Office of Energy Efficiency and Renewable Energy

FY 2014 Budget Rollout

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Dr. David Danielson, Assistant Secretary

April 10, 2013

EERE's National Mission

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

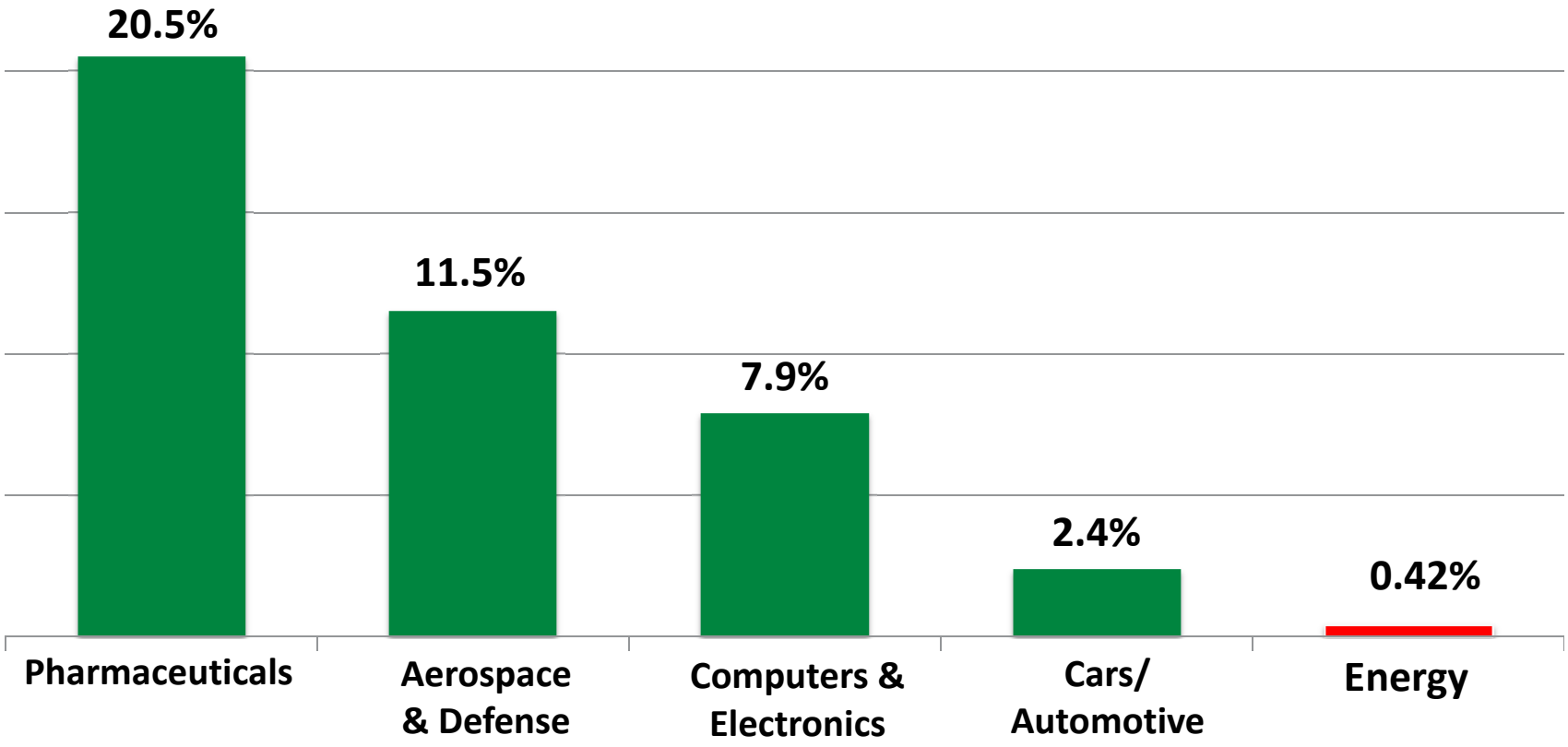
1) **High-Impact Research, Development, and Demonstration to Make Clean Energy as Affordable and Convenient as Traditional Forms of Energy**

2) **Breaking Down Barriers to Market Entry**

Why It Matters To America

- Winning the most important **global economic development race** of the 21st century
- Creating **jobs** through American innovation
- Enhancing **energy security** by reducing our dependence on foreign oil and gas
- **Saving money** by cutting energy costs for American families and businesses
- **Protecting health & safety** by mitigating the impact of energy production on air quality and climate

Why Federal Investment?
Low Private Investment in Energy R&D (as % of sales)



Source: American Energy Innovation Council, *Catalyzing American Ingenuity,* 2012

High-Impact in Everything We Do

The 5 EERE Core Questions

1. **HIGH IMPACT:** Is this a high-impact problem?
2. **ADDITIONALITY:** Will the EERE funding make a large difference relative to what the private sector (or other funding entities) is already doing?
3. **OPENNESS:** Have we made sure to focus on the broad problem we are trying to solve and be open to new ideas, new approaches, and new performers?
4. **ENDURING U.S. ECONOMIC BENEFIT:** How will this EERE funding result in enduring economic benefit to the United States?
5. **PROPER ROLE OF GOVERNMENT:** Why is what we are doing a proper high-impact role of government versus something best left to the private sector to address on its own?

