Data Centre Energy Attribute Tracking in India 2026: EACs, 24/7 CFE and Compliance

By Sudarshan Karweer · 25 August 2026 · growthifye.com

How Indian data centres can structure hourly clean-energy tracking, EAC claims, contracts and compliance in 2026.

India's data-centre market is moving beyond annual renewable-percentage claims. In 2026, the harder question is not whether a campus buys renewable power at all, but whether it can prove when that power was generated, how it was matched to load, what residual grid emissions remain, and which claims are contractually and regulatorily defensible. For hyperscalers, colocation operators, cloud tenants, lenders and utilities, energy-attribute tracking has become a bankability and compliance issue, not a branding exercise.

For Indian data centres, this is particularly relevant because most facilities still rely on a layered energy stack: DISCOM supply for reliability, open-access renewable procurement for cost and decarbonisation, captive or group-captive structures for control, diesel backup for black-start and emergency support, and increasingly battery energy storage systems (BESS) plus energy-management systems (EMS) for optimisation. In that context, annual matching hides a lot. A 100 MW data-centre load may buy enough annual renewable energy certificates or physical renewable units to claim "100% renewable" while still drawing heavily from a coal-dominant grid during evening peaks and low-wind periods.

That gap is why 24/7 carbon-free energy, hourly matching and auditable energy attribute certificates are becoming central to data-centre energy strategy in India. This article focuses on the practical architecture for energy-attribute tracking in 2026: how to measure it, what contracts must say, how market instruments fit, where policy friction remains, and how data-centre operators should prepare for lender, customer and policymaker scrutiny.

Why annual renewable claims are no longer enough for Indian data centres

Annual netting is simple. If a data centre consumes 500 million units per year and procures an equivalent amount from solar, wind, hybrid or market-based instruments over the same year, many organisations have historically treated that as sufficient for renewable claims. But there are three practical weaknesses.

First, annual netting says little about grid stress. Indian data-centre loads are relatively flat and highly uptime-sensitive. Solar output is concentrated in daytime. Wind output is seasonal and volatile. A facility may therefore be "annual renewable" while remaining heavily dependent on thermal generation in evening and overnight hours.

Second, customer expectations have shifted. Global cloud and colocation customers increasingly ask for hourly emissions visibility, not just annual renewable percentages. Enterprise off-takers in BFSI, e-commerce, AI compute and SaaS are also tightening supplier reporting requirements. If a colocation provider cannot offer time-stamped energy disclosures at rack, hall or campus level, it may lose commercial advantage.

Third, financiers and internal investment committees want cleaner attribution rules. If BESS, RTC contracts, behind-the-meter solar, open-access wind and residual grid power are all part of one portfolio, the project needs a transparent hierarchy for assigning energy, emissions and costs. Without this, tariff benchmarking, savings verification and sustainability reporting become inconsistent.

For these reasons, Indian data-centre operators are now building procurement and metering structures around hourly or sub-hourly reconciliation.

What 24/7 CFE tracking means in practical Indian terms

24/7 carbon-free energy tracking does not mean a facility must operate off-grid or avoid all fossil-linked grid consumption every minute. In practice, it means measuring how much of each hour's electricity demand is served by carbon-free sources and quantifying the residual deficit. The target may be 70%, 85%, 90% or 100% hourly matching over time, depending on cost, site conditions and market maturity.

For an Indian data centre, the core data model usually needs five layers:

- Load interval data, preferably 15-minute blocks aligned with utility and scheduling practice
- Source-wise generation data from on-site solar, captive plants, open-access projects and contracted RTC portfolios
- BESS charge-discharge telemetry, including round-trip losses and state-of-charge history
- Grid-import and export data at each interconnection point
- A market-claim layer showing which energy attributes have been retained, transferred, sold or retired

This seems straightforward, but the challenge lies in aligning settlement-grade metering with sustainability-grade reporting. Utility meters, OA billing data, SLDC schedules, plant SCADA records and data-centre EMS systems often sit in separate silos. Growth-stage operators sometimes discover that they can report monthly renewable percentages but cannot produce a defensible hourly trace from source to load.

The operational goal in 2026 should be a reconciled hourly ledger. For each hour, the operator should know:

- Total facility consumption in MWh
- Carbon-free supply physically delivered or contractually allocated in MWh
- BESS contribution derived from previously charged renewable energy versus grid energy
- Residual grid draw in MWh
- Estimated marginal or average emissions factor applied to residual grid draw
- Whether any environmental attributes linked to supply in that hour have already been transferred elsewhere

Without that last point, there is a real risk of double-claiming.

