

Office of Energy Efficiency and Renewable Energy

Office of Strategic Programs

FY2017 Budget Overview



U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

John Lushetsky, Office of Strategic Programs

March 31, 2016

Agenda

1. EERE Overview

- EERE Vision, Mission, Principles
- EERE Budget Trends
- Detailed FY17 Request

2. OSP Sector FY17 Request

- Technology-to-Market
- International
- Strategic Priorities and Impact Analysis
- Communications

3. Q&A

EERE Vision, Mission, and Principles

Vision

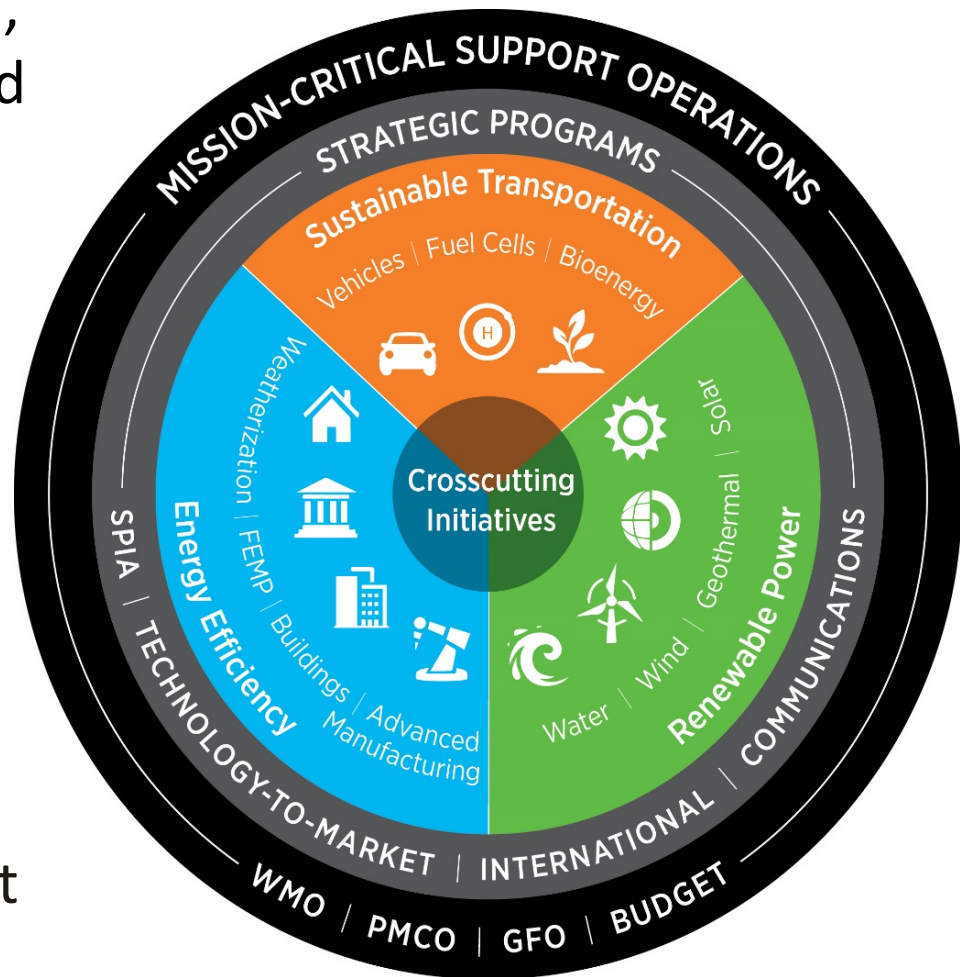
A strong and prosperous America, powered by clean, affordable, and secure energy