Applying Impact Assessments to All of Our Activities

Office of Energy Efficiency and Renewable Energy

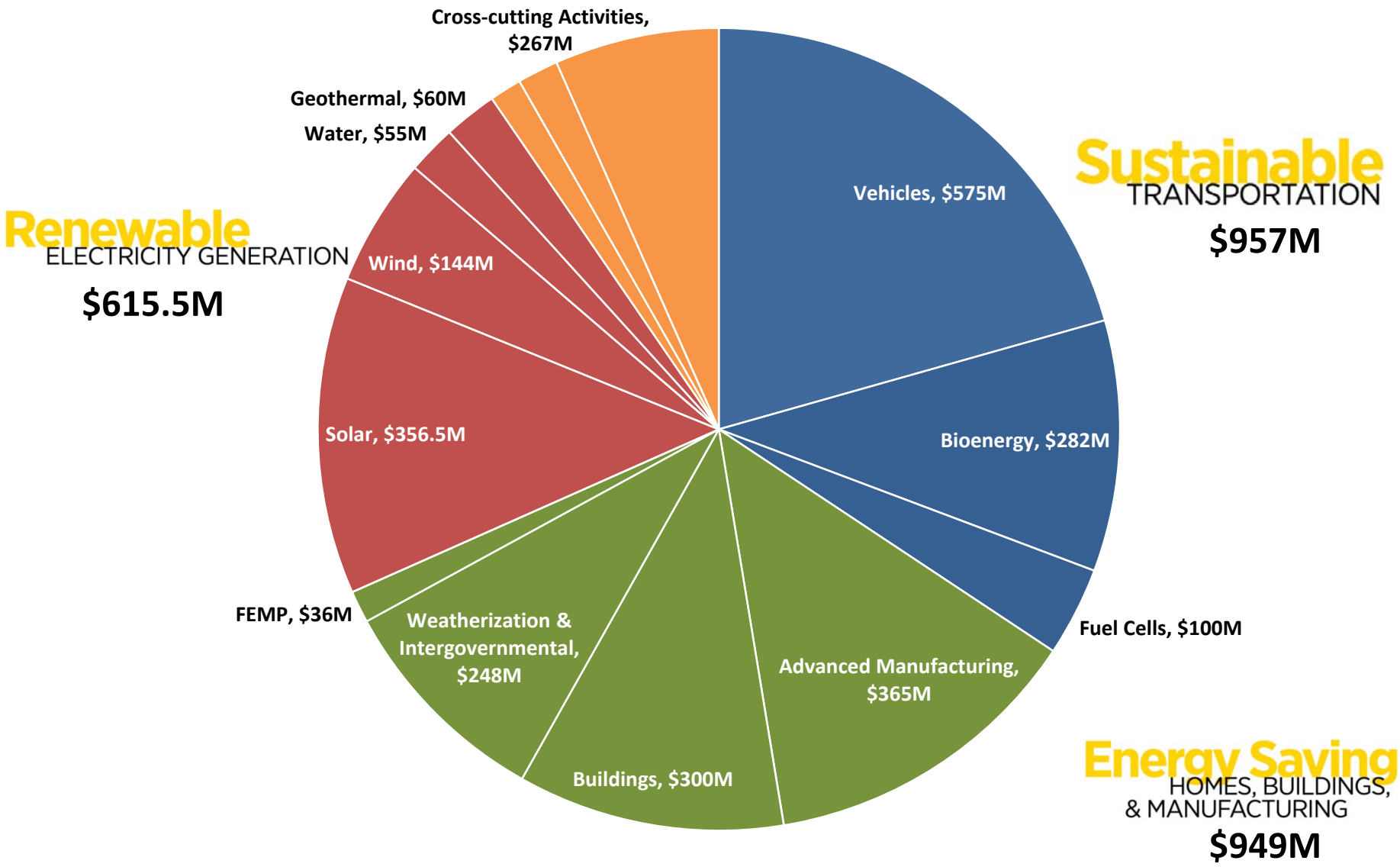
A Proven Track Record of Success

- EERE-funded combustion R&D on heavy-duty trucking efficiency over past 20 years has yielded total benefit of more than $70B (70:1 return-on-investment)
- Virtually every hybrid-electric vehicle has EERE battery technology inside
- Reduced plug-in electric vehicle battery costs by 50% in past 4 years
- Reduced fuel cell costs by 35% in past 4 years
- In 2012, achieved 10-year goal of demonstrating technology for $2.15/gallon cellulosic ethanol
- First EERE-supported commercial cellulosic ethanol plant will be on-line in 2013
- EERE programs have accelerated solar PV industry by 12 years over the past 30 years

