U.S. DEPARTMENT of ENERGY

OFFICE OF ELECTRICITY STRATEGIC PLAN

March 2026

Message from the Assistant Secretary

Dear Colleagues,

It is my privilege to serve as the Assistant Secretary in the U.S. Department of Energy's Office of Electricity (OE) and to share this Strategic Plan with you.

At OE, we want every home, community, and business to flourish with affordable, reliable, and secure electricity—a force that powers our ambitions, our innovations, and our shared future.

To get there, we must address the urgency for grid capacity to meet demand, win the Artificial Intelligence (AI) race, and ensure the grid provides the reliable power—day in and day out—that our homes, businesses, and economy need.

Our Strategic Plan will meet this moment via three distinct strategic pathways: 1) **stabilize** the grid to address the immediate, acute conditions that strain reliability; 2) **optimize** the grid to enhance performance and strengthen security; and 3) **grow** the grid by enabling innovation, advancing new technologies, and building capacity for a future-ready electricity system.

We want to advance energy through addition, not subtraction, to power American life and lower costs for consumers.

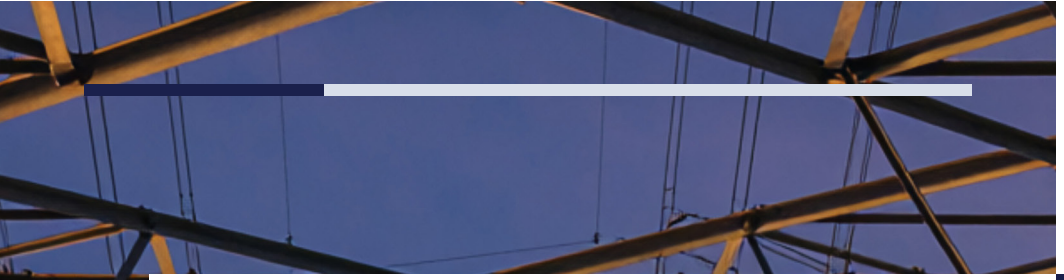
From day one of this Administration, both President Donald J. Trump and Secretary of Energy Chris Wright have emphasized the need to revitalize American energy. Through this transformation, we will power the United States on a pathway of prosperity, national security, and energy dominance.

I invite you to share in OE's strategy as we are poised to make significant advancements for generations to come.

Sincerely,

Catherine (Katie) Jereza

Assistant Secretary
of the Office of Electricity



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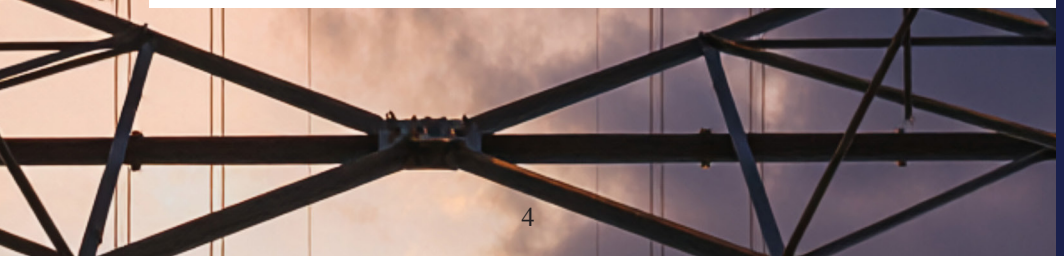


PRELUDE

OE leads DOE efforts to ensure the affordability, reliability, and security of the U.S. electricity grid. The electric power sector is the cornerstone of the American economy and is essential to quality of life, connection to family and community, and a strong job market.

Today, OE works in close partnership with states, Tribes, territories, industry, national laboratories, and other energy sector stakeholders to lower energy costs and improve grid reliability and security. OE's role extends from research, development, demonstration, and analysis to overseeing key planning and permitting functions to directly supporting the deployment of critical electric infrastructure nationwide.

This Strategic Plan outlines outcomes for OE and stakeholders to achieve energy dominance, affordability, and national security, while catalyzing the innovation of groundbreaking grid technologies.

