# Merchant BESS in India 2026: Revenue Stacking, NPV and Bankability

By Sudarshan Karweer · 03 September 2026 · growthifye.com

*A practical 2026 guide to merchant BESS in India: revenue stacking, tariffs, degradation, debt sizing and bankability.*

India's storage discussion has spent the last two years focused on viability gap funding, ancillary services, FDRE tenders and utility-led procurement. That was necessary. But the next strategic question for developers, C&I consumers, lenders and utilities is different: when does merchant battery energy storage system (BESS) capacity become financeable in India without relying entirely on a single long-term contracted payment stream?

In 2026, that question is no longer theoretical. The market is beginning to test merchant and quasi-merchant storage positions around day-ahead energy arbitrage, real-time market spreads, ancillary participation, congestion relief value, peak management and bilateral structuring. The opportunity is real, but so is the risk of overestimating achievable revenue. For Indian market participants, the gap between modelled revenue and bankable revenue remains wide.

This article looks at merchant BESS in India through a practitioner lens: what revenue stacks may work, which assumptions are still too aggressive, where tariffs need to settle, and how lenders are likely to screen such assets in 2026.

## Why merchant BESS is now entering serious discussion

Three shifts explain why merchant storage is now being evaluated more seriously in India.

First, intra-day and inter-temporal price volatility is increasing in several states and market segments. Solar-heavy hours continue to push down daytime prices, while evening ramps and local network constraints can create sharper spreads. As renewable penetration rises, this pattern should deepen, especially in systems with concentrated solar additions and uneven transmission readiness.

Second, battery capex has corrected meaningfully from prior peaks, even after including balance-of-plant, power conversion system, EMS, land, evacuation and contingency costs. For a utility-scale 2-hour BESS in India in 2026, all-in EPC pricing for a well-specified project can broadly fall in the range of Rs 4.8 crore to Rs 6.5 crore per MW for many configurations, depending on duration, cell chemistry, cycle warranty, augmentation strategy, fire safety scope, import dependencies and site conditions. On an energy basis, that often translates to roughly Rs 2.4 crore to Rs 3.3 crore per MWh for a 2-hour system, though actual bid-ready pricing varies significantly.

Third, the market has become more sophisticated in revenue stacking. A battery that is underwritten only on day-ahead arbitrage usually looks fragile. A battery that can combine arbitrage, capacity-like fixed payments, short-duration balancing value, C&I demand management and selected tolling or bilateral contracts may look materially more robust. That does not make it easy to finance, but it changes the conversation.

## What merchant BESS revenue stacking looks like in India

A practical merchant BESS case in India in 2026 is usually not fully merchant in the pure international sense. Most investable structures are better described as hybrid revenue stacks with some contracted floor and some open-market upside.

Common revenue components include:

- Day-ahead market arbitrage
- Real-time market arbitrage
- Ancillary services participation where permitted and operationally feasible
- Bilateral peak power sales to discoms, open access consumers or traders
- Demand charge reduction for C&I users behind-the-meter or at group-captive level
- Renewable firming and schedule optimisation for wind-solar portfolios
- Congestion or curtailment mitigation value where integrated with RE assets
- Capacity reservation or tolling-style fixed availability payments from a third party

The crucial issue is not whether all these revenue lines exist. It is whether they are simultaneously accessible, operationally compatible and contractually bankable for the same asset.

For example, a battery co-located with a renewable project may improve schedule adherence, capture energy shifting spreads and reduce curtailment losses. But if the battery is also expected to chase merchant ancillary upside, the dispatch hierarchy becomes more complex. Revenue cannibalisation can appear quickly if the model double-counts the same state of charge across multiple products.

That is why serious BESS sizing/economics work matters. Duration, round-trip efficiency, augmentation timing, minimum state-of-charge reserve, interconnection limit and dispatch algorithm all directly affect the monetisable stack.

## The economics: what spreads and utilisation levels matter in 2026

For a standalone merchant BESS, the key question is simple: are market spreads wide and consistent enough, after losses and degradation, to justify capex and fixed costs?

Consider a simplified 100 MW / 200 MWh battery.

