



ENERGY MARKETS INTELLIGENCE

How Rigorous Asset Optimization Unlocks Hidden Value in Power Infrastructure

Energy markets are at a critical inflection point. Capital is flowing in at record pace, clean energy deployment continues to accelerate despite policy and economic headwinds, and for many operators the top line keeps growing. In this environment, it is easy to assume the assets are optimized, but revenue growth can mask operational and financial risks. In today's markets, the risks beneath the surface are significant.

The combination of volatile commodity markets, load growth driven by data centers and industrial electrification, and a rapidly evolving regulatory landscape has fundamentally changed power-asset risk profiles. The margin between value creation and capital erosion is increasingly determined not by which assets you own but by how rigorously you operate, dispatch, and evaluate them.

Asset optimization, when done well, is both a top-line and bottom-line discipline. It expands revenues through smarter dispatch and market participation, and it reduces costs through disciplined maintenance planning, lifecycle analysis, and contract structuring. If done poorly, or not at all, owners and investors leave value on the table and are exposed to risks that never appear in a base-case model.

This paper marks the launch of the A&M Infrastructure & Capital Projects (A&M INFRRA) Energy Markets Intelligence (EMI) practice, and to demonstrate our advanced analytical capabilities and the strategic value we deliver to clients navigating the volatile energy sector.

A&M was founded on a discipline of rigorous analysis and problem solving. Though the firm has grown considerably beyond its restructuring origins, that foundational way of working remains deeply embedded in our culture. We are a senior-led team equipped to translate data into decisions. The EMI team is a group of practitioners with combined experience across ISO operations, market design, asset development, and advisory. We bring a practitioner's perspective to the analytical challenges the energy market demands.

Translating our in-depth market experience into value for clients requires more than just subject matter expertise. Through our work in this space, we have found success in deploying a repeatable analytical framework built for the complexity of today's energy market. That is what EMI's AssetIQ framework delivers.



Introducing AssetIQ

EMI's AssetIQ framework aims to answer how to realize the full economic potential of an asset, or a portfolio of assets, across its operating life. Our approach is not a one-time analysis, but rather a continuous, iterative practice, that compounds value over time.

Rapid Results Diagnostic

A targeted assessment that captures critical data across operational efficiency, financial performance, market positioning, dispatch dynamics, and regulatory alignment.

Quick Wins

Pinpoint high-impact opportunities for cost savings or revenue generation, backed by quantified value estimates and implementation pathways to increase ROI.

Comparable Analysis

In depth evaluation of critical data across peer assets to further identify opportunities for cost savings and value gains.

Maintenance Planning

Synchronize maintenance cycles with market seasonality and system reliability targets.

Performance Feedback Loop

Re-evaluate asset and portfolio outcomes against original diagnostic benchmarks to confirm value capture, validate model assumptions, and identify residual gaps.

Continuous Improvement

Integrate new market, operational, and regulatory insights to recalibrate dispatch, maintenance, and contracting strategies, ensuring sustained optimization and readiness for the next planning cycle.



Dispatch Strategy and Forecast Integration

Align generation and bidding with real-time and forward price signals to capture market upside and leverage market forecasts to guide dispatch and maintenance decisions dynamically and prioritize market participation.

Hedging and Contract Effectiveness

Benchmark PPAs, tolling, and structured contracts against merchant exposure and forward curves to assess whether the existing structure works and, if not, how to modify it.

Lifecycle Strategy

Analyze CapEx vs. O&M trade-offs to compare options based on NPV and reliability impacts.

