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ELECTRICITY / FREE TRIAL REPORT

India power and flexibility outlook: making capacity bankable

India's electricity opportunity is increasingly about delivering energy at the right hour and location. This trial report connects dated public-market evidence with original demand sensitivities, storage sizing and procurement economics. It explains which questions a large energy buyer should answer before turning a national growth narrative into an investment or supply contract.

15 NOVEMBER 2026 / ENALYT RESEARCH

A public-source research sample with original analysis, stated assumptions and reproducible decision tools. Prepared independently; no affiliation with the organisations discussed is implied.

THE DECISION IN BRIEF

Executive perspective

01 Contract a defined service before selecting a storage technology: dependable MW, usable MW h, delivery hours and charging rights are separate commercial variables.

02 A large tendering pipeline is an opportunity set, not commissioned supply. Keep development stages and source dates separate in any market-size calculation.

03 In an illustrative two-hour storage contract, lowering annual cycles from 330 to 200 increases delivered cost from Rs 7.36 toRs 9.85/kWh, with all other assumptions unchanged.

04 Treat national demand projections as scenarios with a vintage. Weather, demand shape, transmission and completion risk can change the value of an asset even when annual demand grows.

05 The November 2026 storage-support announcement is material policy context; eligibility, domestic-content compliance and project-specific bid terms still need transaction-level verification.

558.90 GW	Installed generation capacity - September 2026 snapshot on NITI's dashboard; not peak demand or storage capacity.
92 GW h	New VGF scheme scope - Approved 4 November 2026; 30 GW h BESS,60 GW h PSP and 2 GW h other storage. Not commissioned capacity.
Rs 7.36/kWh	Illustrative storage delivery cost - Two hours,330 cycles/year,95% usable availability, Rs 2 lakh/MW/month,85% round-trip efficiency, Rs 3/kWh charging.

HOW TO READ THIS REPORT

Source dates and reporting boundaries matter. Observed evidence, derived indicators and illustrative scenarios are identified in the exhibits and notes. Use the source register and methodology before applying a result to a procurement or investment decision.

01 / The investable question is delivery, not the headline

For a refinery, distribution utility or industrial group, a national capacity announcement is only the beginning of an investment case. The commercial question is whether a specific portfolio can deliver the required quantity of power, at the required connection point, during the hours when failure is expensive. A megawatt added in a region with congestion is not interchangeable with a megawatt available at an industrial busbar. Likewise, a low generation tariff is not the same as a low total procurement cost.

Enalyt's central analytical view is that the next competitive advantage lies in matching three ledgers: the physical system, the contractual allocation of rights and the cash cost of delivering energy. Build the physical ledger in MW, MW h and hourly profiles. Build the contractual ledger around charging entitlement, scheduling, degradation guarantees and remedies. Build the cash ledger around capacity payments, charging energy, losses, network costs and financing. Keeping those ledgers separate prevents apparent savings from being counted twice.

This report uses verified public evidence as context and then constructs reproducible scenarios. It does not claim to forecast exchange prices or individual company earnings. For a buyer considering a long-duration commitment, the useful output is a range of conditions under which a project works, plus observable signposts that would invalidate the original decision. That is a stronger basis for procurement than extrapolating one recent auction or a single month of demand.

02 / Read the data through consistent boundaries

NITI's dashboard reports 558.90 GW total installed generation capacity for September 2026 and approximately 1,707 BU electricity requirement for FY2025-26. MNRE separately reported 297.36 GW non-fossil capacity as at 30 June 2026. These are differently dated observations; they should not be combined into a current share calculation.[S1][S2]

EXHIBIT 1 / What the public indicators do and do not measure

Indicator	Verified period/value	Commercial interpretation
Total generation capacity	September 2026:558.90 GW	Nameplate stock; not dependable peak supply
Utility electricity requirement	FY2025-26:approximately 1,707 BU	Annual demand boundary; not an hourly profile
Non-fossil generation capacity	30 June 2026:297.36 GW	Includes renewable and nuclear capacity
BESS under construction	30 June 2026:15,754 MW /42,530 MW h	Development stage; not operational storage

Source:NITI dashboard[S1], MNRE[S2], Ministry of Power[S4].1 BU=1 TWh. Values have not been ratioed across incompatible dates.

