

**ELECTRICITY DELIVERY AND ENERGY RELIABILITY**

(Discretionary dollars in thousands)

FY 2013 Current	FY 2014 Enacted	FY 2015 Request	FY 2015 vs. FY 2014	
			\$	%

<b>Electricity Delivery and Energy Reliability</b>					
Clean Energy Transmission and Reliability	23,393	32,383	36,000	+3,617	+11.2%
Smart Grid Research and Development	19,968	14,592	24,400	+9,808	+67.2%
Cybersecurity for Energy Delivery Systems	29,136	43,476	42,000	-1,476	-3.4%
Energy Storage	18,356	15,192	19,000	+3,808	+25.1%
Permitting, Siting and Analysis	6,626	0	0	0	N/A
National Electricity Delivery	0	5,997	7,000	+1,003	+16.7%
Infrastructure Security and Energy Restoration	6,149	7,996	22,600	+14,604	+182.6%
Program Direction	25,568	27,606	29,000	+1,394	+5.0%
<b>Total, Electricity Delivery and Energy Reliability</b>	<b>129,196</b>	<b>147,242</b>	<b>180,000</b>	<b>+32,758</b>	<b>+22.2%</b>

**Appropriation Overview**

**Electricity Delivery and Energy Reliability (OE)** drives electric grid modernization and resiliency in the energy infrastructure through research, demonstration, partnerships, facilitation, modeling and analytics, and emergency preparedness and response. OE is the Federal government’s energy sector-specific lead in responding to energy security emergencies, both physical and cyber. The OE mission is reflected in the Strategic Objective 2, support a more economically competitive, environmentally responsible, secure and resilient U.S. energy infrastructure, in the DOE Strategic Plan. OE also plays a critical role in implementation of the President’s Climate Action Plan to mitigate the risks and enhance resilience against climate change.

The FY 2015 Request supports the Administration’s all-of-the-above strategy and emphasizes priorities that increase electric grid resilience, including managing risks, increasing system flexibility and robustness, increasing visualization and situational awareness, and deploying advanced control capabilities.

**Program Highlights**

- **Clean Energy Transmission and Reliability**

The Clean Energy Transmission and Reliability program develops the monitoring, analytical decision support, and control capabilities necessary to operate and plan the grid in the Transmission Reliability and Advanced Modeling Grid Research subprograms. It also targets enhancing reliability and resilience through modeling and analysis of the interdependent energy systems. The FY 2015 Request includes an increased investment in developing an analytical framework to assess energy system risks and to produce predictive analyses assessing the impact of emerging events.

- **Smart Grid**

The Smart Grid program is focused on modernizing the electricity distribution system, with the goal of improving reliability as well as operational efficiency, resiliency, and disaster recovery. In FY 2015, the Request expands research and development on microgrids, localized grids that can disconnect from the traditional grid to operate autonomously and can help mitigate grid disturbances to strengthen grid resilience. It also invests in the evolution towards higher performance smart grids, or “Smart Grid 2.0”, which capitalizes on the recent surge in advanced technology deployments by expanding into how assets and information streams can be combined to greater advantage than traditional control and end-user involvement, leading to the transformation to a clean, efficient, and flexible future grid.

- **Cybersecurity for Energy Delivery System**

The FY 2015 Request supports acceleration of efforts to strengthen the energy infrastructure against cyber threats, working closely with the Energy Sector and within the U.S. Government. The funds support research and development on cutting-edge cybersecurity solutions information-sharing of cyber threats in partnership with industry; implementation of tools to guide best practices and cybersecurity investment decisions in the electric sector; and efforts to build an effective, timely, and coordinated cyber incident management capability in the energy sector.

- **Energy Storage**

The Energy Storage program addresses critical challenges facing the development and deployment of grid energy storage technologies, which can enhance system reliability and resilience, enabling both greater adoption of renewable energy resources and more effective utilization of the existing electric system. The Request is focused on addressing challenges related to cost reduction, system engineering, performance improvement and validation, value recognition, and deployment confidence and acceptance. Advancements in these areas will be vital in the progress towards commercially sustainable deployment of energy storage solutions to enable more clean energy solutions.

- **National Electricity Delivery**

The National Electricity Delivery program provides technical assistance to States, regions, and Tribes to help them improve their programs, policies, and laws to facilitate the development of reliable and affordable electricity infrastructure. It also authorizes the export of electricity, issues permits for cross-border transmission lines, and coordinates Federal transmission permitting on Federal lands. The FY 2015 Request provides an increase for State and regional assistance in emerging issues, as well as implementation of new regulations for permitting of transmission projects involving Federal lands.

- **Infrastructure Security and Energy Restoration**

The Infrastructure Security and Energy Restoration (ISER) program helps secure the U.S. energy infrastructure against all types of hazards, respond to and reduce the impact of disruptive events, and assists in quickly restoring energy when events occur. The FY 2015 Request for the ISER program supports the development of advanced mitigation solutions for hardening infrastructure against all hazards, including events such as geomagnetic disturbance and physical threats as well as devastating weather events. The Operational Energy and Resilience (OER) subprogram, initiated in FY 2014, is an enhanced capability that enables the Department to better protect against and mitigate threats and hazards to the energy infrastructure. The FY 2015 Request supports the build-out of the Energy Resilience and Operations Center that will enable DOE to continually monitor energy system status and facilitate communication with sector stakeholders. It also provides for additional personnel to be located in each Federal Emergency Management Agency region to develop regionally tailored resiliency approaches, supports the National Incident Management Assistance Teams, and provides technical expertise, monitoring, and information sharing in support of the OER.