CASE STUDY:

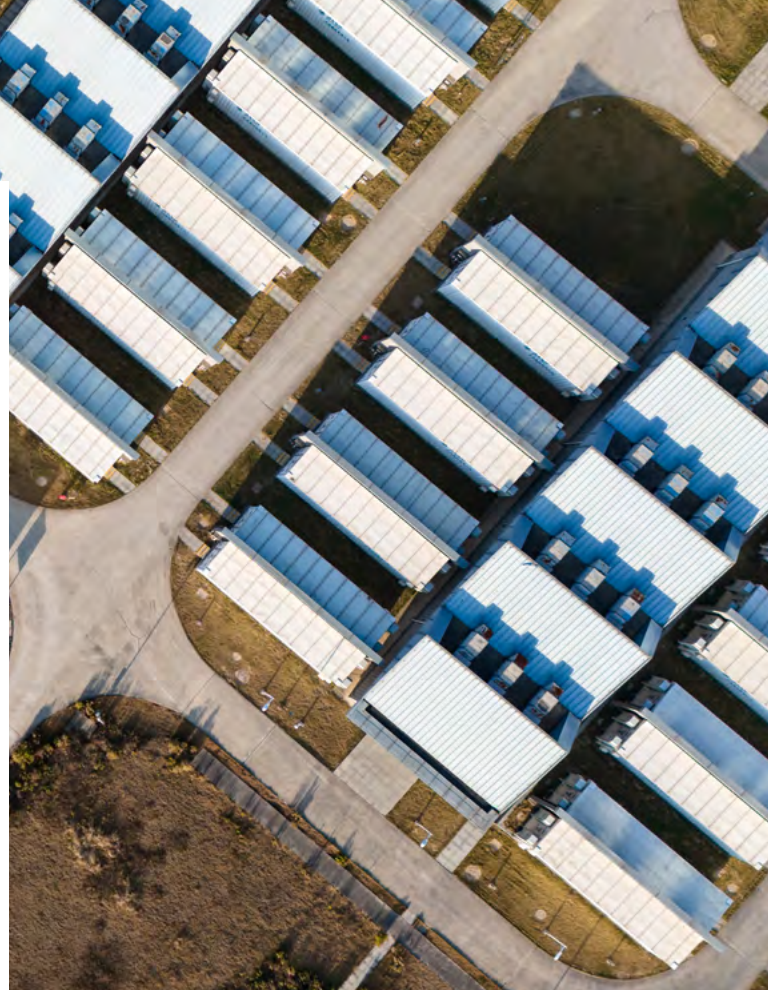
Why Battery Storage Exposes the Limits of Conventional Analysis

Battery storage is one of the fastest-growing asset classes in power infrastructure, with capital commitments in the tens of billions annually.

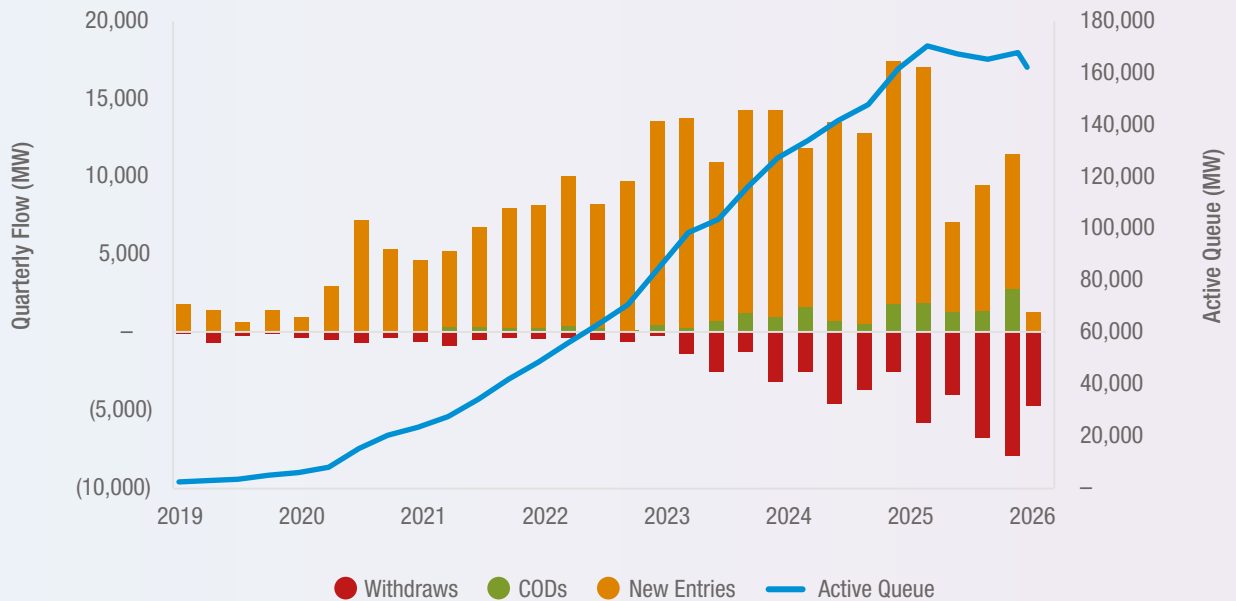
This growth is driven by falling technology costs, growing ancillary services markets, lucrative capacity markets, and the increasing need for flexible capacity as renewable penetration rises.