A robust market database should preserve the original reporting period, publication date, unit, scope and provisional status. It should also retain old versions. A later publication can repeat an older observation; its publication date does not refresh the underlying data. Similarly, apparent disagreement between sources may reflect treatment of captive generation, hydro, storage or data revisions. Reconcile the boundary before deciding which number is wrong.

DATA QUALITY

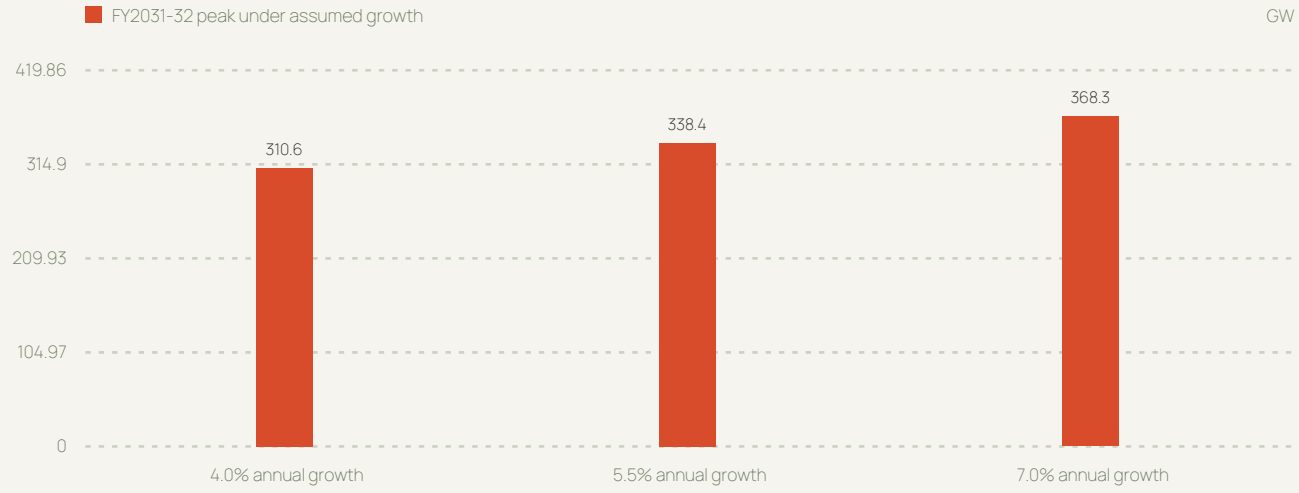
This report avoids constructing a single "latest clean-power share" from differently dated releases. The database record should retain the exact observation date rather than silently joining incompatible snapshots.

03 / Use demand scenarios rather than a point prediction

The 2026 CEA resource-adequacy plan projects a 2035-36 peak of 459 GW in its main demand case and separately considers an alternative demand path. These are planning scenarios, not a guarantee of realised demand. Earlier 2023 NEP figures should remain identifiable as an earlier forecast vintage.[S3][S7]

A procurement committee should stress-test both the level and shape of future demand. Annual energy growth can coexist with slower peak growth if utilisation broadens across the day. Conversely, cooling demand can increase the top few hours disproportionately. For a battery, the relevant variable is not simply national electricity growth but the number of economically useful discharge events and the duration of each event. A small change in these inputs can dominate a modest equipment-price reduction.

EXHIBIT 2 / Illustrative six-year peak-demand sensitivity



Enalyt calculation:245.444 GW FY2025-26 starting observation from CEA peak series, compounded for 6 years. These are mechanical sensitivities, not Enalyt forecasts or CEA projections. Source for starting observation:CEA annual peak-demand data, cited in methodology.

