 Years, Month on Month Basis in GW



Capacity Commissioned For 2 Years, Month on Month Basis



Continued

Tender Issued and Project Commissioned Analysis- MOM Basis

During **Q1 FY2027**, **Solar** remained the dominant technology in terms of commissioned capacity, with large-scale projects commissioned by **SAEL Industries, Adani Green, AMPIN Energy, Juniper Green Energy, NTPC/NTPC Green, Clean Max, Ayana Renewables, Solar Arise, and Aljomaih Energy** across multiple states. The strong solar commissioning activity reflects the continued execution of utility-scale projects awarded under central and state renewable energy tenders.

Storage emerged as the second most prominent segment, driven by multiple **Battery Energy Storage System (BESS)** projects commissioned by **Adani Green, ACME, and IndiGrid**, along with **THDC India's 250 MW Pumped Storage Project (PSP)**. This trend highlights the increasing integration of energy storage with renewable generation to enhance grid flexibility and ensure reliable power supply.

Wind commissioning also remained healthy, with projects commissioned by **Juniper Green Energy, Serentica Renewables, Envision Energy India, AMPIN Energy, NTPC, and Adani Green**, reflecting sustained investment in utility-scale wind capacity. **Hybrid** commissioning was relatively limited during the quarter, with projects by **Clean Max** and **JSW**, indicating that the majority of hybrid projects are still under construction.

Compared to the **9.34 GW of renewable energy tenders floated in Q1 FY2027**, **commissioning activity was primarily dominated by Solar projects**, reflecting the execution of projects awarded in previous years rather than recently issued tenders. While **Storage accounted for the largest share of new tenders (37.3%)**, commissioning of storage projects also gained momentum through multiple **BESS and Pumped Storage Projects (PSP)**, indicating that energy storage is moving from the tendering stage to project implementat

Overall, the commissioning mix demonstrates a clear shift from standalone renewable projects towards integrated renewable energy systems, with growing deployment of storage alongside solar and wind to support India's transition to reliable and dispatchable clean energy.

FY-wise Trend Analysis

FY2020-21 to FY2026-27 (Q1) | Source: Bid Results Sheet

FY	Wind Tariff (₹/kWh)	Hybrid_Solar/Wind/Storage (₹/kWh)	FDRE (₹/kWh)	Hybrid (₹/kWh)	Hybrid - RTC(₹/kWh)
FY2020-21	2.86			2.45	2.90
FY2021-22	2.91			2.44	3.25
FY2022-23	3.01			2.81	
FY2023-24	3.43	4.70	4.71	3.34	4.25
FY2024-25	3.76		4.75	3.42	
FY2025-26	3.65		5.93	4.10	4.68
FY2026-27					5.90

Renewable energy tariffs have shown an increasing trend, driven by the growing focus on firm and dispatchable renewable power. **Wind tariffs** increased from ₹2.86/kWh in FY2020-21 to ₹3.76/kWh in FY2024-25 (31.5% increase) before moderating slightly to ₹3.65/kWh in FY2025-26. **Hybrid tariffs** rose significantly from ₹2.45/kWh to ₹4.10/kWh (67.3% increase) during the same period, reflecting higher integration of storage and flexible generation.

The introduction of **Solar/Wind/Storage Hybrid** projects in FY2023-24 at ₹4.70/kWh marked the shift towards storage-backed renewable procurement. **FDRE tariffs** remained stable at around ₹4.7/kWh during FY2023-24 and FY2024-25 before increasing sharply to ₹5.93/kWh in FY2025-26 (24.8% YoY), driven by stricter firm power and storage requirements. Likewise, **Hybrid-RTC tariffs** increased from ₹2.90/kWh in FY2020-21 to ₹5.90/kWh in FY2026-27 (103.4% increase), making it the highest-priced renewable procurement category due to its round-the-clock supply obligations.

Overall, the data highlights the evolution of India's renewable procurement from **low-cost energy-based projects** to **storage-backed, firm, and dispatchable renewable solutions**, resulting in higher tariffs but significantly improved grid reliability and energy security.

Quarterly Trend Analysis – Last 9 Quarters

FY2024-25 Q1 to FY2026-27 Q1 | Source: Bid Results Sheet

FY	Wind Tariff (₹/kWh)	Hybrid_Solar/Wind/Storage (₹/kWh)	FDRE (₹/kWh)	Hybrid (₹/kWh)	Hybrid - RTC(₹/kWh)
FY2020-21	2.86			2.45	2.90
FY2021-22	2.91			2.44	3.25
FY2022-23	3.01			2.81	
FY2023-24	3.43	4.70	4.71	3.34	4.25
FY2024-25	3.76		4.75	3.42	
FY2025-26	3.65		5.93	4.10	4.68
FY2026-27					5.90

Renewable energy tariffs have generally increased over the period, reflecting the shift towards firm and dispatchable renewable power. **Wind tariffs** increased from ₹2.86/kWh in FY2020-21 to ₹3.76/kWh in FY2024-25 (31.5% increase) before easing slightly to ₹3.65/kWh in FY2025-26. **Hybrid tariffs** rose steadily from ₹2.45/kWh to ₹4.10/kWh (67.3% increase), driven by greater integration of storage and flexible power supply.

Solar/Wind/Storage Hybrid projects were introduced in FY2023-24 with a tariff of ₹4.70/kWh, while **FDRE tariffs** increased from ₹4.71/kWh in FY2023-24 to ₹5.93/kWh in FY2025-26 (25.9% increase), reflecting the higher cost of firm renewable power. **Hybrid-RTC tariffs** recorded the sharpest rise, increasing from ₹2.90/kWh in FY2020-21 to ₹5.90/kWh in FY2026-27 (103.4% increase), highlighting the premium for providing reliable round-the-clock renewable energy backed by storage.

Overall, the trend indicates a clear transition from **low-cost renewable procurement** to **storage-backed, firm, and dispatchable renewable energy**, resulting in higher tariffs to meet grid reliability and 24×7 power supply requirements.