Yet the analytical discipline applied to battery storage has not kept pace with the speed of deployment. Underwriting and acquisition decisions are often made with tools designed for an earlier era of power assets when predictable dispatch profiles and stable capacity factors were the norm. Today, these tools and frameworks may produce misleading results, understate risk, or overstate revenue. Rarely do they capture the full range of outcomes that determine whether a battery investment creates or destroys value.

Applying AssetIQ to battery storage assets reveals two areas where current market practice falls short, and where first movers that close these gaps will hold a durable analytical edge.



ERCOT Quarterly Battery Interconnection Queue



ERCOT's active battery queue grew from roughly 2.3 GW at the end of Q1 2019 to about 162 GW at the start of Q2 2026, a roughly 70x increase in seven years. Peak quarterly inflow so far was Q1 2025 at 15.5 GW of new battery applications in a single quarter. Since 2019, 232.7 GW of battery applications have been submitted, 57.4 GW withdrawn, and 18.3 GW reached commercial operation. Source: ERCOT Monthly GIS Report.

OBSERVATION 1:

Stochastic Models Should Be Built on Deterministic Foundations

The standard practice in battery storage underwriting is to model three scenarios, low, base, and high, varying key assumptions to capture a range of uncertainty.

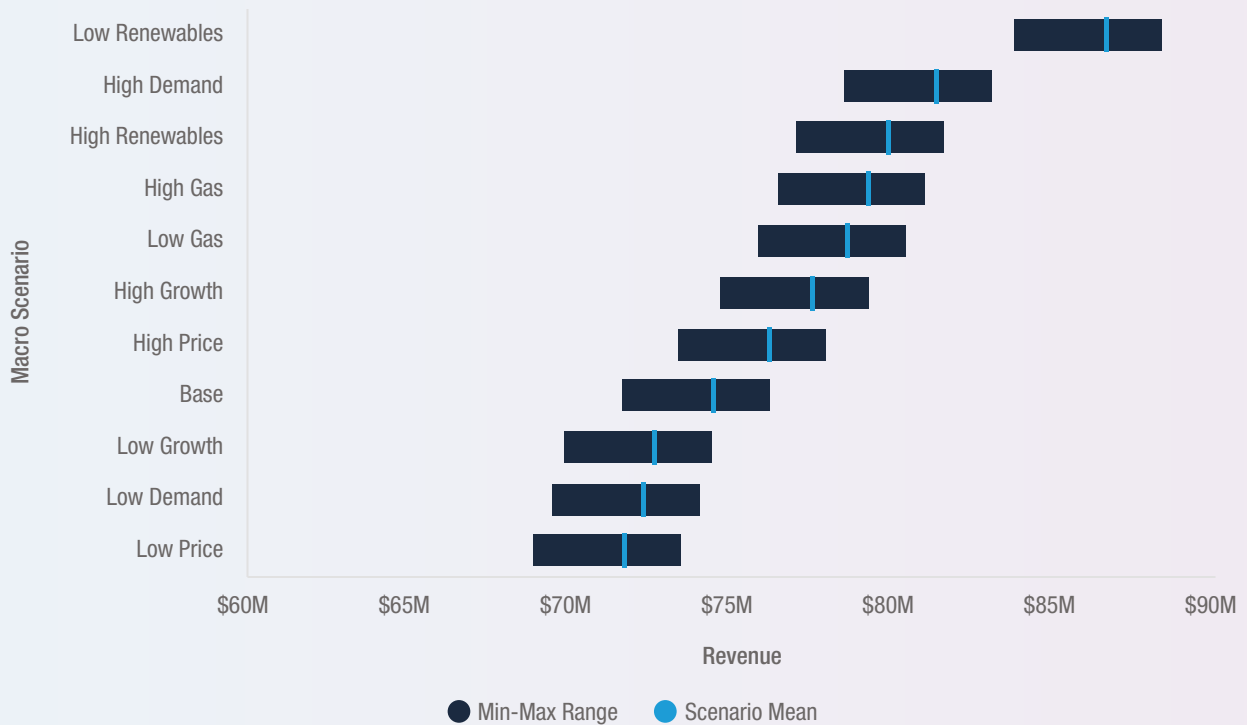
This approach has real virtues: it is transparent, communicable to investment committees, and produces a range of IRRs that can be weighed against a hurdle rate. However, it has a fundamental limitation: deterministic cases do not give investors a view on the probability of any outcome. Instead, these cases tell us what happens at the bounds and at the center.