The spread between these cases is 57.8 GW. A diversified portfolio may be preferable to a single irreversible bet when the cost of under-procurement and the cost of surplus capacity are asymmetric. Translate each case into regional load, contracted resources and a residual hourly requirement. Re-run the analysis against adverse weather, delayed connections and outages. Do not allocate the full national peak sensitivity to one state or company without a defensible bottom-up load model.

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Future peak = starting peak x (1 + assumed annual growth rate)^6
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Starting point 245.444 GW; growth assumptions 4.0%,5.5%,7.0%. Rounding occurs only after calculation.

04 / Separate the storage pipeline from delivered assets

The Ministry of Power's 30 June 2026 snapshot distinguishes BESS under construction, awarded capacity and tendering capacity. The associated energy-to-power ratios differ, so treating all procurement as a uniform two-hour product would distort the opportunity.[S4]

EXHIBIT 3 / BESS stages are not interchangeable

Reported stage	Power(MW)	Energy(MW h)	Implied duration(hours)
Under construction	15,754	42,530	2.70
Awarded	11,747	38,425	3.27
Tendering	19,192	67,574	3.52

Source:Ministry of Power snapshot 30 June 2026[S4].Duration=MW h/MW, calculated by Enalyt. No totals are presented because stage definitions, overlap and movement require project-level reconciliation.

For a supplier, the opportunity funnel should narrow from announced potential to eligible tenders, executable orders and funded construction. For an investor, the same funnel should distinguish land, grid connection, offtake, financing, procurement and commissioning evidence. A project can remain visible in a pipeline after one of those prerequisites has failed. The work is not merely collecting announcements; it is maintaining a timestamped change history and a consistent project identifier.

For a buyer, pipeline monitoring is also a competitive tool. A large volume of projects seeking the same commissioning window can create delivery and supply-chain pressure even as bid prices fall. Ask whether a low price assumes a different duty cycle, subsidy, domestic-content treatment, tax position or end-of-life warranty. A project count without those attributes is insufficient for procurement benchmarking.

05 / Size a service at the point of delivery

Consider an illustrative requirement to provide 100 MW for four consecutive evening hours at the AC delivery point. The net delivered energy requirement is 400 MW h. Assuming 90% retained capacity at the contractual end of life and a 95% usable discharge window gives approximately 468 MW h of initial AC-equivalent discharge energy before those two deratings. This is not a DC battery-cell nameplate rating: conversion to DC nameplate also requires a separately stated discharge-path efficiency and an explicit treatment of auxiliary loads.

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Initial AC-equivalent energy = required net AC delivery / (end-of-life retained fraction x
usable discharge fraction)
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Illustration:400 MW h/(0.90x0.95)=467.84 MW h AC-equivalent. DC nameplate would additionally divide by the separately specified discharge-path efficiency, with auxiliary losses treated consistently. No DC nameplate is calculated here.

At an assumed 85% net AC-to-AC round-trip efficiency, the 400 MW h delivery event requires approximately 470.6 MW h of AC charging energy:400/0.85. Round-trip efficiency is used for this charging-energy bridge; it is not a substitute for a separate discharge efficiency in a DC nameplate calculation. The design still needs a power-conversion system capable of the contracted MW, adequate connection capacity, temperature-dependent performance and consistent auxiliary-load boundaries. A larger energy allowance does not automatically solve inverter limits or a whole-site outage.

Availability must also be handled correctly. Multiplying this energy allowance by the inverse of an annual availability percentage does not guarantee delivery through an outage. Reliability may require spare power modules, redundancy, portfolio diversification or an alternative supply arrangement. The buyer should request event-level performance simulations and clear remedies for failure during critical hours. An annual average availability guarantee is weaker than a guarantee aligned to the actual hours of value.

EXHIBIT 4 / A minimum battery service specification

Requirement	Question to resolve before price comparison
Delivery boundary	Is MW/MW h measured at battery terminals or connection point?
Energy guarantee	At beginning or end of life; before or after auxiliaries?
Charging rights	Who buys energy, selects hours and bears deviation costs?
Degradation	Who funds augmentation and owns replacement equipment?
Reliability	Which outages are excluded and how are critical events protected?