Metering, EMS and digital infrastructure needed for defensible claims

In India, many data centres already invest in sophisticated electrical infrastructure, but sustainability attribution often lags electrical engineering quality. A robust hourly matching system needs measurement architecture that is designed for settlement, optimisation and assurance together.

At campus level, interval meters should capture incomer-wise and feeder-wise consumption. At source level, each on-site generator and BESS asset should have time-synchronised telemetry. If power is sourced through open access, the data-centre operator should obtain scheduled generation, actual injection and drawal information from the project developer and relevant SLDC process chain. For group-captive or captive structures, shareholder entitlement and actual allocation rules must also be mapped in the data model.

An EMS then becomes more than a controls platform. It is the accounting engine that answers questions such as:

- Should midday surplus solar charge the BESS, reduce grid import, or support non-critical cooling loads?
- How should the system prioritise battery discharge during high-tariff evening periods versus reserve it for outage support?
- What is the marginal effect of a 0.05 to 0.10 improvement in PUE on hourly clean-energy coverage?
- During curtailed renewable periods, which contracted source should be treated as the primary supplier for claims and settlement?

For example, consider a 50 MW IT load with a campus PUE of 1.45. Total facility load is roughly 72.5 MW. If operational improvements reduce PUE to 1.35, total load falls to about 67.5 MW, a reduction of 5 MW. Across 24 hours, that is 120 MWh per day less consumption. This has a direct effect on hourly CFE score because the denominator falls every hour. In many cases, PUE optimisation is cheaper than procuring the last incremental block of RTC supply.

In 2026, the best-performing data-centre energy stacks combine:

- Main utility and backup utility interconnections
- On-site solar where rooftop or adjacent land allows
- Open-access solar, wind or hybrid supply
- BESS sized for peak shaving, outage ride-through and carbon-shifting
- EMS integrated with weather, tariff and load forecasting
- Attribute accounting logic aligned to internal reporting and external assurance needs

EACs, contractual claims and the Indian market reality in 2026

Energy attribute certificates matter because not every MWh procured by a data centre arrives physically and temporally aligned with its load. Certificates, if structured and retired correctly, can support accounting and disclosure. But the claim must match the instrument and the contract.

In the Indian context, data-centre buyers should distinguish clearly between:

- Physical power supply under open access, captive or utility arrangements
- Contractual environmental attributes associated with that physical power
- Market-based instruments used for residual claim balancing
- Voluntary 24/7 matching methodologies adopted for customer or investor reporting

A common error is assuming that buying physical renewable power automatically gives unrestricted use of all associated claims. In reality, the power purchase agreement, OA sale arrangement, captive documentation and any certificate transfer terms must specify attribute ownership. If a developer retains or separately monetises attributes, the data centre cannot claim full environmental benefit from the same MWh.

Another issue is granularity. Many available instruments remain monthly or annual in nature, while 24/7 CFE targets require hourly evidence. Therefore, certificates may still help with residual annual balancing, but they do not by themselves prove hourly carbon-free consumption. That proof requires time-matched source data and documented methodology.

This is where policy and market design in India are still catching up. By 2026, corporate buyers are ahead of formal market infrastructure in terms of hourly claim ambition. As a result, serious buyers should build contract-first solutions:

- Define time granularity for reporting and verification

- Specify who owns attributes from each source and storage cycle
- Set rules for curtailment, deemed generation and substitute procurement
- Clarify treatment of banking, wheeling losses and transmission losses in claim accounting
- State whether BESS charged from mixed sources can be proportionally attributed or must be conservatively tagged
- Reserve audit rights over metering and SCADA records

Lenders increasingly prefer such clarity because it reduces disputes over sustainability-linked covenants, customer representations and savings models.

How to structure hourly clean-energy portfolios for data centres

The cheapest renewable portfolio is not always the highest-quality 24/7 portfolio. Indian data centres need to balance landed tariff, reliability, emissions impact and claim integrity.

A workable strategy in 2026 often starts with shaping resources by time of day.