Mission

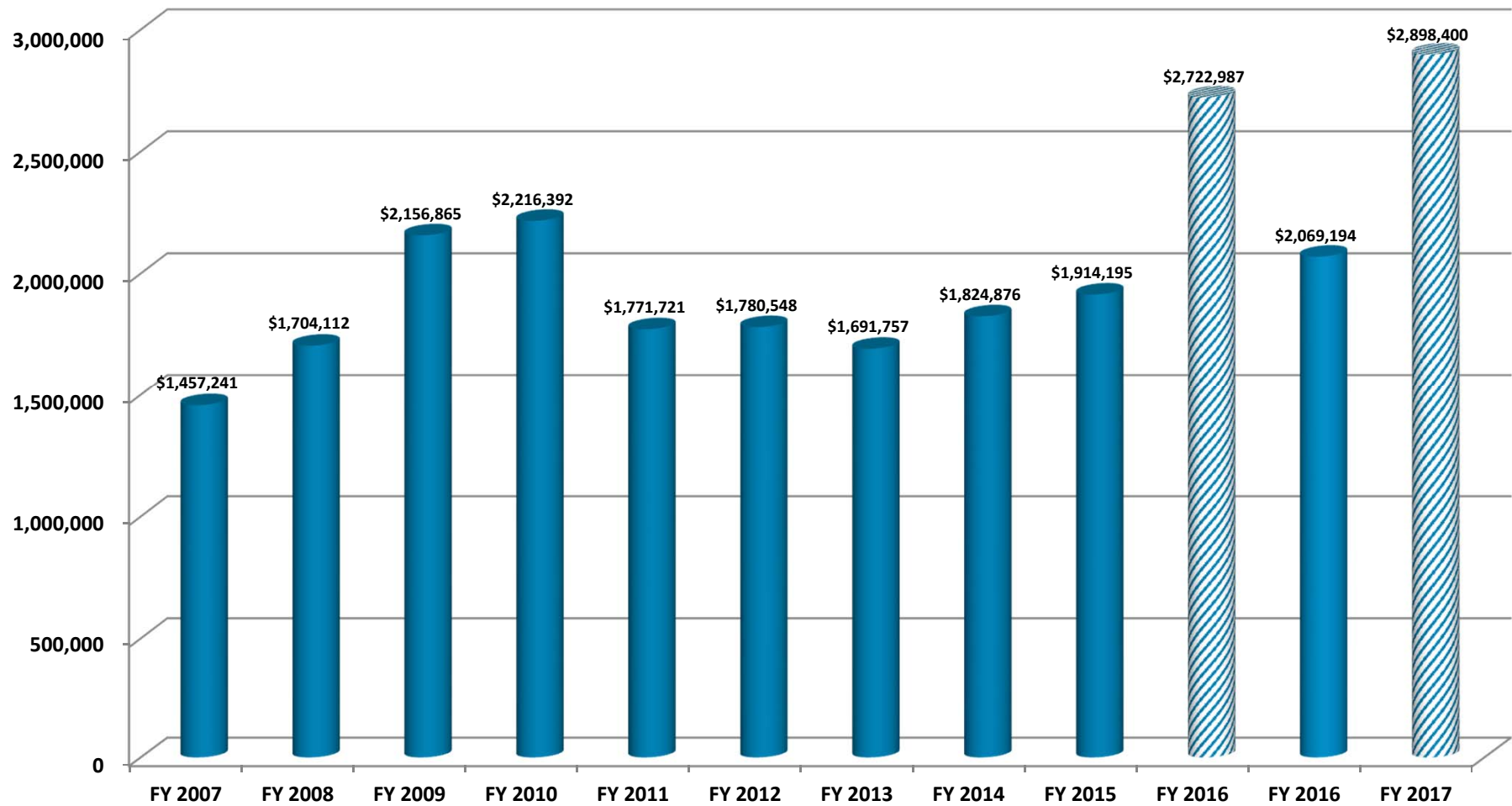
To create and sustain American leadership in the transition to a global clean energy economy

Organizational Principles

- Economic Prosperity
- Affordability
- Reduced Environmental Impact
- Energy Security
- Consumer Choice



EERE Budget Trends: FY 2007 – FY 2017, (\$K)