Illustrative assumptions for 2026:

- All-in project capex: Rs 520 crore to Rs 620 crore depending on technology and scope
- Round-trip AC efficiency: 84% to 88%
- Annual fixed O&M plus LTSA-type costs: roughly 1.5% to 2.5% of capex equivalent, depending on contract structure
- Usable cycles for commercial dispatch: 250 to 450 per year in most prudent cases
- Annual degradation: project models often assume around 2% in early years with augmentation or managed throughput strategies to maintain contractual output
- Debt tenor if available: 10 to 14 years, usually with conservative sculpting and reserve requirements

Now look at gross arbitrage economics. If the average buy-sell spread captured at the grid meter is Rs 3.5 per kWh discharged, and effective delivered energy after losses is around 170 MWh per full cycle equivalent, one cycle can generate gross margin of about Rs 59.5 lakh per day only if cycling and spread are both consistently achieved. But such clean spreads are not available every day, and many days will show lower realised value after market fees, scheduling constraints, partial cycling and suboptimal charge windows.

In practice, many Indian merchant cases break if they rely on one full cycle per day at aggressively high spreads through the entire year. A more defensible underwriting approach often uses:

- 0.6 to 0.9 equivalent full cycles per day depending on use case
- Net realised spreads that are materially lower than headline hourly market spreads
- Explicit deductions for charging losses, auxiliary consumption and market transaction costs
- Availability derating for outages, network constraints and dispatch misses

For many standalone merchant projects, a sustained post-loss gross margin in the range of roughly Rs 1.8 to Rs 3.2 per discharged kWh may still be too thin for comfortable project finance unless capex is exceptionally competitive or the asset captures additional fixed-value revenue. Once the net captured margin moves toward roughly Rs 3.5 to Rs 4.5 per discharged kWh on a diversified stack, economics become more interesting. But that still does not automatically solve debt bankability.

## Why pure merchant revenues remain hard to finance

Lenders in India generally do not object to merchant upside. They object to revenue uncertainty that cannot support minimum debt service coverage on a downside case.

A pure merchant BESS faces at least six bankability challenges.

- Revenue volatility: historical power market spreads in India remain less mature than in long-established storage markets.
- Market design evolution: ancillary rules, dispatch protocols, state-level implementation and settlement confidence are still developing.
- Technology performance risk: usable energy, augmentation, thermal management and degradation curves must align with dispatch assumptions.
- Contract enforceability: if bilateral merchant-style arrangements are used, lenders will examine termination rights, payment security and deemed availability carefully.
- Price cannibalisation: as more batteries enter the same nodes and time windows, arbitrage spreads can compress.
- Grid access and dispatch constraints: connection approvals, state regulations and import/export limitations can sharply reduce theoretical value.

As a result, many lenders in 2026 are likely to consider three broad underwriting buckets.

First, fully contracted storage with clear fixed charges remains easiest.

Second, quasi-merchant structures with a contracted floor covering a substantial share of fixed obligations, plus upside sharing, are increasingly workable.

Third, fully merchant storage may attract equity, platform capital, strategic corporate balance sheets or limited-recourse debt only at lower leverage and tighter covenants.

In practical terms, a merchant or quasi-merchant BESS may see leverage levels around 45% to 60% in many cases where a fully contracted utility-style project might have targeted higher leverage. Required DSCRs are also likely to be stricter, particularly under P90 or downside spread scenarios.

## Which business models are most credible in India today

Not all merchant BESS models are equal. In the Indian context, four business models appear more credible than a pure open-market bet.

### 1. C&I peak management plus market participation

A battery serving a high-tariff industrial or commercial load can monetise demand charge reduction, backup quality improvement and time-of-day optimisation, while retaining limited market participation rights where regulation and metering arrangements allow. This is often more defensible than standalone merchant arbitrage because part of the savings stack is visible from the host consumer's tariff structure.

For large C&I users paying substantial demand charges or facing expensive evening power, even a 1-hour to 2-hour battery can create measurable savings if dispatch is disciplined. The value depends heavily on state tariff orders, open access charges and actual load profile shape.