Unique Time and Place for American Clean Energy

- 2012: $268B invested in clean energy sector (500% increase since 2004)
- Wide array of clean energy technologies now within 5-10 years of direct cost competitiveness
- Clean energy “ready to launch” – time is now for United States to assert global leadership

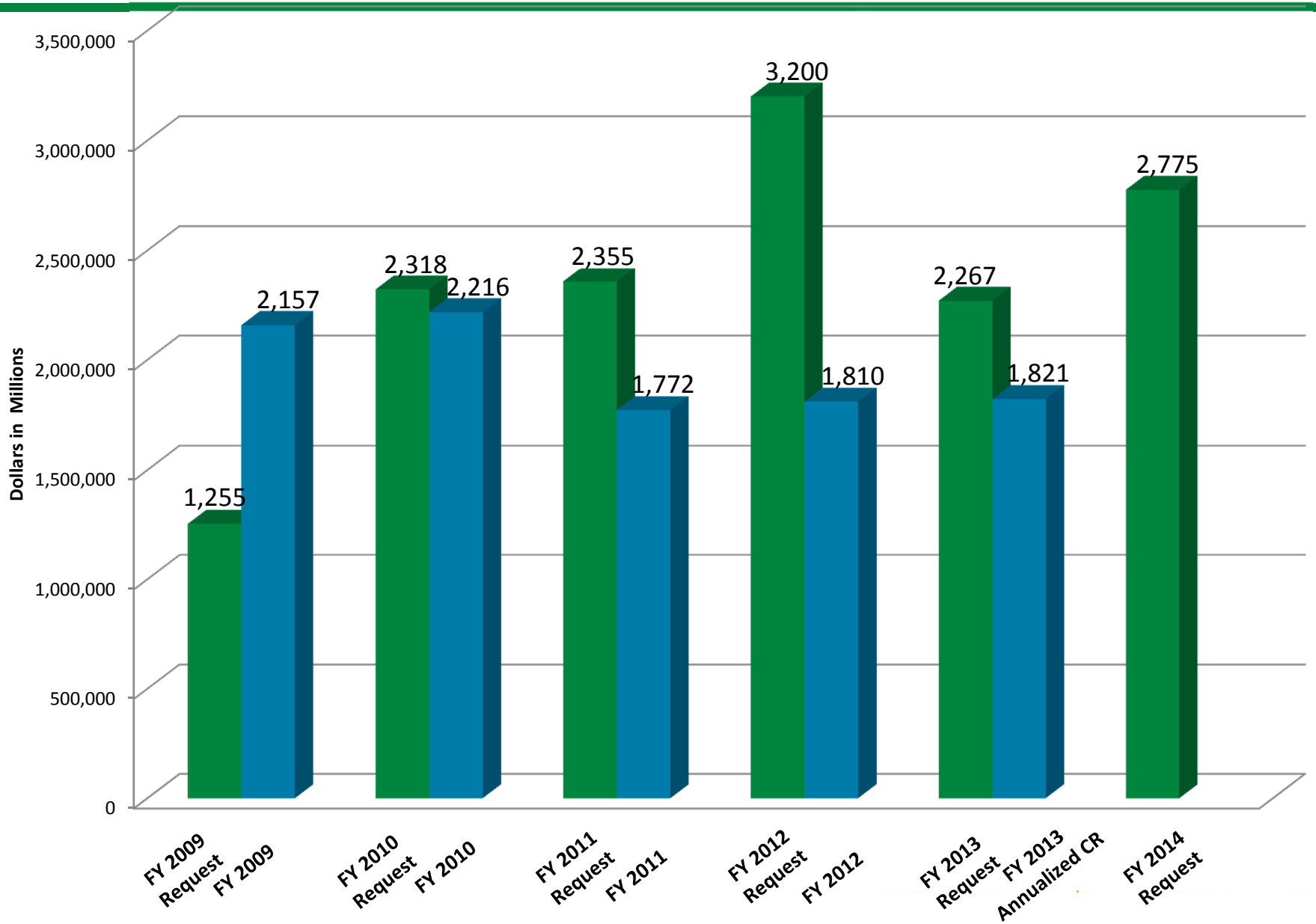
Fiscal Year 2014 EERE Budget Request - $2.78B