Enalyt procurement framework. The 100 MW/four-hour calculation is an illustrative AC-equivalent energy allowance, not a DC battery nameplate or an engineering design.

06 / Convert capacity charges into a comparable delivery cost

A capacity charge quoted per MW per month cannot be compared directly with a generation tariff quoted per kWh. The denominator matters. For an illustrative 1 MW/two-hour contract atRs 200,000/MW/month, annual fixed payment isRs 2.4 million. At 330 cycles and 95% usable availability, annual discharged energy is 627,000 kWh. Fixed cost is thereforeRs 3.83/kWh. Charging atRs 3/kWh and 85% round-trip efficiency addsRs 3.53/kWh, producingRs 7.36/kWh before network charges, taxes, trading, deviations and other excluded costs.

EXHIBIT 5 / Utilisation changes the price of stored energy

Annual cycles	Delivered energy(kWh/MW-year)	Fixed cost(Rs/kWh)	Fixed plus charging(Rs/kWh)
200	380,000	6.32	9.85
250	475,000	5.05	8.58
330	627,000	3.83	7.36
365	693,500	3.46	6.99

Enalyt illustration. Duration 2 h; usable availability 95%; capacity chargeRs 2 lakh/MW/month; chargingRs 3/kWh; round-trip efficiency 85%.No ancillary revenue, subsidy or avoided demand charge assumed.

This sensitivity suggests a practical diligence order. Confirm dispatchable cycles and the charging plan before negotiating a small capacity-price difference. Then test the charging tariff at the same delivery boundary as the discharge benefit. Cheap midday energy at another node is not necessarily accessible to the battery. Curtailment cannot be treated as free charging unless the project has the relevant physical and contractual rights.

Revenue stacking needs the same discipline. CERC has an ancillary-services framework, but eligibility does not create guaranteed utilisation or revenue.[S6] A firming commitment may reserve the same MW or state of charge needed for another service. Allocate availability across products and simulate conflicts before adding two independent revenue forecasts.

There is a useful comparison hidden in the cycle sensitivity. A25% reduction in the illustrative capacity charge, fromRs 200,000 toRs 150,000/MW/month, does not fully offset utilisation falling from 330 to 200 cycles. At 200 cycles, the lower charge still produces approximatelyRs 8.27/kWh including charging, above the Rs 7.36 base case. To preserve the base result at 200 cycles, the capacity charge would need to fall to aboutRs 121,200/MW/month, assuming unchanged efficiency and charging cost. This is arithmetic rather than a price forecast. It demonstrates why an apparently dramatic headline tariff reduction can coexist with worse delivered economics when the usable dispatch opportunity deteriorates.

07 / Treat support schemes as conditional cash flows

The 4 November 2026 scheme announcement providesRs 14,500 crore support for 92 GW h of storage and specifies a 40% minimum domestic-content requirement for BESS. The split is 30 GW h BESS,60 GW h pumped storage and 2 GW h alternative technologies.[S5]

That announcement changes the diligence agenda, but it does not justify subtracting an assumed grant from every project's capital cost. Identify the implementing route, eligible recipient, disbursement milestones, security requirements and consequences of delay. Trace whether the commercial benefit appears in a lower capacity charge, a developer capital contribution or another contractual mechanism. A grant payable after commissioning can still leave a material construction-funding requirement.

The domestic-content condition should be converted into an auditable bill-of-materials question. Which component categories count, which evidence proves origin and who bears the risk if a supplier's declaration is rejected? Build the

compliance cost into the base case and a delay scenario into working capital. Do not assume that a low imported-cell quotation and the full policy benefit are simultaneously available without checking the applicable rules.

The historical SECI ESS-I record illustrates another gate: a tariff discovery and an award are different from regulatory adoption. CERC'sJanuary 2025 order is a concrete reminder to track the approval sequence rather than treating an auction price as an immediately executable market benchmark.[S8] Transaction-specific legal and regulatory review is required before commitment.