From this overarching plan, OE will develop annual operating and program plans that align with DOE's grid strategy to stabilize, optimize, and grow the grid. These program plans will detail the scope, risks, key stakeholders, timing, milestones, and metrics of success to ensure proper evaluation of the outcomes tied to the established goals of the office.

EXECUTIVE SUMMARY

The Strategic Plan identifies the responsibilities and actions OE must undertake to address five critical grid challenges: scaling for new load, delivering affordability, modernizing for reliability, achieving security and resilience, and advancing supply chain security. The strategy focuses on balancing near-term system needs with long-term transformation, ensuring the grid can support economic growth, national security objectives, and evolving customer and technology demands under increasingly dynamic conditions.

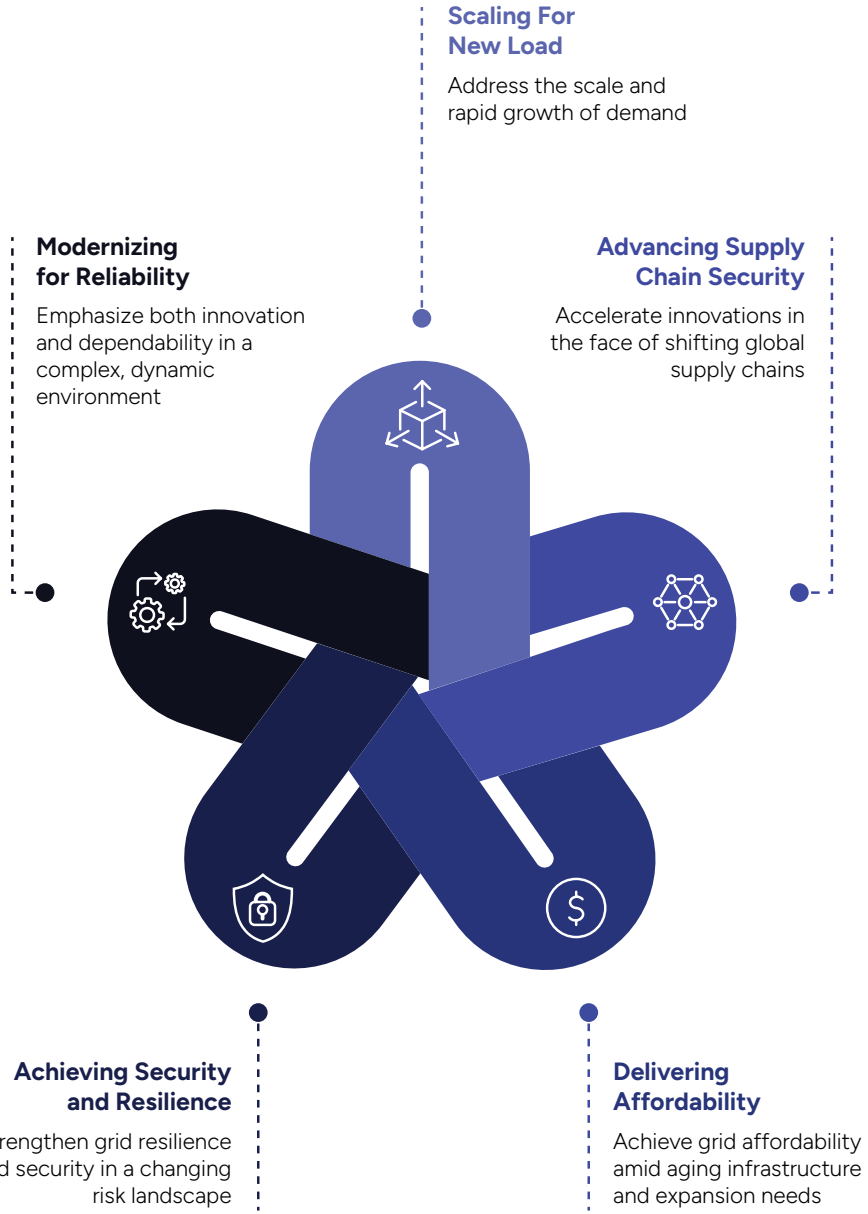
Organized around the strategic pathways to stabilize, optimize, and grow the electric system, the plan advances four goals:

1. Strengthen, enhance, and expand the electric system's capacity to reliably and affordably meet growing demand
2. Ensure reliability and security of the electricity grid
3. Catalyze onshore production and availability of critical grid components to reduce reliance on foreign suppliers
4. Accelerate innovation through the leveraging of cutting-edge scientific initiatives

Through coordination across planning processes, infrastructure deployment, regulatory engagement, and technology development, OE will mitigate reliability risks, improve system performance, reduce exposure to external supply dependencies, and enable cost-effective investment. Grounded in transparent collaboration and data-driven decision-making, the strategy provides a focused framework for action and measurable outcomes.

> "It's essential that energy is reliable, affordable, and secure. That's what it takes for a successful society.
>
> - Chris Wright, September 11, 2025

GRID CHALLENGES



OE MISSION & VISION

Mission

To stabilize, optimize, and grow the electricity system to ensure the grid delivers affordable, reliable, and secure energy to the American people

Vision

A seamless electricity system, capable of meeting all energy demands, powering the U.S. on a pathway of prosperity, national security, and energy dominance

OPERATING PRINCIPLES

Open, Transparent, and Collaborative

- Leadership visibility and proactive communication are essential for building trust and support
- Continuously strive to enhance communication—actively listening to others' thoughts, and being clear, concise, and transparent in our information exchange
- Collaborate across DOE and relevant federal agencies, partner with private sector stakeholders, and work hand in hand with states, local government, and Tribes

Scientific and Economically Driven Decisions

- Ground our work in gold standard science and economics; apply technology to work effectively, partnering with industry and leveraging national laboratory capabilities to solve challenges with commercial viability and impact
- Engage in healthy discussion rooted in science, facts, and data to reach sound, durable decisions and deliver timely results for the American people

ADMINISTRATION PRIORITIES

President Trump has issued a series of Executive Orders (EO) aimed at strengthening the reliability and security of the U.S. electricity grid in response to rapidly growing electricity demand and emerging national security risks. Critical EOs to meet the Administration's priorities include:

OE's role is critical to implementing the priorities outlined by the Trump Administration, which include reinvigorating the U.S. energy industry, reducing burdensome regulations, and strengthening electricity grid reliability and security.

U.S. SECRETARY OF ENERGY PRIORITIES

The Department's mission is vital to American security and prosperity, which directly supports the Administration's EOs and priorities. Working together, we will accelerate American science, reduce energy costs for American families and businesses, and strengthen the reliability and security of our nation's energy system—all in our quest to better human lives.

- **Advance Energy Addition, Not Subtraction:** The fact is that energy matters, and we need more of it, not less. Going forward, the Department's goal will be to unleash the great abundance of American energy required to power modern life and to achieve a durable state of American energy dominance.
- **Unleash American Energy Innovation:** The Department's efforts will prioritize affordable, reliable, and secure energy technologies, including fossil fuels, advanced nuclear, geothermal, and hydropower, as well as true technological breakthroughs—such as nuclear fusion, high-performance computing, quantum computing, and AI—to maintain America's global competitiveness.
- **Strengthen Grid Reliability and Security:** Fortifying America's electricity grid is critical to the reliable and secure delivery of electricity. The Department will bring a renewed focus to growing baseload and dispatchable generation to reliably meet growing demand.
- **Streamline Permitting and Identify Undue Burdens on American Energy:** The Department will prioritize more efficient permitting to enable private sector investments and build the energy infrastructure needed to make energy more affordable, reliable, and secure.

OVERARCHING FRAMEWORK

The overarching framework implements Administration and Secretary priorities by pursuing four goals, executed across three strategic pathways.