EERE Budget Summary

	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR	FY 2014 Request
Sustainable Transportation	**617,287**	**770,000**	**635,573**	**957,000**
Vehicle Technologies	320,966	420,000	330,819	575,000
Bioenergy Technologies	194,995	270,000	200,496	282,000
Hydrogen and Fuel Cell Technologies	101,326	80,000	104,258	100,000
Energy Efficiency	**485,289**	**872,000**	**495,690**	**949,000**
Advanced Manufacturing	112,692	290,000	116,287	365,000
Building Technologies	214,706	310,000	220,546	300,000
Federal Energy Management Program	29,891	32,000	30,074	36,000
Weatherization and Intergovernmental Activities	128,000	195,000	128,783	248,000
Renewable Electricity	**471,570**	**490,000**	**481,785**	**615,500**
Solar Energy	284,702	310,000	290,719	356,500
Wind Energy	91,813	95,000	93,825	144,000
Geothermal Technologies	36,979	65,000	38,094	60,000
Water Power	58,076	20,000	59,147	55,000
Corporate	**216,311**	**250,000**	**217,635**	**267,000**
Facilities and Infrastructure	26,311	26,400	26,472	46,000
Program Direction	165,000	164,700	166,010	185,000
Strategic Programs	25,000	58,900	25,153	36,000
Subtotal Energy Efficiency and Renewable Energy	**1,790,457**	**2,337,000**	**1,830,683**	**2,788,500**
Use of Prior Year Balances	**-9,909**	**-69,667**	**-9,970**	**-12,800**
Total Energy Efficiency and Renewable Energy	**1,780,548**	**2,267,333**	**1,820,713**	**2,775,700**

EERE Budget Trends: FY 2009[1] – FY 2014 Request

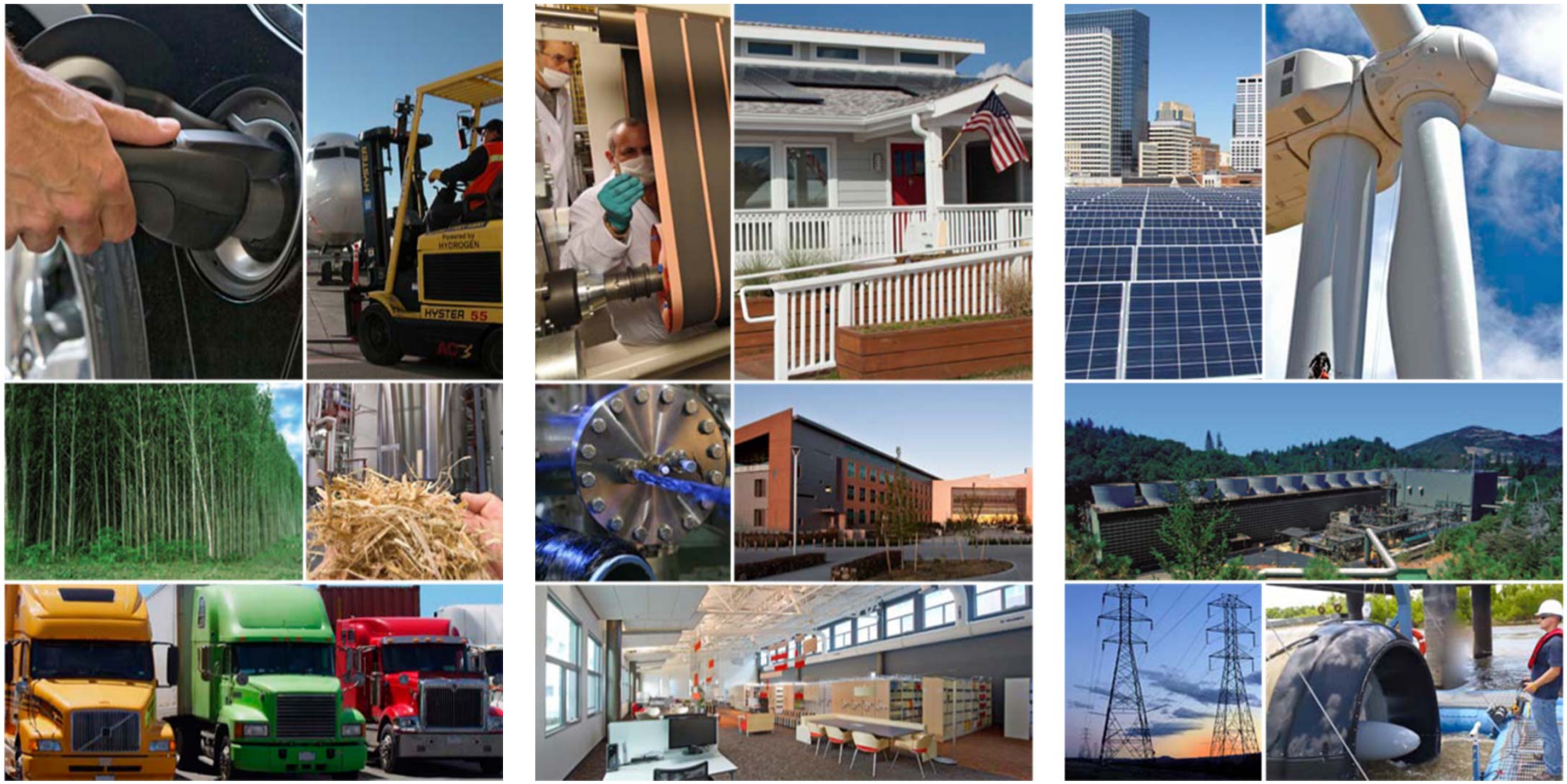


[1] Baseline funding does not include ARRA.