 Congressional Request

FY 2017 Budget Summary Table

Dollars in Thousands	FY 2015 Enacted	FY 2016 Enacted	FY 2017 Request	FY 2017 vs FY 2016	
Transportation	602,000	635,950	852,900	216,950	34%
- Vehicle Technologies	280,000	310,000	468,500	158,500	51%
- Bioenergy Technologies	225,000	225,000	278,900	53,900	24%
- Hydrogen and Fuel Cell Technologies	97,000	100,950	105,500	4,550	5%
Renewable Energy	456,000	478,050	620,600	142,550	30%
- Solar Energy	233,000	241,600	285,100	43,500	18%
- Wind Energy	107,000	95,450	156,000	60,550	63%
- Water Power	61,000	70,000	80,000	10,000	14%
- Geothermal Technologies	55,000	71,000	99,500	28,500	40%
Energy Efficiency	642,000	721,000	919,000	198,000	27%
- Advanced Manufacturing	200,000	228,500	261,000	32,500	14%
- Federal Energy Management Program	27,000	27,000	43,000	16,000	59%
- Building Technologies	172,000	200,500	289,000	88,500	44%
- Weatherization and Intergovernmental Programs	243,000	265,000	326,000	61,000	23%
Crosscutting Innovation Initiatives	0	0	215,000	215,000	
- Regional Energy Innovation Partnerships	0	0	110,000	110,000	-
- Next-Generation Innovation	0	0	60,000	60,000	-
- Small Business Partnerships	0	0	20,000	20,000	-
- Energy Technology Innovation Accelerators	0	0	25,000	25,000	-
Program Support	237,000	238,000	290,900	52,900	22%
Subtotal, Energy Efficiency and Renewable Energy	1,937,000	2,073,000	2,898,400	825,400	40%
- Rescission of Prior Year Balances	-22,805	-3,806	0	3,806	-
Total, Energy Efficiency and Renewable Energy	1,914,195	2,069,194	2,898,400	829,206	40%

Strategic Programs

Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy

The mission of the Office of Strategic Programs is to leverage the overall effectiveness and impact of all of EERE's technical programs through activities that catalyze and increase **entrepreneurial activity, market development, international competitiveness and job creation, openness and consumer choice, and strategic management of the EERE portfolio.**

Strategic Programs

Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy



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Strategic Programs

Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy

Technology-To-Market



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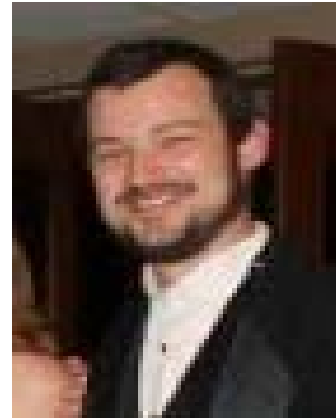
Communications



Karla Olsen

Director
Former Director of
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Policy & Analysis



Steven Capanna

Director
Former Senior Research
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Manager, Alliance to
Save Energy

International Program



Robert Sandoli

Director
Former Alternative
Energy Deputy Special
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Strategic Programs – FY 2017 Budget Request

Goals/Metrics

Strategic Programs supports all of the goals and metrics of EERE’s technical programs. Progress of particular activities is monitored through detailed dashboard elements on a quarterly basis.

(Dollars in Thousands)	FY 2015 Enacted	FY 2016 Enacted	FY 2017 Request	FY 2017 vs. FY 2016
Technology-to-Market	6,263	5,974	11,500	+5,526
Strategic Priorities and Impact Analysis	6,506	6,769	6,000	-769
International	3,682	3,789	6,000	+2,211
Communications and Outreach	4,549	4,468	4,500	+32
Total, Strategic Programs	21,000	21,000	28,000	+7,000

Technology-to-Market – Overview

Motivation/Focus

Technology Commercialization: Strengthens the American energy innovation ecosystem by developing new, innovative and high-impact partnerships and programs across startups and small businesses, industry, universities, DOE National Laboratories, investors, and non-profit organizations to reduce technology commercialization barriers and maximize investment in the U.S. innovation ecosystem, leading to increased jobs and global competitiveness.

Energy Transitions Initiative: Supports states, municipalities, and communities that are on the leading edge of transitioning their energy systems to clean energy by providing assistance that informs policy and system architecture decisions.

