



Round-the-Clock Renewable PPA Structuring in India 2026: Risk, Pricing, Bankability

By Sudarshan Karweer · 28 August 2026 · growthifye.com

How to structure RTC renewable PPAs in India in 2026: contract design, pricing, deviation risk, scheduling and lender view.

India's power market has moved beyond simple solar and wind offtake. In 2026, large commercial and industrial buyers, utilities, and renewable developers are increasingly evaluating round-the-clock renewable supply as a contracted product rather than just a policy buzzword. The challenge is that many counterparties understand the headline tariff but not the contract architecture that makes an RTC project financeable, dispatchable and operationally resilient.

This matters because an RTC renewable power purchase agreement is not just a standard solar PPA with a battery added on. It is a multi-layered commercial structure that combines resource diversity, scheduling discipline, balancing strategy, transmission assumptions, payment security and a clear allocation of downside risk. If any of these elements are poorly drafted, the quoted tariff can quickly become meaningless.

For Indian C&I buyers, developers, lenders and policymakers, the 2026 question is less about whether RTC can be procured and more about how to structure an RTC PPA so that the energy actually shows up at the meter, the penalties remain manageable and the project remains bankable over 15 to 25 years.

Why RTC contracting is different from plain vanilla RE procurement

A conventional open access solar or wind procurement often optimises for the lowest landed tariff during a defined generation window. RTC procurement, by contrast, is a firm supply obligation. The seller is effectively taking responsibility for delivering a contractual shape across all or most time blocks, using a portfolio that may include solar, wind, BESS, market purchases and, in some structures, support from hydro or thermal balancing.

That difference changes almost every important project variable:

- Generation profile matters more than annual specific yield alone
- Hourly and 15-minute matching assumptions become central
- Deviation and shortfall settlement can materially alter realised economics
- Forecasting and scheduling capability becomes part of credit assessment
- Contracted availability definitions matter as much as energy price
- Curtailment language and grid outage treatment require tighter drafting

In the Indian context, RTC and FDRE structures have evolved through SECI, NTPC and state utility tenders, but private bilateral and group captive variants are also gaining attention. Buyers are now comparing not just quoted tariffs, but firmness levels, escalation clauses, deemed generation treatment, pass-through mechanisms and the seller's balancing toolkit.

The main building blocks of an RTC PPA in India

A bankable RTC PPA typically rests on six core pillars.



First, the supply obligation must be defined precisely. Is the seller committing to 80%, 90% or 100% annual availability? Is the obligation tested hourly, monthly or annually? Is there a minimum supply by time block, by day, or only on an aggregate basis? A tariff linked to annual energy delivery can look attractive but may leave the buyer exposed during expensive evening hours.

Second, the contract must state the reference schedule and metering logic. In 2026, with DSM and tighter scheduling discipline, ambiguity around ex-bus energy, drawal point energy, auxiliary consumption, transmission loss treatment and SLDC accounting can create recurring disputes.

Third, the balancing framework must be transparent. Many developers model balancing energy from exchanges such as DAM, RTM and, where relevant, ancillary-linked balancing opportunities. But the PPA should specify whether market purchases are mandatory to cure shortfalls, whether there is a cap on balancing cost pass-through and who benefits if balancing costs are lower than the base model.

Fourth, change-in-law treatment must cover the actual Indian risk set. This includes transmission charges and losses, ISTS waiver trajectory where relevant, OA banking rules, DSM changes, new scheduling obligations, energy storage charging treatment, taxes and duties, and environmental or land-related compliance changes. A generic change-in-law clause is not enough for an RTC portfolio.

Fifth, payment security must reflect the balancing burden. A seller taking firm supply risk may be carrying substantial working-capital exposure, especially during low-resource months. Letters of credit, escrow structures, security deposits and delayed payment surcharge provisions should be calibrated accordingly.

Sixth, termination compensation and step-in rights need to be lender-friendly. If the project includes solar, wind and storage under multiple SPVs or contracts, inter-creditor coordination and cure periods should be thought through upfront.