Sustainable
TRANSPORTATION

Energy Saving
HOMES, BUILDINGS,
& MANUFACTURING

Renewable
ELECTRICITY GENERATION



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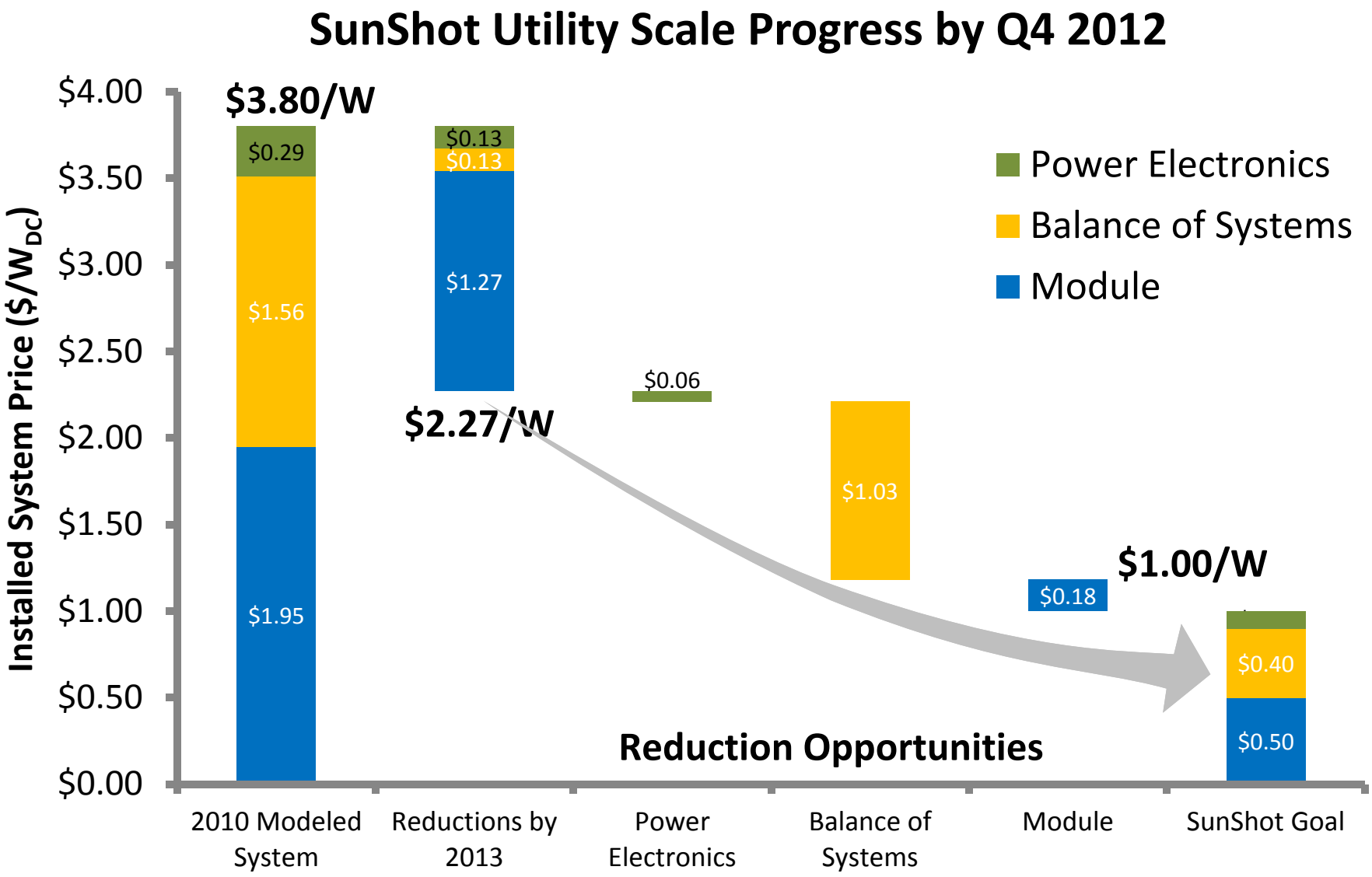
Cross-Cutting EERE Initiatives

SunShot
U.S. Department of Energy

($356.5M)



EV Everywhere Grand Challenge ($325.6M)

President Obama issued the *EV Everywhere* Grand Challenge in March 2012 with the bold goal to be the first nation in the world to produce plug-in electric vehicles (PEVs) that are as affordable and convenient for the average American family within the next 10 years as today's gasoline-powered vehicles.

***EV Everywhere* Grand Challenge** *EV Everywhere* focuses on technical targets to reduce PEV cost and directs attention to breaking down the most difficult PEV deployment barriers.