Achievements

- **Lab Corps** - Completed first cohort of Lab Corps pilot, aimed at empowering researchers to commercialize their laboratory work and promote an entrepreneurial culture at the National Laboratories. One participant claimed that “six weeks in Lab Corps is equal to six to twelve months of bench work in the lab.”
- **Small Business Vouchers** - Launched Small Business Vouchers pilot, aimed at improving small business’s awareness of, and affordable access to, DOE laboratory intellectual and physical assets, in order to advance DOE’s clean energy mission.
- **Cleantech University Prize** - Launched the Cleantech University Prize (Cleantech UP), which helps students develop entrepreneurial skills to move clean energy technologies to the marketplace. The initiative builds on its precursor-the DOE National Clean Energy Business Plan Competition-which from 2011 to 2014 resulted in more than 70 ventures, 120 jobs, and \$60 million in follow-on funding.

Tech-to-Market – FY 2017 Budget Highlights (\$11.5M)

- **New Innovation Ecosystem Program** - Initiate new program to further grow a strong and robust U.S. innovation ecosystem, in which technology developers (at startups, small businesses, universities, and National Laboratories) collaborate directly and more effectively with investors, industry, and technology development and manufacturing resources.
- **Lab Corps** - Expand Lab Corps pilot to a broader effort that includes additional National Laboratories.
- **Energy Transitions Initiative** – Will continue working closely with other agencies such as the Department of the Interior on the Energy Transition Initiative, and the requested increase would expand planning and deployment efforts to Alaska and deepen engagement with Puerto Rico. ETI will maintain its key relationships, with partners like Hawaii, in order to provide decision support tools and lessons learned for other locations in the U.S. looking to pursue ambitious sustainable energy goals.
- **Solar Decathlon** - Support the Solar Decathlon university competition planned for Denver in 2017.

International – Overview

Motivation/Focus

Catalyzes the development of international export markets for U.S. clean energy solutions with strategically important countries through technical and policy assistance, analysis, and the promotion of U.S.-based standards, test procedures, and certifications.

Achievements

- Resource mapping. Enhanced the accuracy of India's [solar resource maps](#), which has facilitated approximately \$350 million in exports of American goods and services to India since 2011.
- Building Efficiency. Trained South African residents on [cool paint application](#) through a partnership with the California startup Millennium, with the pilot resulting in 20% reduction in temperatures and up to 20% reduction in cooling energy use.
- Renewable Energy Deployment. Published recommendations for accelerating development of the renewable electricity solutions identified for three pilot sites on remote Indonesian grids, with the potential to replicate across Indonesia's 6,000 inhabited islands.
- PV Reliability Testing. Expanded testing of U.S. -made PV panels with [Indian](#) and [Chinese](#) institutes.
- Industrial Efficiency. Developed and delivered training for an industrial energy efficiency audit program and database of retrofit opportunities for the industrial sector with Brazil.
- Energy Performance Contracting. Developed a energy performance contract (EPC) Market Opportunity Analysis with China. [Recognized three exemplary EPC pilot projects in China](#) achieving 25-51% energy savings while also delivering millions of dollars export content for U.S. technology and service providers.
- Crosscutting clean tech R&D. Selected six new clean energy technology projects under the [Binational Industrial Research and Development Foundation \(BIRD\) Energy program](#), in partnership with Israel. Since 2009, BIRD Energy has awarded more than 20 joint U.S.-Israeli partnerships, already resulting in 3 commercialized technologies and more than \$10M in follow on investment.

International – FY 2017 Budget Highlights (\$6M)

- **BIRD Energy (\$2M)**
 - Continue support for crosscutting bilateral clean energy R&D with Israel
- **Facilitate Market Access for U.S. Companies and Promote Emissions Reductions (\$4M)**
 - Prime markets and building capacity in countries through technical and policy assistance
 - Planned activities include:
 - Expand the number of Chinese cities using DOE's low-carbon city planning tools and facilitating demonstration projects featuring low-carbon technologies from U.S. companies.
 - Conduct technical training to accelerate implementation of India's Energy Conservation Building Code in two Indian states, creating new markets for U.S. energy efficiency technologies.
 - Partner with a South African university to establish a testing facility that can verify performance of building envelope components and open the door for exports of higher-performing U.S. products.

