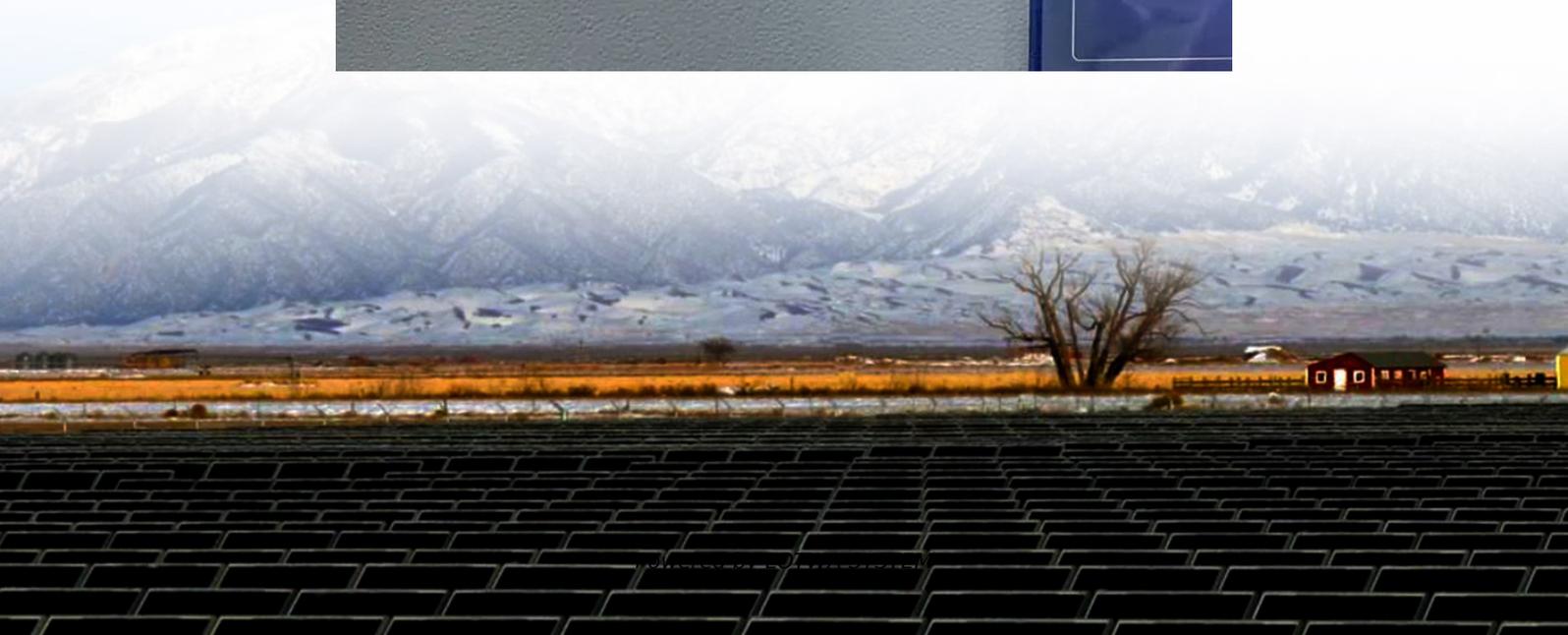
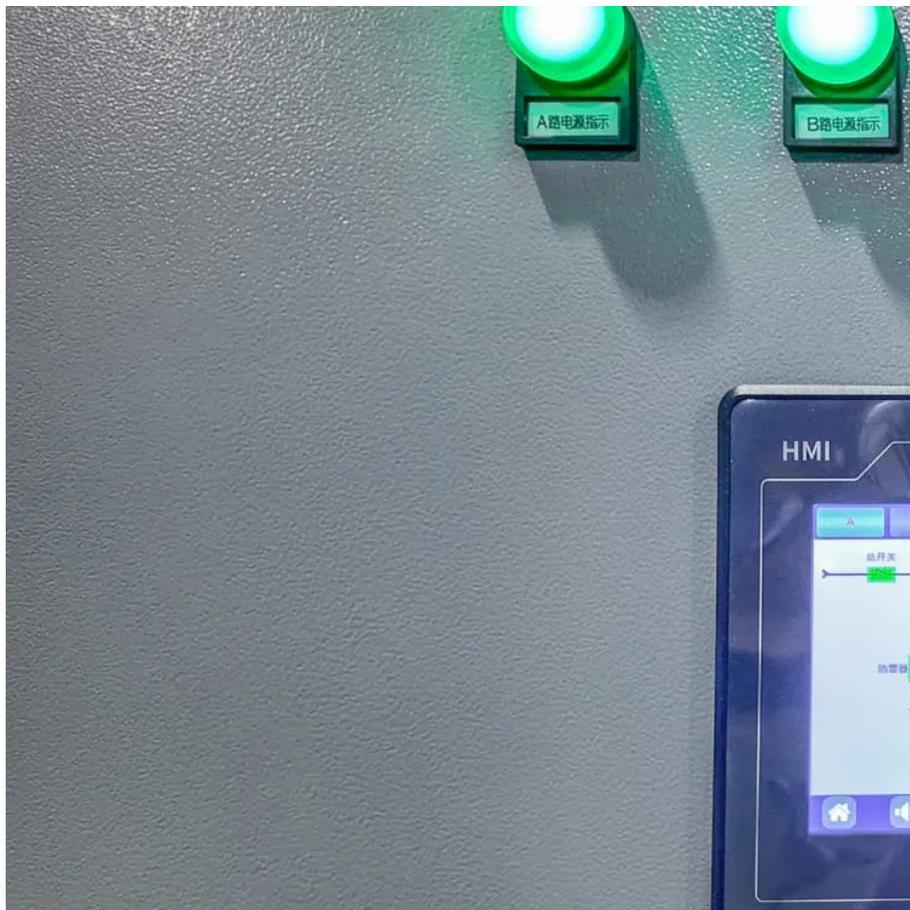


