

Electricity Delivery and Energy Reliability

(discretionary dollars in thousands)

	FY 2012 Current	FY 2013 Annualized CR	FY 2014 Request	FY 2014 vs. FY 2012	
				\$	%
Clean Energy Transmission and Reliability	24,665	25,569	32,000	+7,335	+29.7%
Smart Grid	23,203	24,055	14,400	-8,803	-37.9%
Energy Storage	19,336	20,046	15,000	-4,336	-22.4%
Cybersecurity for Energy Delivery Systems	29,007	30,072	38,000	+8,993	+31.0%
Electricity Systems Hub	0	0	20,000	+20,000	N/A
National Electricity Delivery	6,976	7,019	6,000	-976	-14.0%
Infrastructure Security and Energy Restoration	5,981	6,018	16,000	+10,019	+167.5%
Program Direction	27,010	27,175	27,615	+605	+2.2%
Total, Electricity Delivery And Energy Reliability	136,178	139,954	169,015	+32,837	+24.1%

The **Office of Electricity Delivery and Energy Reliability (OE)** drives electric grid modernization and resiliency in the energy infrastructure while working to enable innovation across the energy sector, empowering American consumers, and securing our energy future. The OE mission and the leadership role OE plays in the energy industry directly support the President's effort to accelerate the transformation of America's energy system through research and development, partnerships, facilitation, modeling and analytics, and emergency preparedness.

Over the years, major advancements across the energy industry have been made through OE's support. Research investments in cybersecurity have resulted in capabilities that prevent unexpected communications or processes on protected energy system components; these capabilities are expected to become commercially available this year. Longtime support for research, development and deployment of synchrophasors has revolutionized the broader visibility into the condition of the electric grid, providing near real-time data on transmission system conditions that helps grid operators better understand the complexities of a dynamic power system, and therefore reduce the frequency and scope of outages. By investing in efforts that enhance the resiliency of the energy infrastructure, and through OE's role as the energy-sector lead for response and restoration for major disruptions, more U.S. communities have been able to restore power quicker. Through its state technical assistance efforts, OE has developed a modeling tool to help state utility commissions quantitatively evaluate electric utility financial impacts under different energy efficiency scenarios, and has helped states identify ways to better integrate variable generation, such as wind and solar, into the grid.

The FY 2014 Budget Request reflects an increased investment in modernizing the grid and in strengthening the resiliency of the energy infrastructure system.

- **Clean Energy Transmission and Reliability (\$32.0 million)**

The Clean Energy Transmission and Reliability (CETR) Program enhances the reliability of interdependent energy systems by developing advanced transmission-driven technologies that improve grid reliability, efficiency, and security; and advanced modeling capabilities to improve electric system planning and operations. The FY 2014 Budget Request includes a new subprogram, Energy Systems Predictive Capability, to highlight efforts to develop simulations and predictive analytic tools that provide real time situational awareness responses to energy supply disruptions, such as electricity and fuel outages.

- **Smart Grid (\$14.4 million)**

The Smart Grid Program targets modernization of the electric system at the distribution level, with the goals of self-healing from grid disturbances for improved reliability system efficiency. In FY 2014, the program focus includes advanced communications and controls, microgrid development, and Smart Grid standards and protocols for increased interoperability.

- **Electricity Systems Hub (\$20.0 million)**
 The FY 2014 Budget Request establishes the Electricity Systems Hub to address fundamental science, technology, economic, and policy issues that affect our ability to achieve a seamless and modernized grid.
- **Cybersecurity for Energy Delivery System (\$38.0 million)**
 The Cybersecurity for Energy Delivery System (CEDS) program develops advanced cybersecurity technologies and capabilities to reduce the risk of energy disruptions due to cyber events. The FY 2014 Budget Request increases efforts to enhance situational awareness and strengthen operational capabilities to help the energy sector cost effectively manage cybersecurity risks to increase the resiliency of the energy systems.
- **Energy Storage (\$15.0 million)**
 The Energy Storage program works to accelerate the development of affordable advanced grid-scale energy storage to enhance the stability, reliability, and flexibility of the electric grid. In FY 2014, as one type of rechargeable flow battery transitions to industry, the program focuses on developing nitrogen-oxygen batteries and demonstrating a prototype of medium-temperature, planar sodium battery.
- **National Electricity Delivery (\$6.0 million)**
 National Electricity Delivery (NED), previously called the Permitting, Siting, and Analysis program, provides technical assistance to states and regions to help facilitate the development of reliable and affordable electricity infrastructure; and authorizes electricity exports and permits cross-border transmission infrastructure under the Federal Power Act. In FY 2014, NED streamlines siting of transmission facilities on Federal lands by leading the development of a pre-application process to encourage early coordination between Federal agencies and potential applicants.
- **Infrastructure Security and Energy Restoration (\$16.0 million)**
 The Infrastructure Security and Energy Restoration (ISER) program leads efforts to help secure the U.S. energy infrastructure against hazards, reducing the impact of disruptive events, and responding to and facilitating recovery from energy disruptions in collaboration with industry, States and local governments. The FY 2014 Budget Request includes a new Operational Energy and Resilience initiative to enhance the Department's emergency response capabilities, including building a state-of-the-art Energy Resilience and Operations Center, and placing Federal energy experts in the field to implement resiliency solutions and improve response time during emergencies.
- **Program Direction (\$27.6 million)**
 Program Direction funds federal staff and support services for the management, oversight, and technical direction of OE.