SPIA – Overview

Motivation/Focus

Analyzes crosscutting issues that affect EERE technologies, such as clean energy manufacturing, city energy use, and grid integration. Provides a portfolio-based analytical foundation to perform impact assessments of EERE's portfolio. Informs RD&D strategic planning and decision-making, enabling continuous improvement of EERE's approach.

Achievements

- Completed initial joint study with NE on industrial scale hybrid nuclear-renewable systems and the economics and contribution for grid load management.
- Launched new Cities LEAP funding opportunity announcement (FOA) to partner with competitively selected cities to acquire data and perform analysis toward long-term clean energy roadmaps.
- Provided analytical support to assess impact of potential national, state, and local climate policies.
 - *Examples include analysis of extension of the renewable energy production and investment tax credits and a report examining the benefits of renewable portfolio standards.*
- Completed grid integration analyses, focusing on scenarios that can achieve maximum flexibility with high penetration of renewable technologies that achieve aggressive decarbonization of the electric sector.
 - *Examples include a report analyzing the potential value of demand response and energy storage to provide flexibility to the grid and a paper examining market structures needed to ensure adequate compensation of electricity generators.*
- Supported clean energy databases that contain real-world market data, modeled cost and performance data, and reviews of published studies as well as an inventory of state policies and incentives that impact the deployment of EERE technologies.

SPIA – FY 2017 Budget Highlights (\$6M)

- Continue to provide local governments selected during the FY 2016 Cities-LEAP funding opportunity announcement with laboratory and DOE technical assistance and support.
- Provide core funding support to the Clean Energy Manufacturing Analysis Center (CEMAC) to develop, conduct and issue cutting edge clean energy technology manufacturing analyses.
- Provide analytical support to assess impact of potential national, state, and local climate policies to internal DOE stakeholders.
 - *Examples include a planned study will examine the impact of changes to Nevada's net metering rules.*
- Complete grid integration analyses, focusing on scenarios that can achieve maximum grid flexibility with high penetration of renewable technologies that achieve aggressive decarbonization of the electric sector.
 - *Examples include planned follow-up paper to the Renewable Electricity Futures study will examine whether the grid can balance with very high levels of variable renewable energy at five-minute intervals.*
- Complete four new retrospective impact and ROI evaluation studies that quantify EERE impact and guide future EERE program implementation.

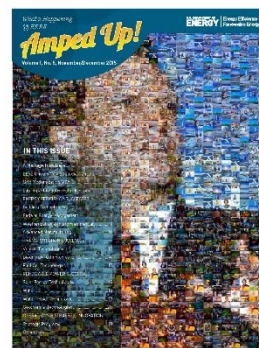
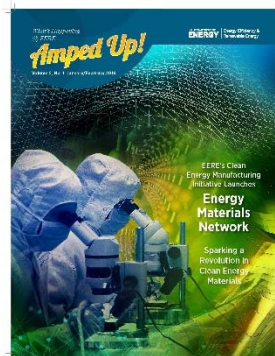
Communications – Overview

Motivation/Focus

Provides key stakeholders and the public with the latest and most accurate information regarding advances, impacts, and issues on clean energy technology development and deployment, in addition to resources available through EERE, communicated objectively and transparently across a range of traditional and online media.

Achievements

- Launched redesigned Amped-Up to highlight EERE program initiatives and accomplishments to external audiences.
- Expands support for high-priority crosscutting activities, including the Clean Energy Manufacturing and National Laboratory impact initiatives.



Communications – Overview

- Catalogued more than 2,200 news articles pertaining to EERE in 2015, up from 1,300 in 2014.
- 10 widest-read articles reached more than 36 million people in print, 46 million people online
- Received 135K Facebook likes, up from 11K two years ago
- Posted 68 success stories, garnering more than 57K page views.
- Secured national and local press coverage for the Solar Decathlon – Reuters, Associated Press, Yahoo! News, Bloomberg, NBC New York, ABC Los Angeles, LA Times, Huffington Post – totaling more than 400 news stories nationwide with a reach of 348 million.