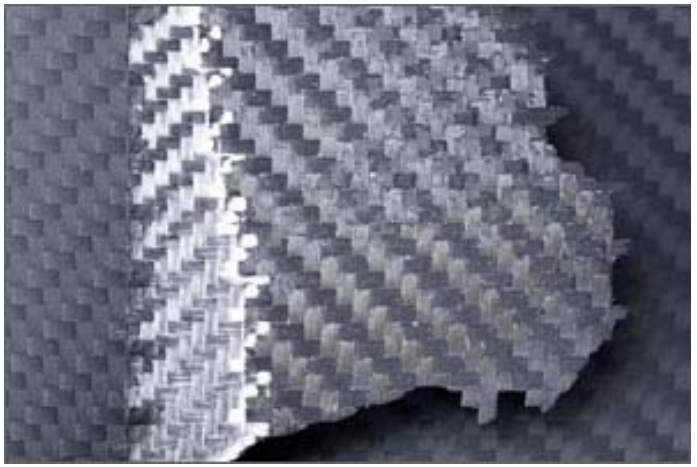
R&D *EV Everywhere* technology performance and cost targets will guide DOE investments to reduce the combined battery and electric drive system costs of a PEV by up to 50%.

Workplace Charging Challenge The Challenge's goal is to increase the number of U.S. employers offering workplace charging by tenfold in the next 5 years. Leading U.S. employers in all economic sectors are taking the Challenge to help build our nation's PEV charging infrastructure by committing to install workplace charging.

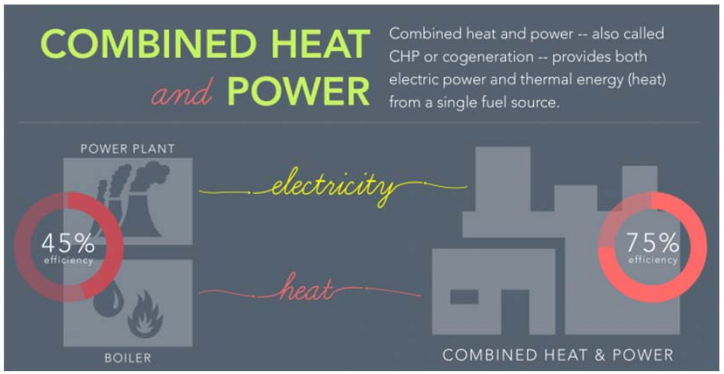
Clean Energy Manufacturing Initiative

1. **Increase U.S. competiveness in the production of clean energy products**
   - *Invest in competitive advantages, overcome competitive disadvantages*





2. **Increase U.S. manufacturing competitiveness across the board by increasing energy productivity**
   - *Enhancing competitiveness of U.S. companies*



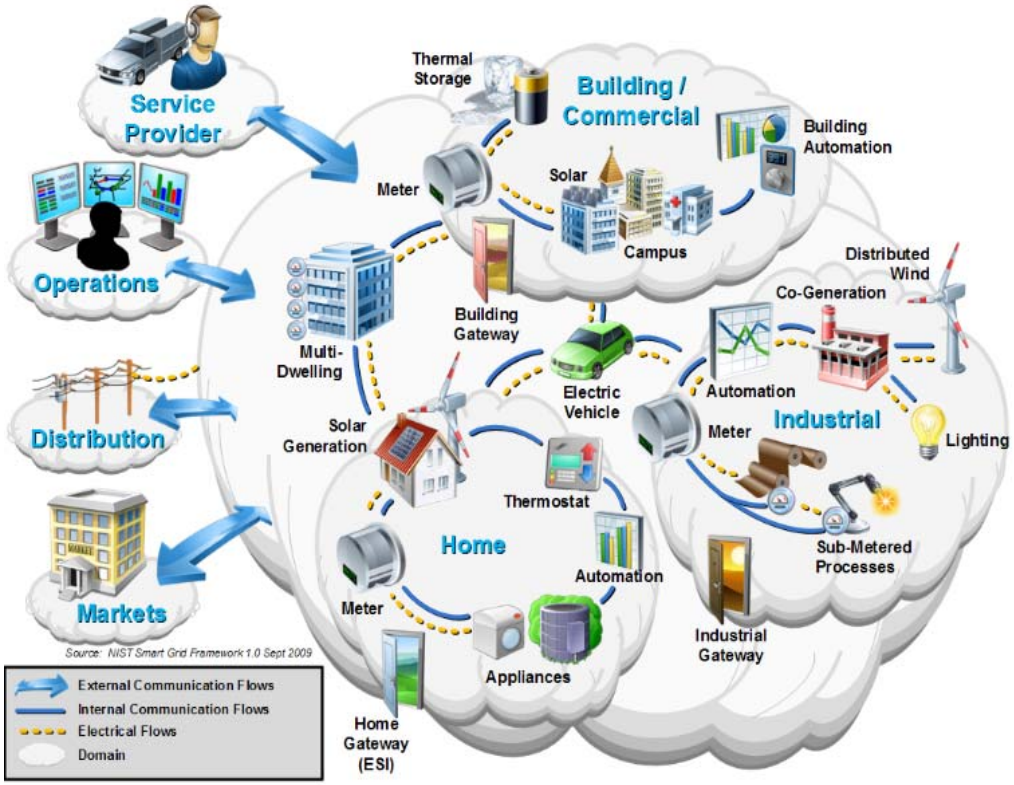
EERE Grid Integration Initiative: Goal & Vision ($80M)

Integrating Clean Energy Technologies Into the Electricity Grid

Cost reduction alone will not enable large-scale deployment. As clean energy and energy efficient technologies become more prevalent on the customer side of the meter, improved technologies, tools, and approaches must be developed and validated to enable better integration with the distribution system. Distributed variable resources (e.g., solar, etc.), electric vehicles, and building energy technologies must be holistically integrated to be adopted by utilities and the marketplace at a scale necessary to achieve significant energy, economic, and environmental benefits.