- Administration priorities and EOs (see pages 10 & 11)
- U.S. Secretary of Energy priorities (see page 12)
- Four OE goals to address grid challenges and implement Administration and Secretary priorities (see pages 16 to 23)
- Executed through three strategic pathways

STABILIZE	OPTIMIZE	GROW
Addressing urgent, emergency conditions to ensure safety, reliability, and system security	Enhancing grid performance and strengthening security through robust consideration of available technology options and process improvements	Long-term expansion by enabling innovation, advancing new technologies, and building capacity for a future-ready electricity system

By focusing on the three strategic pathways, OE will achieve four critical outcomes:

Energy Dominance

Increase domestic energy production to meet growing demand, an additional 100 gigawatts (GWs) by 2030, and enable energy exports

Affordability

Lower household energy costs across America

National Security

Prevent adversaries from grid interference

Innovation

Advance critical technologies, from quantum computing to AI-enabled data insights

Goal 1 - Strengthen, enhance, and expand the electric system's capacity to reliably and affordably meet growing demand

1.1 Prolong the life and value of existing dispatchable generation assets

1.2 Deploy technology options that increase the capability of existing transmission corridors

1.3 Streamline federal permitting and regulatory processes, and accelerate integration of new generation and load

1.4 Facilitate strategic expansion of the electric system, deploying advanced planning tools and approaches to optimize staged investment decisions

1.5 Encourage innovative business models, tariff design, and regulatory approaches, facilitating best practices at the state and regional level

Realizing the Goal

- **Grid Enhancing Technologies (GETs):** Expanding the capacity of the current grid infrastructure through technologies such as reconductoring, dynamic line rating, and power-flow control devices
    - **Speed to Power Initiative:** Accelerating the deployment of large-scale energy infrastructure projects, including reconductoring, to meet rising energy demands
- **Integrated Grid Planning:** Aligning utilities, regions, states, and federal partners around integrated planning frameworks, data, and tools that enable faster, more coordinated grid development
    - **Presidential Permits/Export Authorizations:** Facilitating the development of transmission facilities at the U.S. international border and the export of electric energy under the appropriate circumstances
- **State/Regional Technical Assistance:** Providing public utility commissions (PUC) and state energy offices (SEO) with high-impact technical assistance and resources on topics such as, data center load forecasting, grid modernization, distribution planning, and interconnection process improvements
    - **Community Microgrid Assistance Partnership (C-MAP):** Providing funding and technical support for microgrid systems that enhance electricity reliability and security, particularly in remote areas

Goal 2 - Ensure reliability and security of the electricity grid under increasingly complex, dynamic conditions

2.1 Improve understanding of the evolving grid system, including system dynamics from new types of customer loads, grid resources, and topology changes

2.2 Enhance resource adequacy methodologies, including reliability metrics and measures, and assess risk mitigation approaches and associated market/finance mechanisms

2.3 Develop and validate advanced technologies, tools, and techniques for reliable system operations

2.4 Extend a comprehensive security framework across the entire grid-communications system, advancing innovative cyber resilient protocols, technologies, and architectures

2.5 Manage electric system interdependencies with connected infrastructure

Infrastructure Investment & Jobs Act (IIJA) Portfolio realigned to ensure reliability and security of the electricity grid

Grid Resilience Innovation Partnership (GRIP) [§40101(c), §40103(b), & §40107]: Accelerating infrastructure deployment to enhance grid flexibility and ensure the reliability of the power sector's infrastructure by:

- Hardening grid infrastructure across America;
- Upgrading lines to meet critical capacity for projected load growth; and
- Installing self-healing devices and secure controls to better face emerging threats.

Grid Resilience State and Tribal Formula Grants [§40101(d)]: Preventing outages and enhancing the resilience of the electricity grid against wildfires, natural disasters, and other disruptive events.

Realizing the Goal

- **Transmission Reliability and Operations:** Advancing technologies and methodologies to maintain situational awareness and improve grid reliability, including strengthening stability, power flow, and control
  - **Sensors and Analytics:** Enhancing power system monitoring and control by providing real-time, synchronized measurements of electrical phenomena across the grid, and using analytic methods to mitigate reliability changes and improve grid strength
  - **Advanced Modeling and Simulation Tools:** Developing next-generation mathematical and statistical algorithms to study and manage a modern electrical power grid
  - **Grid Architecture:** Applying system architecture, network theory, and control theory to understand the interaction of power systems, markets, and grid control systems
- **Robust Solutions for Uncertainty-Tolerant Operations:** Managing risks associated with uncertainties in operating conditions, including those from system complexities, reliability events, and infrastructure interdependencies
  - **North American Energy Resilience Model (NAERM):** Providing cross-sector analysis of system interdependencies, consequences, and responses to improve rapid restoration and recovery, and enable risk-informed planning and coordination to mitigate large-scale energy disruption
  - **Secure Pathways for Resilient Communications (SPaRC):** Leveraging a multi-laboratory interconnected test bed to design, evaluate, and benchmark next-generation secure communications architectures and technologies