In a stable macro environment, the limitation of a deterministic approach is manageable. When commodity markets, interest rates, load growth trajectories, and regulatory frameworks are all reasonably predictable, a well-constructed base case is a useful approximation of expected value. Current conditions do not reflect this environment.

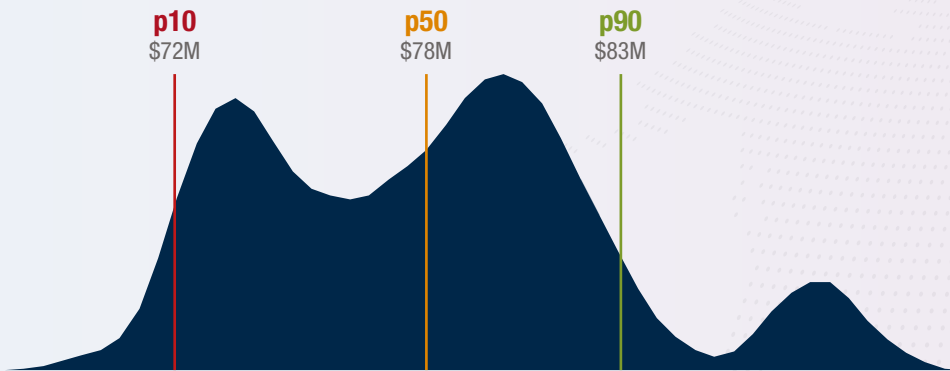
The macro backdrop for power markets is characterized by structural uncertainty across virtually every dimension that drives battery storage economics, and these risks are not appropriately captured in a three-scenario deterministic model.

Our approach is to use deterministic assumptions as an anchor with a stochastic model filling in the gaps. By running thousands of simulations, the stochastic layer produces a full probability distribution of cash flows and returns. This answers the questions that deterministic analysis cannot: What is the probability that this asset achieves its target IRR? What does the 10th percentile outcome look like, and is it acceptable? Where is the cash flow distribution most exposed to adverse scenarios? For battery storage, extracting probabilities matters because the asset's value is disproportionately concentrated in a relatively small number of high-price dispatch events. The timing, frequency, and magnitude of those events are stochastic by nature, and a stochastic model built on a rigorous deterministic foundation captures that distribution accurately.

StorageEval: Example Revenue Spreads from Deterministic Macro Scenarios



StorageEval: Example Stochastic Cumulative 10-Year Revenue Distribution Proxy Energy Storage Facility in PJM Dominion (100MW / 4hr)



OBSERVATION 2:

Portfolio-Level Underwriting, Not Standalone IRR

The conventional approach to battery storage acquisition follows a straightforward logic: model the standalone IRR of the storage asset, evaluate it against a hurdle rate, and make an investment decision.