Multi-Program Initiative: Solar, Buildings and Vehicles

- Systems optimization
- High resolution data
- Data analytics/tools
- Sensors
- Control systems
- Owner economics
- Protection and restoration



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EERE Incubators: High-Impact “Off-Roadmap” Technologies ($110M)

EERE Incubators:

- Pilot expansion of successful “Sunshot Incubator Program" in Solar Energy Technology Office to other EERE technology offices
- Enables ongoing on-ramp for "off-road-map" emerging technology approaches
- Small fraction of annual R&D budget




Vehicle Technologies

Fiscal Year 2014 Priority Activities

- **EV Everywhere Grand Challenge, $325.6M**: Make the United States the first country to provide a wide array of plug-in electric vehicle models that are as affordable and convenient as gasoline vehicles by 2022.
- **SuperTruck Initiative, $10.1M:** Develop and demonstrate technologies that improve heavy-duty, class-8 vehicle fuel economy by 50% (relative to a comparable 2009 vehicle) by increasing energy efficiency, reducing aerodynamic drag and weight, and hybridization.
- **Alternative Fuel Vehicle Community Partner Projects, $90M**: Accelerate the adoption of PEV's, natural gas vehicles, and other alternative fuels through highly-leveraged community partnerships to introduce alternative fuel and advanced vehicles at scale.
- **Grid Integration Initiative, $20M:** Coordinate with EERE's Building and Solar Energy Technologies Offices to develop and advance the platform of technologies necessary to fully integrate PEVs and other clean energy technologies into the distribution system in a safe, reliable, and cost effective manner.
- **Vehicle Technologies Incubator, $30M:** Funding program to introduce potentially high-impact, promising "off-road-map" new technologies and learning curves into the Vehicle Technologies portfolio.

(Dollars in Thousands)	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR*	FY 2014 Request
Batteries and Electric Drive Technology	117,740	210,000	—	240,200
Vehicle and Systems Simulation & Testing	47,198	57,000	—	70,000
Advanced Combustion Engine R&D	58,027	57,000	—	59,500
Materials Technology	40,830	50,000	—	59,500
Fuels and Lubricant Technologies	17,904	12,000	—	17,500
Outreach, Deployment and Analysis	39,267	34,000	—	126,300
NREL User Facility	0	0	—	2,000
Total, Vehicle Technologies	**320,966**	**420,000**	**330,819**	**575,000**

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Bioenergy Technologies

Fiscal Year 2014 Priority Activities

- **Conversion Technology R&D, $141M:** High-impact conversion technology R&D to demonstrate $3/gallon drop-in hydrocarbon biofuels by 2017.
- **Integrated Biorefineries, $78M:** Monitor our portfolio of innovative pilots and demonstration-scale biorefineries (including joint initiative with Navy and USDA on advance drop-in biofuel refineries) for biofuel and bioproduct manufacturing.
- **Algae, $15M:** Reduce modeled mature plant cost of open pond algal biofuels by $2.35/gge (gallon of gasoline equivalent) to roughly $14/gge by improving overall algal biomass productivity
- **Manufacturing R&D, $20M:** R&D program on the utilization of components of biomass for the manufacturing of low cost carbon fiber.
- **Bioenergy Technologies Incubator Program, $20M:** Funding program to introduce potentially high-impact promising "off-road-map" new technologies and learning curves into the Bioenergy Technologies portfolio.

(Dollars in Thousands)	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR*	FY 2014 Request
Feedstocks	35,038	47,000	—	40,500
Conversion Technologies	102,418	116,000	—	141,000
Integrated Biorefineries	42,897	94,000	—	78,000
Analysis and Sustainability	9,813	10,000	—	13,500
Biopower	4,829	3,000	—	4,000
NREL Site Wide Facility Support	0	0	—	5,000
Total, Bioenergy Technologies	**194,995**	**270,000**	**200,496**	**282,000**

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Hydrogen and Fuel Cell Technologies

Fiscal Year 2014 Priority Activities

- **Fuel Cell R&D, $37.5M:** Continue to reduce cost and improve durability – e.g., by increasing PEM fuel cell power output per gram of platinum-group catalyst to 6.0kW/g in 2014 and 8.0kW/g by 2017 (from 2.8kW/g in 2008).
- **Hydrogen Fuel R&D, $38.5M**: Reduce the cost of producing hydrogen from renewable resources (e.g., renewable electrolysis and direct solar water splitting), reducing the cost of delivering and dispensing hydrogen, and reduce the cost and improve the capacity of hydrogen storage systems
- **Manufacturing R&D, $4M**: Continue to develop fabrication processes and technologies for fuel cell components to enable an automotive fuel cell cost of $30/kW in 2017.
- **Technology Validation, $6M**: Gather and analyze data from fuel cell electric vehicles and hydrogen fueling stations – providing critical feedback to R&D efforts.
- **Safety, Codes and Standards, $7M:** Quantify the impact of fuel contaminants for the revision of fuel quality standards and the impact of fast fueling (SAE J2601).