Pricing RTC power in 2026: what buyers should actually examine

In 2026, reported utility-scale RTC and FDRE tariffs in India still vary significantly depending on location mix, transmission treatment, storage duration, firmness obligation and the extent of market-based balancing assumed in the model. For practitioners, the headline tariff in Rs/kWh is only the first line of diligence.

Buyers should ask at least eight pricing questions.

- What percentage of annual energy is expected from solar, wind, storage discharge and market purchases?
- What is the assumed battery duration, round-trip efficiency and annual degradation profile?
- Is the seller relying on merchant purchases during monsoon variability or low-wind summer evenings?
- Are transmission charges, losses and wheeling clearly included or pass-through?
- Is there any indexation linked to O&M, module replacement, battery augmentation or market energy?
- What shortfall penalties apply if supply falls below the contracted threshold?
- How is excess generation treated: free to buyer, paid at PPA tariff, or settled at a lower rate?
- Does the quoted tariff assume any fiscal support or concessional treatment that may not be available in the actual project configuration?

For C&I buyers, landed cost comparison against grid tariff is more nuanced for RTC than for solar-only procurement. Many industrial consumers today face blended grid tariffs in the range of roughly Rs 7 to Rs 10 per kWh depending on state, voltage level, demand charges and duty structure. An RTC renewable product delivered at a nominal energy price of, say, Rs 5.5 to Rs 6.5 per kWh may still become less compelling after



open access charges, balancing treatment and standby assumptions unless the contract is carefully structured.

At the same time, for facilities with 24x7 loads, diesel displacement, carbon targets or future export-related decarbonisation requirements, the value of firmness can be materially higher than a plain tariff comparison suggests. Sectors such as data centres, metals, chemicals, auto manufacturing and continuous-process industrials are therefore evaluating RTC supply not just as a cost-saving tool but as a resilience and compliance instrument.

Deviation, scheduling and performance risk allocation

One of the most underestimated features of RTC contracting is who bears the cost of being wrong. Forecast error, forced outage, transmission unavailability, battery underperformance, low irradiation and weak wind seasonality all eventually show up as deviation cost, replacement power cost or contractual liquidated damages.

In India's 2026 operating environment, a robust RTC PPA should deal specifically with the following:

- Forecasting responsibility and update frequency
- Treatment of seller-side versus grid-side constraints
- Buyer backing down instructions and compensation basis
- Curtailment by state or central transmission utility
- Grid outages at injection and drawal points
- DSM and imbalance charges
- Battery availability tests and augmentation obligations
- Force majeure carve-outs versus insurable events

Hourly firmness clauses can be dangerous if the generation and storage portfolio has not been simulated over multiple weather years. Many bids look viable in a P50 annual-energy model but become fragile when tested on time-sliced delivery obligations during extreme seasonal events. Lenders increasingly expect scenario analysis across P50, P75 and downside weather years, along with sensitivity to battery augmentation delay and higher balancing power prices.

For this reason, developers should avoid over-promising a 100% shaped product if the portfolio economics realistically support a lower contracted firmness with defined tolerance bands. Buyers may prefer a cheaper 85% to 90% firmness product with transparent top-up procurement rules over a nominal 100% commitment that later triggers recurring disputes.

Bankability from the lender's perspective

Lenders do not underwrite the brochure version of RTC. They underwrite the cash flow after losses, charges, replacement energy cost and contract underperformance.

From a financing standpoint, the strongest RTC projects in 2026 usually demonstrate the following characteristics:

- High-quality resource complementarity across sites or technologies
- A conservative battery dispatch strategy rather than an aggressive merchant-arbitrage overlay
- Limited dependence on volatile merchant purchases for core contractual delivery
- Clear offtaker credit support and payment security



- Well-defined liquidated damages caps and cure periods
- EPC and O&M wraps that reflect storage-specific obligations
- Proven SCADA, forecasting and scheduling systems
- Realistic degradation and augmentation budgeting
- Robust insurance and business interruption treatment

Lenders also pay close attention to interface risk. If solar, wind and BESS are contracted under separate packages, who is responsible when the integrated supply obligation is missed? If the battery EMS vendor blames the forecasting service provider, and the scheduling coordinator blames transmission congestion, a weak interface matrix can quickly become a financing problem.