08 / Model correlated execution and operating downside

Single-variable sensitivities are useful for understanding a model, but they can understate commercial risk. Consider a buyer whose storage contract begins six months after the expected date, while expensive evening purchases and lower-than-expected useful cycling occur in the first operating year. The delay raises replacement-supply cost; lower cycling spreads the fixed storage payment over fewer delivered units; expensive charging narrows the value of the eventual dispatch. These exposures should be evaluated together.

Create a monthly cash-flow bridge from contract award through stable operation. Include development spending, deposits, construction payments, connection milestones, subsidy receipts where eligible and payment delays. Then overlay the operational dispatch model. This reveals whether a project with an acceptable long-run unit cost still creates an unacceptable funding gap. A low unlevered cost of energy is not proof that the project can finance its way through the construction and ramp-up period.

The same approach applies to an industrial buyer assessing a supply contract. The relevant downside includes the cost of replacement power during delay, production consequences of non-delivery and the recoverability of contractual damages. A penalty receivable is not equivalent to physical supply. Test counterparty credit and security alongside technical performance rather than assigning full recovery automatically.

> **ILLUSTRATIVE STRESS LOGIC**
>
> Combine delays, charging-price pressure and lower utilisation when they share an underlying cause. This report does not attach invented probabilities to those events. A project-specific investment case should document the evidence behind each probability and the contractual mitigants that remain effective in the joint downside.

09 / A decision system for the next twelve months

A useful corporate workflow begins with an hourly load and portfolio model, not a technology shopping list. Split the residual requirement into short evening peaks, sustained overnight energy, reserve and seasonal gaps. Screen each segment against demand response, market purchases, bilateral contracts, batteries and pumped storage. Preserve the option to contract different services instead of forcing one asset to solve every problem.

- For procurement teams:normalise every offer to the same delivery boundary, cycle entitlement, end-of-life guarantee and excluded-cost schedule. Request a machine-readable assumptions sheet.

- For development teams:track one project identifier through announcement, bid, award, signed agreement, tariff adoption, financing, construction and commissioning. Record documentary proof of every transition.

- For strategy teams:maintain forecast vintages and confidence ranges. Review demand shape and regional constraints when macro assumptions change.

- For finance teams:stress charging prices, utilisation, degradation, delays and payment timing together. Correlated downside is more informative than isolated single-variable sensitivities.

Enalyt's view is that a high-quality energy database should make these decisions faster and more auditable. Its value is not the number of rows alone. It is the ability to compare a bid with the appropriate peer group, reconstruct a historical assumption and explain why a project moved from opportunity to risk. The useful subscription product is therefore a maintained evidence system, connected to models that users can interrogate.

METHOD & LIMITATIONS

The evidence behind the analysis

This report combines dated primary disclosures from NITI Aayog, MNRE, the Ministry of Power, CEA and CERC with original Enalyt calculations. Capacity observations, fiscal-year electricity requirement, project stages and policy announcements are kept separate. The peak-demand sensitivity starts with CEA's 245.444 GW FY2025-26 observation[S9] and applies explicit compound-growth assumptions for six years. It is not a fitted forecast. Battery sizing calculates an initial AC-equivalent discharge-energy allowance using assumed end-of-life retention and usable discharge window; it does not calculate DC battery nameplate, which also requires separate discharge-path efficiency. Charging-energy demand uses an assumed net AC-to-AC round-trip efficiency separately. Storage economics divide annual capacity payments by assumed delivered energy and add charging cost divided by round-trip efficiency. These simplified, unlevered comparisons exclude network charges, taxes, auxiliaries, augmentation not already priced, imbalance costs, financing, subsidies and residual value. They do not constitute a bankable engineering or project-finance model. Project-stage aggregates are reproduced without summing categories because project-level overlap and movement were not independently reconciled. No proprietary dispatch series, live exchange prices or company confidential data were used. Official planning projections retain their publication vintage and are not presented as actual installations. Figures were checked against source material available on 15 November 2026; future revisions and project-specific terms can change the conclusions.

