Executive Summary:

A Reliable Grid for an Electric Future

America's electrical system faces dramatic changes over the next 25 years. For the first time in decades, electricity demand will rise, even while electricity use becomes more efficient.

Study Highlights U.S. Electricity Demand Outlook to 2050 and Outlines Technology and Policy Solutions to Meet Demand Growth

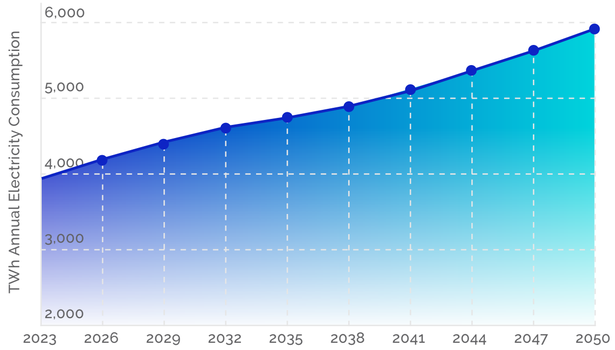
According to a study conducted by PA Consulting prepared for NEMA, "A Reliable Grid for an Electric Future," January 2025.

Electricity demand in the United States will grow 2% annually and 50% by 2050, driven by:

A **300% rise** in energy consumption for data centers

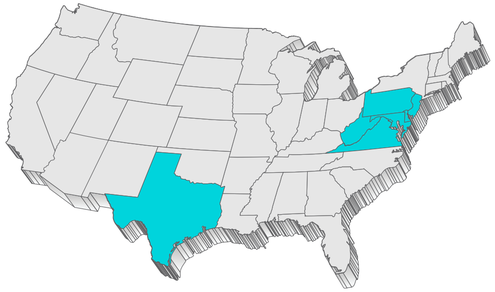
A **9,000% increase** in energy consumption for e-mobility and charging

Electricity projected to grow from 21% of final energy use to **32% by 2050**

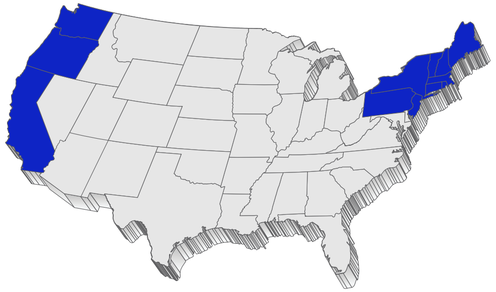


Consumption changes will vary by U.S. region, driven primarily by data centers in the short term and EVs in the long term:

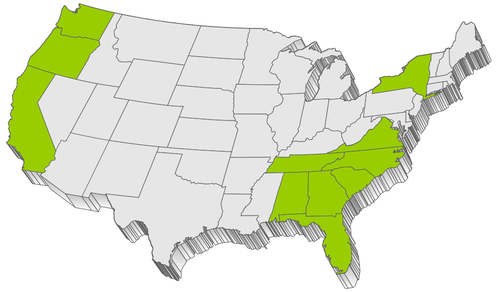
All generation sources will be needed to meet coming demand with significant growth in renewable energy generation in key regions



Growth Through 2035
The Mid-Atlantic and Texas will see largest data center electricity demand growth through 2035



Growth Through 2050
The Northeast and West will experience largest electricity demand growth from EVs through 2050



Renewables
Renewables will exceed 50% of generation capacity in the Western U.S., New York, and the Southeast

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To prioritize grid reliability and ensure our electrical infrastructure can adapt to surging demand and the integration of renewable energy, we can't build capacity fast enough. We need to invest in a suite of innovative near-term technologies to meet demand growth and prioritize policy and regulatory certainty and all-of-the-above approaches to deliver a reliable and affordable energy system.

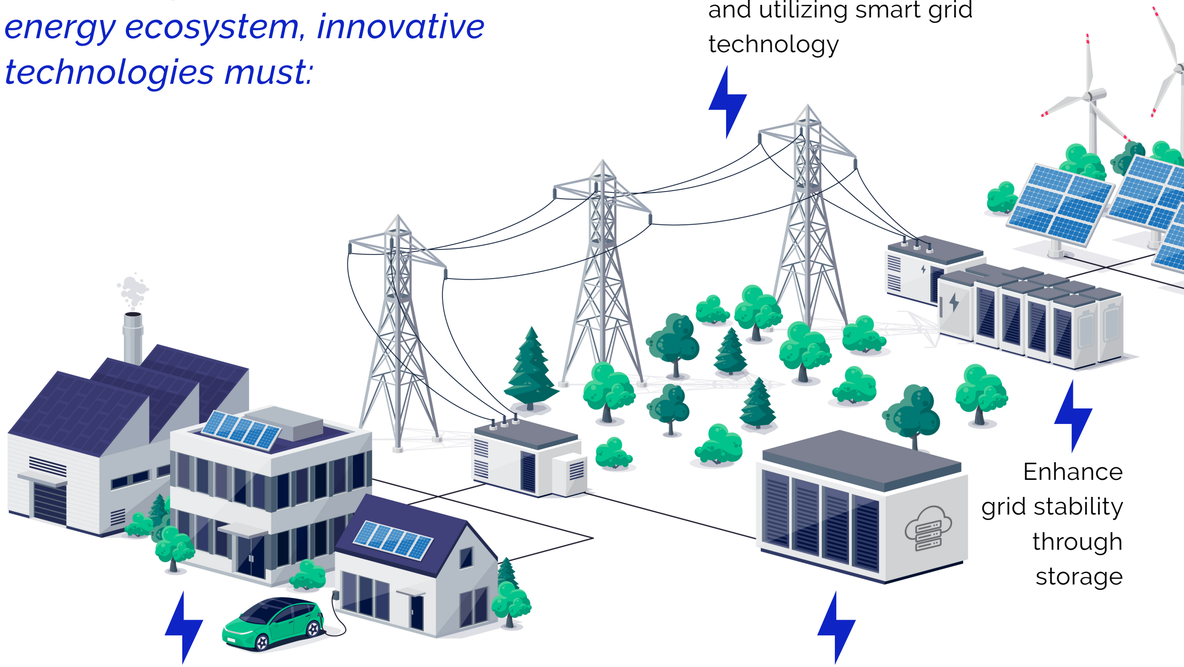
NEMA

According to a study conducted by PA Consulting prepared for NEMA, "A Reliable Grid for an Electric Future," January 2025.

Critical policy reforms will be necessary to deliver a flexible, stable, and more reliable grid, including:

- Achieving permitting and transmitting reform and encouraging adoption of grid-enhancing technologies
- Securing tax certainty to drive U.S. manufacturing and grid innovation
- Advance all-of-the-above energy policies as a bridge to reliable, clean power
- Encourage consistent trade policies to increase global competitiveness
- Grow a skilled energy workforce for the electrical industry
- Create supply chain certainty to power energy dominance

To meet near-term demand in an all-of-the-above energy ecosystem, innovative technologies must:



Manufacturers, utilities, and policymakers have an opportunity to work together to drive innovation, accelerate grid modernization, and enhance reliability -- ensuring that power is delivered where and when it's needed most.