# Energy storage delays grid upgrades





## Overview

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What is a grid enhancing technology?

U.S. utilities are using them to accelerate capacity additions and harden corridors against rising load and extreme weather. Grid-enhancing technologies (GETs), including dynamic line ratings (DLR), topology optimization software, and modular power flow controllers, are also gaining traction.

How much will utility data center load grow in 2029?

While industry specialists estimate five-year demand growth from 10 GW to 65 GW, Grid Strategies' rough estimate of aggregate utility data center load forecasts is about 80 GW—nearly 10% of the projected 2029 U.S. load. The firm cautioned that this figure relies on “informed speculation” for regions with inconsistent or unpublished breakout data.

Why does Berlin have a high-voltage grid?

1. Grid Capacity Scarcity Grids, designed decades ago to distribute energy down from centralised fossil fuel plants, lack the bandwidth to integrate distributed renewables and soaring electrification. In Berlin, high-voltage connection requests now exceed the city's entire peak load, forcing DSOs to ration capacity.

Are utilities and grid planners adapting?

Utilities and grid planners are scrambling to adapt. American Electric Power (AEP) in May, for example, reported more than 180 GW of load in its queue, five times its system peak, and is already investing in 20 GW of new capacity to serve rising demand.



## Energy storage delays grid upgrades

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How Interconnection Reform Can Accelerate Clean ...

Nov 19, 2024 · Executive Summary The process of integrating new electricity sources to the power grid--known as "generator interconnection"--must be reformed to realize the full ...

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Ofgem sets out major reform package in next step to accelerate grid

3 days ago · The new regime for transmission and distribution network operators will be worked up in 2026 - aiming to slash delays in connecting ready-to-go new clean power generation; ...

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Gridlock to grid growth: tackling connection ...

Apr 11, 2025 · The result? Bottlenecks that are stalling solar farms in some regions until 2030, delaying distribution upgrades and threatening to ...

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Will battery energy storage delays affect the grid this winter

Delays to battery energy storage projects mean that buildout has been slower than expected. In Q3 2023, EPC struggles and grid connection issued prevailed.