The downloadable evidence tables and online edition accompany this report. Original public-source rights remain with their respective owners. This is research for evaluation and internal discussion, not a live price feed, an audited forecast or an executable commercial offer.

Source register

S1 / India Climate & Energy Dashboard: India Power Sector Overview

NITI Aayog | FY2025-26 demand; installed capacity September 2026 | Accessed 2026-11-15

https://iced.niti.gov.in/?trk=organization_guest_main-feed-card_reshare-text

Search-indexed rendered dashboard available on15November2026,marked last updated2November2026. The indexed view explicitly reports558.90GW installed capacity forSeptember2026 and1,707BU electricity requirement forFY2025-26. Direct dynamic-page extraction is intermittent and did not consistently reproduce those numeric widgets. These are dated indexed observations,not live figures.

S2 / India's Renewable Energy Installed Capacity Surges Nearly Fourfold to 288.58 GW Since 2014

Ministry of New and Renewable Energy / PIB | 30 June 2026; released 21 July 2026 | Accessed 2026-11-15

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2287149&lang=1&reg=48

S3 / Long Term National Resource Adequacy Plan, 2026-27 to 2035-36

Central Electricity Authority | 2026 planning publication, horizon to FY2035-36 | Accessed 2026-11-15

https://cea.nic.in/notification/long-term-national-resource-adequacy-plan-2026-27-to-2035-36/?lang=en

Planning projections, not installed or committed capacity. See report executive summary and Chapter 4.

S4 / Framework for Balancing Electricity Financial Sustainability and Affordability: Annexure

Ministry of Power / PIB | Storage project stages as at 30 June 2026; released 10 August 2026 | Accessed 2026-11-15

https://www.pib.gov.in/PressReleseDetailm.aspx?PRID=2297228&lang=2&reg=48

Development-stage aggregates are not commissioned capacity or a live tender list.

S5 / Cabinet approves Rs.14,500 crore VGF Scheme for 92 GW h Grid-Scale Energy Storage Systems

Ministry of Power / PIB | 4 November 2026 announcement; FY2026-27 to FY2030-31 | Accessed 2026-11-15

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2332486&lang=1&reg=3

Scheme intent; project-specific allocations, guidelines and bid terms require separate verification.

S6 / Ancillary Services Regulations, 2022

Central Electricity Regulatory Commission | Notification 31 January 2022 | Accessed 2026-11-15

https://cercind.gov.in/Regulations/Ancillary-Service-Regulations-2022.pdf

Read with subsequent amendments and applicable detailed procedures; no ancillary revenue forecast is assumed.

S7 / CEA notifies National Electricity Plan for 2022-32

Ministry of Power / PIB | 2023 plan vintage; horizon FY2031-32 | Accessed 2026-11-15

https://www.pib.gov.in/Pressreleaseshare.aspx?PRID=1928750&lang=2&reg=48

Historical forecast vintage, not the newest forecast or a record of actual installations.

S8 / Order in Petition No.138/AT/2024: SECI ESS-I battery storage tariff adoption

Central Electricity Regulatory Commission | Order dated 2 January 2025 | Accessed 2026-11-15

https://cercind.gov.in/2025/orders/138-AT-2024.pdf

Historical adjudicated procurement record; not evidence of current commissioning or live bid availability.

S9 / Month-wise power supply position of States/UTs during 2025-26:Annex-IV(A), peak, All India row

Central Electricity Authority | FY2025-26 monthly and complete-year observations | Accessed 2026-11-15

https://www.cea.nic.in/api/dashboardReports/view-pdf/en/991fe498-dcef-4664-bee0-4cba9fb337b9

Search-indexed officialCEAAnnex-IV(A)All-India row reports annual peak demand245,444MW and peak met245,416MW. IntegerMW precision retained. Direct legacy API downloads failed to reproduce during recheck;the current indexed official table corroborates the values,which are historicalFY2025-26observations,not live data.