Current Communications Channels

- Blogs <http://energy.gov/eere/about-us/eere-blog>
- Facebook <https://www.facebook.com/eeregov>
- Twitter <https://twitter.com/energy>
- LinkedIn <https://www.linkedin.com/company/the-office>
- Press Releases/Media Advisories <http://energy.gov/eere>



Communications – FY 2017 Budget Highlights (\$4.5M)

- Increased audience and channel analysis to increase EERE Communications effectiveness
- Continued management of EERE's website and electronic media enterprise, streamlining content and introducing new technologies such as video, focus widgets and mobile applications
- Engagement and outreach with stakeholders, the media, and the public through news updates, press announcements, media inquiry responses, and email notices.
- Manage public inquiry/letter correspondence function across EERE, responding to daily requests, and provide informational material distribution services for EERE offices.

Please Visit Our Website for More Information

Office of Strategic Programs:

<http://energy.gov/eere/about-us/office-strategic-programs>

Technology-to-Market:

<http://energy.gov/eere/about-us/technology-market-team>

International:

<http://energy.gov/eere/about-us/international-team>

Strategic Priorities and Impact Analysis:

<http://energy.gov/eere/about-us/policy-and-analysis-team>

Communications & Outreach:

<http://energy.gov/eere/about-us/communications-team>

U.S. DEPARTMENT OF
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Questions?

Mission Innovation and Crosscutting Innovation Initiatives

Mission Innovation

FY 2016 Enacted	FY 2017 Request	FY17 vs. FY16 Delta	
\$1,406M	\$2,060M	+\$654M	+47%

- EERE FY 2016 appropriations provide \$1,406M million for clean energy R&D — the starting point for doubling the U.S. investment in clean energy R&D.
 - Spans the innovation spectrum from use-inspired research and applied energy R&D (through demonstration)
 - Includes all clean energy technologies (e.g., renewable energy, energy efficiency, and other DOE Offices)
- The EERE budget represents a strategic investment portfolio approach that:
 - Expands successful existing collaborative R&D arrangements (e.g., NNMIIs)
 - Targets new areas of potentially transformational research (e.g., Advanced Materials Crosscut)
 - Expands high potential payoff applied R&D programs (e.g., SuperTruck II)
 - Launches new initiatives in Clean Energy Innovation Regional Partnerships and National Laboratory-innovation collaborations (expanding the Small Business Voucher and Cyclotron Road pilot programs).

Additionally, FY 2017 DOE Budget proposes \$500 million in new mandatory spending authority toward transportation R&D for smart, strategic integrated investments to help reduce carbon pollution, strengthen economy.

Crosscutting Innovation Initiatives

- **Regional Energy Innovation Partnerships (\$110M):** Supports regionally relevant, technology-neutral clean energy research, development and demonstration (RD&D) needs and opportunities to support accelerated clean energy technology commercialization, economic development, and manufacturing.
- **Next Generation Innovation (\$60M):** Funds R&D projects representing new and/or cross-cutting technology pathways with the greatest potential to change the trajectory of EERE core program technology roadmaps.
- **Energy Technology Innovation Accelerators (\$25M):** Couples the talent and commitment of early-stage clean energy technology entrepreneurs with the world-class tools and expertise of the National Labs through RD&D projects that encourage mentorship and network support leading to new company creation and the development of successful commercialization strategies.
- **Small Business Partnerships (\$20M):** Enables National Laboratories to partner with small businesses to address their critical clean energy RD&D challenges and opportunities in the sustainable transportation, renewable power, and energy efficiency space.

(Dollars in Thousands)	FY 2015 Enacted	FY 2016 Enacted	FY 2017 Request	FY 2017 vs. FY 2016
Regional Energy Innovation Partnerships	0	0	110,000	+110,000
Next Generation Innovation	0	0	60,000	+60,000
Energy Technology Innovation Accelerators	0	0	25,000	+25,000
Small Business Partnerships	0	0	20,000	+20,000
Total, Crosscutting Innovation Initiatives	0	0	215,000	+215,000