### 2. Co-located RE plus storage with partial merchant optimisation

Developers with existing solar or wind portfolios can use storage to improve schedule delivery, reduce curtailment exposure and lift realised tariffs from shaped sales. If a portion of battery availability is reserved for renewable firming and the remaining capacity is monetised opportunistically, the project has a stronger base-case rationale than standalone arbitrage alone.

This is especially relevant where curtailment and schedule deviation risks are material. A battery may not eliminate those risks, but it can reduce revenue leakage and improve offtaker confidence.

### 3. Tolling floor plus upside sharing

Under this model, a utility, trader, large consumer or renewable portfolio player pays a fixed reservation or availability fee for defined battery access, while upside beyond the base dispatch plan is shared. This structure is increasingly attractive because it creates a minimum cash flow floor without giving away all merchant potential.

For lenders, this is one of the most promising pathways because it begins to separate debt-service support from speculative upside.

### 4. Portfolio-level storage platforms

Single-asset merchant risk is hard. Multi-asset storage platforms with diversified nodes, different offtakers and active dispatch management may be easier to capitalise. Platform investors can absorb some volatility, optimise across markets and reduce single-node spread compression risk.

## Key modelling mistakes developers should avoid

A surprising number of early BESS models still fail basic investment discipline. The most common mistakes include:

- Assuming one revenue stream does not affect another
- Ignoring state-of-charge constraints during high-value intervals
- Using headline market spreads instead of captured spreads at the project node
- Underestimating degradation impact on later-year revenue
- Omitting augmentation capex or timing it unrealistically late
- Using excessive annual cycle assumptions unsupported by warranty terms
- Ignoring transmission, scheduling and settlement frictions
- Assuming ancillary market access at scale without proven operational pathways
- Overstating salvage value at refinancing or exit

In India, one additional mistake is frequent: importing merchant storage assumptions from Australia, Texas or parts of Europe without adjusting for Indian dispatch rules, tariff structures, market liquidity and payment

behaviour.

The right approach is scenario-based modelling with explicit downside cases. At minimum, sponsors should run:

- Base, downside and severe downside spread cases
- Alternative cycle utilisation cases
- Delayed ancillary participation cases
- Faster degradation and earlier augmentation cases
- Curtailment or network-constrained dispatch cases
- Lower terminal value assumptions

## What policymakers and utilities should watch

Merchant BESS can help India even if only part of the fleet is fully market-exposed. It can improve flexibility, reduce evening stress, support renewable integration and lower balancing costs. But the market needs clearer signals.

The most helpful enablers in 2026 would include:

- Better visibility on ancillary procurement volumes and settlement design
- Clearer state-level rules for storage charging, wheeling and open access treatment
- Bankable templates for tolling, shared savings and flexible capacity contracts
- Faster interconnection processing for standalone storage
- Improved nodal and temporal price transparency
- Consistent treatment of storage as a distinct asset class in regulation and dispatch

Utilities should also avoid treating batteries only as emergency peaking assets. The highest system value often comes from stacked flexibility services across the day, provided dispatch and commercial structures are aligned.

For policymakers, the priority is not to force all storage into one procurement model. India will need multiple routes: utility tenders, VGF-backed projects, RE-linked storage, C&I storage, pumped hydro and selective merchant BESS. The system is too large and too diverse for a single template.

## The bottom line for 2026

Merchant BESS in India is no longer a fringe thesis, but it is not yet a vanilla project-finance product either. The investable opportunities are likely to be those that combine disciplined sizing, realistic captured-spread assumptions, conservative degradation treatment and at least some contracted revenue floor.

For developers, the strategic edge will come from dispatch intelligence and contract design, not from optimistic market-price forecasts alone.

For C&I consumers, the best storage opportunities may sit at the intersection of tariff optimisation, reliability and selective market participation rather than pure speculation on power spreads.

For lenders and investors, the key screening question is simple: what part of the revenue stack is repeatable under downside conditions, and what part is only upside optionality?

India will absolutely need large-scale storage. But the winners in 2026 will be the players who can distinguish technical possibility from financeable cash flow.

If you are evaluating a merchant or quasi-merchant storage strategy, contact Growthifye's advisory desk for support on market modelling, project structuring, diligence and investment decisions.

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