Goal 3 - Catalyze onshore production and availability of critical grid components, such as high-voltage transformers, large-scale energy storage, and grid power electronics to reduce reliance on foreign suppliers

3.1 Encourage greater standardization and common configuration of critical grid components

3.2 Address security and integrity of grid supply chain

3.3 Research, develop, and deploy innovative grid technologies, materials, and components

3.4 Strengthen collaborative test bed infrastructure to rigorously evaluate and refine emerging technology

Realizing the Goal

- **Transformers and Advanced Components:** Advancing capabilities, performance, and supply chains of transformers, conductors, and other critical components including grid power electronics
  - **Common Configurations:** Facilitating standardization and interchangeability of components to relieve supply chain constraints and simplify design and implementation
- **Large-Scale Energy Storage:** Increasing the reliability, safety, performance, and competitiveness of long-duration energy storage while ensuring a secure domestic supply chain
  - **Grid Storage Launchpad/PNNL:** Accelerating the development of innovative battery technologies and providing key validation technologies, which strengthen the U.S. position in energy storage
  - **Battery Abuse Testing Laboratory/Sandia:** Providing comprehensive safety and reliability testing, including mechanical, electrical, and thermal abuse tests
- **Test Beds:** Evaluating and stress testing grid technologies and systems to mitigate risks and facilitate adoption
  - **Grid Research Innovation and Development Center (GRID-C)/ORNL:** Combining real grid equipment with emulated systems to evaluate controls, protection, and systems integration
  - **Advanced Distribution Management System (ADMS) Test Bed/NLR:** Evaluating existing and future advanced distributed management systems and applications
  - **Power Grid Test Bed/INL:** Field testing of technologies, including advanced conductors and next-generation communication technologies, in harsh environments

Goal 4 - Accelerate innovation through the leveraging of cutting-edge scientific initiatives

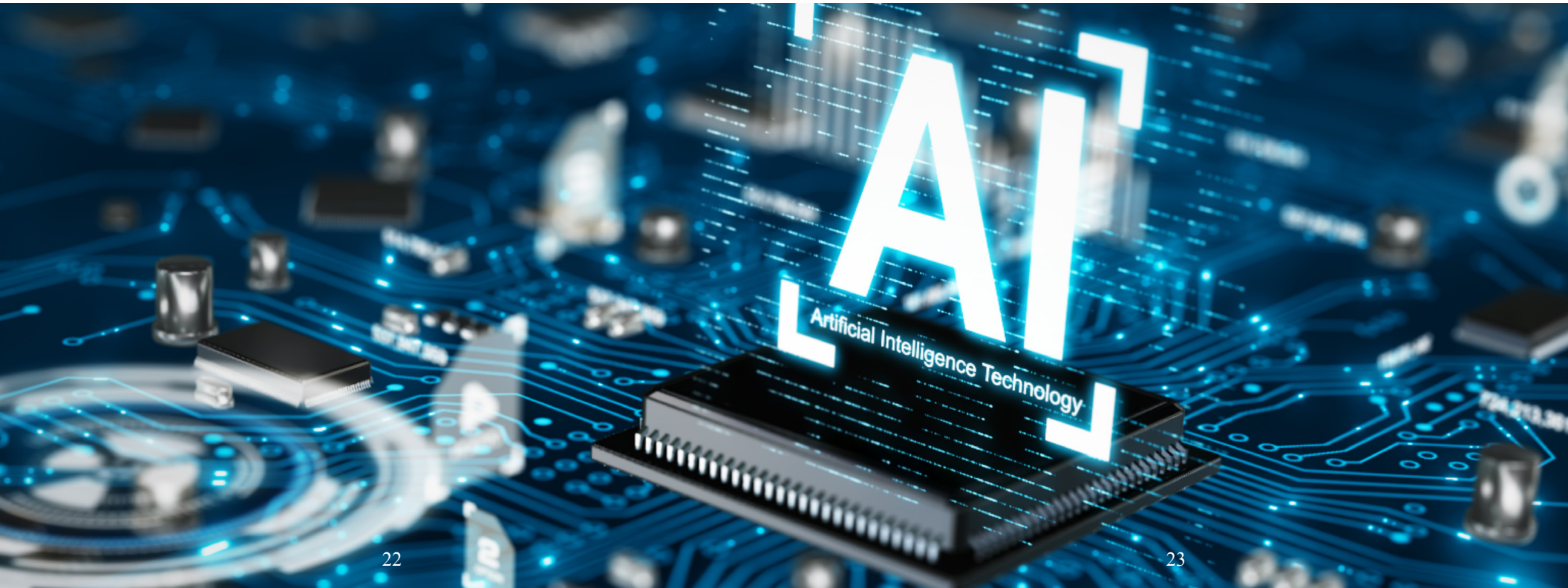
4.1 Unleash the power of AI and cloud-ready approaches to revolutionize grid operations and planning