- Daytime base: open-access solar, often the lowest variable landed cost in many states
- Evening and monsoon support: wind or wind-solar hybrid procurement
- Short-duration balancing: 2-hour to 4-hour BESS for ramp management and peak shaving
- Reliability layer: firm grid connectivity with adequate contract demand and redundancy
- Residual balancing: RTC or structured bilateral supply for uncovered hours

Illustratively, landed open-access renewable tariffs for quality C&I consumers may still sit in the broad range of around Rs 4.0 to Rs 6.5 per kWh depending on state, voltage level, banking rules, ISTS benefit availability, scheduling profile and cross-subsidy or additional surcharge treatment. Structured RTC supply can price materially above plain solar because it includes shaping, balancing and risk premium. Standalone BESS economics have improved, but for data centres the value stack depends on combining multiple use cases: demand-charge reduction, outage support, ancillary operational resilience and carbon-shifting. A battery used only for one function usually struggles to justify itself; a battery used across four functions often does not.

Portfolio design should therefore be done on an hourly production-cost model, not only on an annual LCOE basis. The decision variables include:

- State-specific OA charges and surcharge trajectory
- Availability and firmness of grid evacuation and connectivity
- Whether the site can physically host BESS and at what fire-safety and cooling cost
- Diesel displacement potential during outage and test cycles
- PUE reduction capex versus additional renewable procurement cost
- Whether customer contracts reward hourly CFE disclosure or only annual renewable claims

For a 100 MW class campus, even a 3% to 5% error in hourly portfolio design can translate into multi-crore annual cost variance. That is why data-centre buyers should not treat energy attributes as a side letter after tariff negotiation; they should be part of portfolio modelling from day one.

Compliance, reporting and double-counting risks to manage now

The biggest strategic risk in this area is not paying too much for renewable power. It is making a claim that cannot withstand diligence.

In 2026, Indian data-centre operators should stress-test their disclosure stack across four audiences: customers, lenders, auditors and regulators. Each asks a slightly different question.

- Customers ask: how much of my hosted workload is backed by clean energy each hour or month?
- Lenders ask: are the reported energy savings, cost reductions and sustainability undertakings contractually robust?
- Auditors ask: can the source data be traced, reconciled and sampled?
- Regulators and utilities ask: are grid use, OA scheduling and surcharge obligations correctly handled?

Key pitfalls include:

- Double counting physical renewable procurement and separate certificate claims
- Claiming battery output as renewable without tracing the battery charging source
- Ignoring losses between generation point and consumption point
- Assuming annual renewable purchase supports hourly carbon-free claims
- Overlooking state-specific constraints on banking, scheduling and deviation exposure
- Failing to align public claims with PPA wording and customer contract language

The solution is governance. Data centres should establish an internal claim policy approved by finance, legal, operations and sustainability teams. That policy should define which claims are allowed, what evidence is required, who signs off, and how corrections are made if data changes after SLDC or billing reconciliation.

Independent assurance is also becoming more valuable. Even where not legally mandatory, third-party review of metering architecture, attribute ownership and hourly methodology strengthens lender confidence and customer credibility.

What Indian stakeholders should do in 2026

Data-centre operators should start with an hourly-baseline study, not a procurement RFP. Before buying the next solar, wind or RTC contract, map 12 months of hourly load, outage events, cooling profile, DG runtime, utility tariff structure and potential PUE gains.

Developers serving data centres should offer cleaner product design. That means clearer attribute language, better telemetry sharing, and contract options that support hourly reconciliation rather than just monthly invoices.

Lenders should ask for more than annual renewable percentages. They should require source-level metering, storage attribution rules and claim governance as part of diligence for large campuses, especially where sustainability-linked performance is highlighted in the financing narrative.

Utilities and policymakers have an opportunity as well. As data-centre demand grows in Maharashtra, Tamil Nadu, Telangana, Uttar Pradesh, Karnataka and other emerging hubs, market frameworks that improve temporal transparency, scheduling flexibility and storage integration will reduce friction for both reliability and decarbonisation.

The commercial advantage will go to operators who can combine low landed energy cost with high-quality disclosure. In 2026, “renewable-powered” is no longer a sufficient differentiator. “Hour-by-hour auditable clean-energy coverage with resilient grid architecture” is closer to the new standard.

If your data-centre project needs support on hourly CFE strategy, attribute tracking, RTC contracting, BESS sizing, EMS design, grid connectivity or bankable compliance frameworks, contact Growthifye's advisory desk.

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