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Energy Storage and Grids

Over 65 countries and 100 organisations support the Global Energy Storage and Grids Pledge, led by the COP29 Presidency. The pledge sets out the ...

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Britain's grid overhaul means hundreds of energy projects ...

3 days ago · Under the new plans, grid connection dates before the end of the decade will be offered to almost one-fifth of the energy and storage projects in the queue, about 131.6 ...

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3,000 GW in limbo as the grid struggles to keep up

Mar 31, 2025 · Over 3,000 GW of renewable energy is stuck in grid connection queues due to outdated infrastructure, delaying the transition to a clean energy future.

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DOE Distributed Energy Resource ...

3 days ago · Enable flexible interconnection so DERs can be used to defer grid upgrades and avoid delays in exchange for curtailing generation. Use ...

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DOE Proposes Changes to Reduce Regulatory Hurdles for Energy Storage

Nov 16, 2023 · Energy Storage Systems Energy storage systems can be used to integrate renewable energy into the electric grid, to help generation facilities operate at optimal levels, ...

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What Spain's Blackout Means for America's Grid and Its Energy Storage

1 day ago · The April 2025 Iberian blackout revealed critical vulnerabilities in centralized power grids, emphasizing the need for technological upgrades like energy storage, AI, and ...

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### The Impact of Grid Connection Delays on PPA Project ...

Grid connection delays are now a major pinch point for Power Purchase Agreement (PPA) projects, impacting the deployment of renewable energy as well as investor confidence. The ...

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### 3,000 GW in limbo as the grid struggles to ...

Mar 31, 2025 · Over 3,000 GW of renewable energy is stuck in grid connection queues due to outdated infrastructure, delaying the transition ...

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### Energy storage delays grid upgrade and expansion

A better approach, Mr. Gramlich said, would be for grid operators to plan transmission upgrades that are broadly beneficial and spread the costs among a wider set of energy providers and ...

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### Gridlock to grid growth: tackling connection queues for a ...

Apr 11, 2025 · The result? Bottlenecks that are stalling solar farms in some regions until 2030, delaying distribution upgrades and threatening to overwhelm the grid with too many small ...

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### How do interconnection queues affect the ...

Dec 1, 2024 · Interconnection queues significantly impact the integration of new energy storage systems by creating bottlenecks and delays, which ...

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### Out of Sync: The Infrastructure Misalignment Undermining the U.S. Grid

Jun 11, 2025 · Ten of the most active states--led by New York, Massachusetts, Michigan, and New Jersey--approved major utility grid plans, adopted multi-gigawatt energy storage targets, ...

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### Grid flexibility for a resilient, equitable energy ...

Jan 20, 2025 · Investing in grid flexibility ensures future generations will reap the benefits of a cleaner and more resilient energy system. An investment ...

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### Storage projects in the queue: Grid access challenges slow ...

Aug 15, 2025 · As Germany scales up its energy transition, the spotlight is turning toward battery storage as a vital piece of the puzzle. Yet despite growing interest and strong market ...

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### Out of Sync: The Infrastructure Misalignment ...

Jun 11, 2025 · Ten of the most active states--led by New York, Massachusetts, Michigan, and New Jersey--approved major utility grid ...

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### Grid Connection Barriers To New-Build Power Plants In the ...

Jan 13, 2025 · Solar, battery storage, and wind energy account for 95% of all active capacity in the queues. The unprecedented volume of requests in queues points to significant shifts in the ...

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### Network Upgrades Are Delaying New Energy Generation -- ...

3 days ago · The Takeaway: Unless steps are taken to alleviate this backlog, network upgrades could quickly become a principal bottleneck preventing new generation from coming online. ...

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Distributed interconnection delays threaten ...

May 23, 2023 · Every single clean energy project connecting to the distribution grid must receive interconnection approval to move forward.

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The Energy Transition Stress Test: Can Grid ...

May 26, 2025 · Learn More. The Path Forward: A Resilient Energy Future Grid modernization is the foundation of the energy transition. By ...

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