4.2 Harness exascale and quantum technologies to solve computational grid problems that are currently intractable

4.3 Unlock the potential of functional materials to enhance the structure and performance of next-generation grid components

Realizing the Goal

- **Scientific Computing:** Leveraging Departmental investments in scientific computing, including modeling, simulation, and AI, to catalyze breakthrough advancements in software, methods, and tools for the grid
    - **Genesis Mission Science and Technology Challenge:** Using AI to improve power grid planning, interconnection, operations, and security
- **Materials Sciences and Engineering:** Using the expanding knowledge base of new materials with novel structures, functions, and properties to accelerate and enhance the design and development of next-generation grid components with improved performance and reduced cost



KEY STATUTORY AUTHORITIES DELEGATED TO OE

Public Law 95-91, Department of Energy Organization Act, 1977: Establishes DOE and provides the statutory authority under which OE operates, empowering it—through delegated authority of the Secretary—to carry out federal responsibilities related to electric power generation, transmission, reliability, and coordination of national electricity policy and programs

Public Law 109-58, Energy Policy Act of 2005: Provides core statutory authority for OE by authorizing federal programs and responsibilities related to electricity grid reliability, transmission modernization, energy infrastructure protection, and coordination with states and industry, including implementation of mandatory electric reliability standards and support for transmission planning and resilience initiatives

Public Law 110-140, Energy Independence and Security Act, 2007: Expands the statutory authority of OE by authorizing programs focused on electricity grid modernization, smart grid development, energy storage, transmission efficiency, and enhanced reliability and resilience of the nation's electricity infrastructure

Public Law 114-94, Fixing America's Surface Transportation Act, 2015: Provides authority to OE to strengthen the federal coordination and permitting processes for major infrastructure projects—including electric transmission—thereby facilitating timely development, modernization, and reliability of the nation's electricity grid

Public Law 116-260, Division Z, Energy Act of 2020: Provides broad statutory authority for OE by authorizing and expanding programs focused on transmission planning and modernization, grid resilience and reliability, energy storage, advanced grid technologies, and coordination with states, regions, and industry to strengthen the security and performance of the nation's electric power system

Public Law 117-58, Infrastructure Investment and Jobs Act, 2021: Establishes a variety of requirements and incentives to support energy infrastructure and cybersecurity for the energy sector, including those to make the electricity grid more reliable, resilient, flexible, and secure; facilitating the construction of or updates to electric power transmission lines and related facilities; creating state energy security plans; and developing cybersecurity applications and technologies in the energy sector

Public Law 118-42, Division D, The Energy and Water Development and Related Agencies Appropriations Act, 2024: Grants OE spending authority and congressional direction to carry out activities such as grid modernization, transmission resilience, and reliability programs by appropriating funds and setting conditions for how those funds may be used

https://www.energy.gov/oe/office-electricity

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DOE/OE-0052 | March 2026