Another 2026 theme is the treatment of merchant upside. Some developers pitch RTC structures with significant revenue stacking from surplus merchant sales in high-price periods. Lenders usually haircut such assumptions sharply unless contracted sharing mechanisms and historical market evidence support them. For debt sizing, dependable contracted cash flow remains more important than optimistic merchant optionality.

Key clauses Indian C&I buyers should negotiate harder

Private and group captive buyers often focus heavily on tariff and tenure, but several non-price clauses deserve equal attention.

First, define the delivery point and accounting basis cleanly. A tariff at CTU injection is very different from a delivered landed-cost commitment at the consumer meter after losses and open access charges.

Second, insist on transparent replacement-power rules. If the seller misses delivery in high-price evening blocks, the buyer's actual damage can exceed a standard shortfall rebate. The contract should specify whether replacement power must be procured, who arranges it and how the cost is settled.

Third, negotiate meaningful availability reporting. Monthly dashboards should show resource-wise generation, storage charge-discharge behaviour, balancing purchases, curtailment, outages and DSM events. Without this, it is difficult to verify whether the seller's operating strategy aligns with the contracted service level.

Fourth, tighten change-in-law drafting around state open access regimes. Banking restrictions, additional surcharges, standby charges and scheduling reforms can alter economics substantially for C&I structures.

Fifth, check assignment and refinancing flexibility. If the project is refinanced or transferred after COD, the buyer should ensure service standards and credit support do not weaken.

Sixth, align contract year testing with the actual consumption profile. Some industrial users have seasonal shutdowns or variable night loads. A one-size-fits-all RTC shape may not be the most economical option; shaped supply by time block or seasonal firmness bands may produce a better result.

What policymakers and utilities should keep in view

If India wants RTC and FDRE procurement to scale efficiently, policy design must reduce ambiguity on scheduling, storage charging treatment, transmission access and settlement rules. Developers can price risk, but they cannot price regulatory ambiguity well.

Three policy priorities stand out in 2026.

- Stable and harmonised open access implementation across states



- Clearer settlement treatment for hybrid and storage-backed firm supply
- Procurement formats that compare bids on a like-for-like firmness basis rather than only a single tariff number

Utilities, too, should examine whether their tender design incentivises realistic delivery or encourages underpriced aggressiveness. Contract structures with vague balancing obligations may produce low discovered tariffs at bid stage but weak performance in operation.

For both policymakers and utilities, the core objective should be simple: reward verifiable firm renewable delivery, not merely the appearance of firmness in headline bid documents.

The practical takeaway for 2026

RTC renewable supply in India is now a serious procurement category, but it remains contract-intensive. A workable structure depends on hourly resource modelling, battery dispatch logic, scheduling capability, open access treatment, payment security and careful legal drafting. Buyers should compare delivered firmness and risk allocation, not just tariff. Developers should avoid unsupported firmness claims and build contracts around realistic balancing capability. Lenders should continue to push for scenario-tested economics and tighter interface management.

In short, the future of RTC in India will be decided less by slogans and more by PPA detail.

If you are evaluating an RTC or FDRE procurement, project bid, or financing case, contact Growthifye's advisory desk for project-specific support on structuring, risk review, commercial diligence and bankability assessment.

ABOUT THE AUTHOR

Sudarshan Karweer — Chief Executive Officer, Growthifye

Over 23 years in management consulting — concept to scale — building and scaling new-age digital and energy businesses. An EY alumnus, Sudarshan leads Growthifye's renewable energy & storage advisory, EPC, transmission engineering and green-financing practices for developers, utilities and C&I consumers across India.
Contact: info@growthifye.com · +91 84510 99371 · growthifye.com

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