

# The electrification reality check

As organizations accelerate electrification, many are running into a new reality: limited grid capacity, rising demand costs, and complex project requirements. Peak demand is quickly becoming the biggest risk to your energy budget. This primer breaks down the landscape, the urgency, and a practical path forward.

## Grid status and market outlook

### The grid today

- ▶ Aging infrastructure with decades of deferred investment
- ▶ Transmission and interconnection bottlenecks delaying projects
- ▶ Renewable integration creating variable load profiles
- ▶ Reserve margins declining—projected deficit by 2030
- ▶ Summer peak demand projections nearly doubled YoY
- ▶ Infrastructure growth pace lags behind retirements
- ▶ Cyber threats and extreme weather adding risk

### Key demand drivers

- ▶ GW-scale **data centers and AI facilities** are expected by 2027, driving new electricity demand.
- ▶ **EV adoption** is accelerating at a 21% compound annual growth rate through 2040.
- ▶ **Emerging hydrogen infrastructure** is growing at a 30.9% CAGR, creating a new category of electricity demand.
- ▶ Domestic manufacturing for **chips and batteries** is adding industrial load.
- ▶ **Commercial and institutional buildings** are converting from gas to electric systems for heating and hot water.

**3.7%** global electricity demand growth

**2%** US consumption growth (2025–2026)

**4.25T** kWh projected US power usage

## The reliability crisis

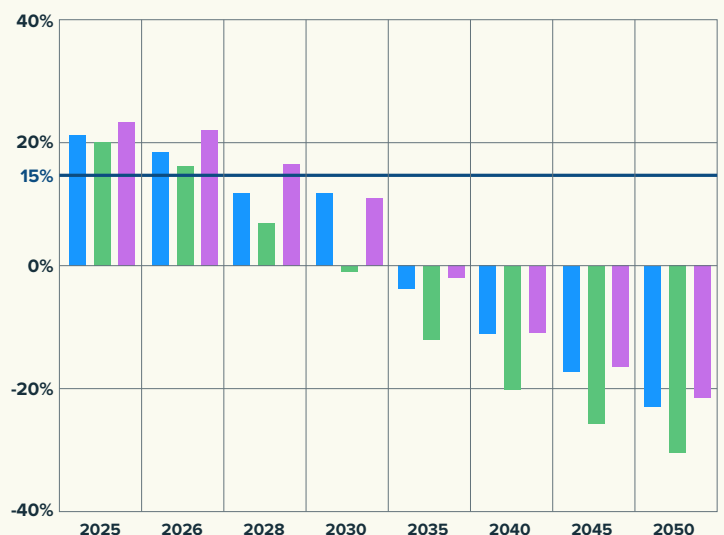
### Reserve margins are shrinking

A reserve margin of 15% of generation capacity over forecast peak demand is generally considered healthy.

Reserve margins, including planned new builds, are projected to decline steeply, falling below the 15% target and reaching a deficit by 2030.

This means the grid won't have enough buffer to handle unexpected demand spikes or equipment failures, making your own demand strategy critical.

Chart source: ICF, U.S. Energy Information Administration (Form EIA-860M)



- Implied reserve margin with current capacity
- Implied reserve margin with current capacity and firm retirements
- Implied reserve margin with current capacity, firm retirements and firm builds
- Target reserve margin

# Solutions and strategy

## Common improvements

- ▶ Heat pumps (air-source and water-source)
- ▶ VRF zone systems
- ▶ Heat recovery chillers
- ▶ Heat pump water heaters
- ▶ Electric boilers
- ▶ Advanced BAS control upgrades

At the equipment level, electrification means replacing combustion with compressors.

## Your electrification roadmap

- 1 Reduce loads first**  
Energy conservation culture + operational changes
- 2 Improve the building envelope**  
Lighting, insulation, ventilation optimization
- 3 Plan in phases**  
Replace at end-of-life; align capital cycles; avoid stranding assets
- 4 Manage demand intentionally**  
Model rate structures, add storage, avoid coincident peaks
- 5 Coordinate with utilities early**  
Access incentives; plan interconnection timelines
- 6 Measure, verify and iterate**  
Centralized data to track ROI and validate savings

## The data advantage

### Why 15-minute data matters

Smart meter interval data unlocks insights that monthly bills can't provide:

- ▶ Identify morning start-ups that are too early or evening setbacks too late
- ▶ Catch unnecessary overnight equipment operation
- ▶ Spot the single piece of equipment driving your peak demand penalty
- ▶ Find HVAC units turning on simultaneously and creating demand spikes
- ▶ Enable remote auditing and verify equipment performance
- ▶ Build the business case for retrofits, then validate cost avoidance

### Peak demand vs. Consumption

Electrification shifts winter gas heating peaks into electric peaks. Demand charges are rising and often represent the fastest-growing line item on utility bills.

Without a demand strategy, electrification can increase operating costs even while reducing emissions.

Controls, storage, and load scheduling are essential to managing the shift.

## The bottom line

Successful electrification requires three things: addressing grid readiness gaps through coordinated planning, leveraging facility-level data to optimize load profiles and eliminate peak-driven charges, and implementing staged, lifecycle-aligned roadmaps that avoid stranded assets. Start with your data. Plan in phases. Coordinate early.

This content is derived from the webinar **[“The electrification reality check: Planning for a grid that isn't ready.”](#)**

[Watch the webinar recording](#)