While clean, this approach is incomplete. When considering whether to add a storage asset to an existing portfolio, investors must understand how the storage asset impacts the IRR of the portfolio. Battery storage interacts with existing assets in ways that can fundamentally reshape portfolio economics.

- **Cannibalization Risk:** A battery arbitrage strategy can generate strong standalone revenues. But if the portfolio already includes a wind asset with a merchant tail, or a thermal peaker that earns capacity revenues, the battery may capture value that was already flowing to existing assets, reducing the incremental value of the acquisition to a fraction of what standalone analysis suggests.
- **Dispatch Unlocking:** Conversely, a battery added to a renewable portfolio with curtailment exposure can capture energy that would otherwise be spilled, shifting the capacity factor of the combined portfolio. A battery paired with a thermal asset that has high ramp costs can absorb the volatility that makes optimal dispatch difficult, thereby improving the thermal asset's capture rate. In these cases, standalone battery IRR systematically understates the portfolio-level value of the acquisition.

- **Contract Portfolio Effects:** Battery storage changes the risk profile of the entire contract book. A storage asset that provides flexible capacity may allow the portfolio to take on more merchant exposure elsewhere, or to optimize the shape of existing PPAs. These second-order effects do not appear in standalone analysis, but they are often the most durable source of value a battery asset creates.

Standalone analysis creates systematic mispricing in both directions. Buyers who rely on standalone IRR to evaluate storage acquisitions will overpay for batteries that cannibalize existing portfolio value and underpay, or walk away from, batteries that unlock dispatch flexibility and portfolio efficiencies. Investors who underwrite storage at the portfolio level will hold a durable bidding advantage by out-competing for the right assets and exercising discipline on the wrong ones.





What Rigorous Asset Optimization Looks Like in Practice

The perspectives outlined in this paper are not independent analytical challenges; they are two dimensions of the same underlying problem: battery storage is being evaluated with frameworks that were not designed for it.

Battery storage is the test case in this paper because the stakes of analytical rigor are highest and the market gap is most visible. But the variables that drive BESS economics, such as dispatch, market participation, degradation, and contract structure are the same variables that drive value across every asset class in the power sector. What is true for batteries is increasingly true for the rest of the fleet. That said, we believe this perspective on battery storage is representative of how the entire sector is assessing all technology types.

By engaging with how investors and operators work today, we identify where conventional approaches create friction, introduce blind spots, and leave value on the table. AssetIQ is designed to address those gaps directly, not by replacing how the market works, but by sharpening the analytical foundation beneath it. In practice, effective asset optimization delivers three outcomes:

Earnings Durability

A clear-eyed view of how revenues hold up across a realistic range of market conditions, not just the base case.

Validation of Project and Portfolio Economics

Confidence in the numbers underlying an investment or operational decision reflect how the asset actually behaves in the market.

Proactive Risk Containment

The ability to identify low-probability, high-impact risks before they materialize, and structure operations, contracts, and capital plans accordingly.

Conclusion

Asset optimization sits at the intersection of EMI's core capabilities: energy market fundamentals, regulatory and policy intelligence, customized market solutions, and capital deployment advisory.

Energy markets are becoming structurally more complex. This complexity is reshaping utility strategy and capital programs, large-load power strategy, generation assets, and the transactions tied to them. EMI cuts through the complexity with analytical tools grounded in market intelligence. Every engagement is tailored to clarify clients' blind spots and to test how revenues hold up under different market and policy scenarios. We deliver insights at the pace of the decision, not after it.

By collaborating with clients to develop a shared fact base, align assumptions, and evaluate trade-offs, we clarify uncertainty and its implications, providing practical paths forward rather than abstract projections. Success is measured not by the quality of the analysis, but by the quality of the decisions it enables: clearer choices, improved execution, and real-world results.



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