(Dollars in Thousands)	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR*	FY 2014 Request
Fuel Cells R&D	43,634	38,000	—	37,500
Hydrogen Fuel R&D	33,824	27,000	—	38,500
Manufacturing R&D	1,944	2,000	—	4,000
Systems Analysis	3,000	3,000	—	3,000
Technology Validation	8,986	5,000	—	6,000
Safety, Codes and Standards (HFCT Total)	6,938	5,000	—	7,000
Market Transformation	3,000	0	—	3,000
NREL Site Wide Facility Support	0	0	—	1,000
Total, Hydrogen and Fuel Cell Technologies	**101,326**	**80,000**	**104,258**	**100,000**

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Solar Energy Technologies

Fiscal Year 2014 Priority Activities

- **Photovoltaic R&D, $79.1M:** Develop revolutionary next-generation PV technologies, leading to PV cells and/ or processes, directly impacting the $1/Watt (W) paradigm.
- **Thermal Storage:** Develop advanced energy storage approaches that will enable CSP to provide dispatchable electricity, enhancing the ability to integrate renewables to the nation's electricity grid.
- **Manufacturing R&D: SolarMat II:** Continue to invest in innovations that would provide U.S. manufacturers a competitive advantage in a challenging global marketplace.
- **Grid Integration Initiative, $64.2M**: A joint program with Building Technologies and Vehicle Technologies to deliver systems-level, behind-the-meter solutions to grid integration challenges.
- **Soft Cost Reduction:** Partnering with state and local governments, and utilities to streamline permitting, inspection, and interconnection.

(Dollars in Thousands)	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR*	FY 2014 Request
Concentrating Solar Power	44,922	45,660	—	90,053
Photovoltaic R&D	75,563	66,885	—	79,061
Systems Integration	47,916	43,717	—	64,262
Balance of Systems Soft Cost Reduction	31,897	42,626	—	61,081
Innovations in Manufacturing Competitiveness	84,404	111,112	—	50,043
NREL Site Wide Facility Support	—	—	—	12,000
Total, Solar Energy Technologies	**284,702**	**310,000**	**290,719**	**356,500**

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Wind Power Technologies

Fiscal Year 2014 Priority Activities

- **Promote Offshore Wind, $46M:** Development and demonstration of offshore wind systems, speeding deployment of the first U.S. offshore wind projects and refinement of technologies by domestic wind technology manufactured.
- **Wind Plant Optimization R&D, $23.5M:** High performance, computing-based R&D program on complex wind plant aerodynamics and wind plant operational optimization that will allow project developers to improve overall wind plant capacity factors and plant interactions with the transmission grid system.
- **Manufacturing R&D:** R&D program focused on high-impact innovation in wind component manufacturing to dramatically reduce the cost of wind power technology and increase U.S. manufacturing competitiveness in the wind power industry.
- **Grid Integration, $10.5M:** Conduct wind-grid integration and transmission studies and develop wind energy forecasting tools for grid operators.
- **Streamline Siting, Permitting, and Certification:** Wildlife impact analyses, assessment of radar mitigation solutions, and investing in testing facilities at the national laboratories for academic and industry use.

(Dollars in Thousands)	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR*	FY 2014 Request
Technology Development and Testing	73,054	71,488	—	99,000
Technology Application	18,759	23,512	—	36,000
NREL User Facility	0	0	—	9,000
Total, Wind Energy	**91,813**	**95,000**	**93,825**	**144,000**

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Water Power Technologies

Fiscal Year 2014 Priority Activities

- **MHK Systems and Components R&D, $9.5M:** R&D to develop advanced MHK systems and component technologies to increase energy capture, reliability, and survivability for lower costs.
- **Wave Energy Converter (WEC) Test Facility:** Support development and operation of a controlled WEC test facility, including collaboration with the U.S. Navy, to enable testing of WEC devices.
- **Hydropower R&D, $15.5M:** Develop advanced hydropower technologies that drive down the cost of new hydropower project development, including standardized generating units with improved energy performance, high efficiency electrical components, and low environmental impact technologies.
- **Pumped Hydropower:** Study and develop new, smaller, pumped storage designs that will leverage manufacturing economies of scale and open new markets by avoiding many constraints associated with larger-scale deployments.
- **Manufacturing R&D**: Develop advanced manufacturing for making water power technologies lightweight and modular to reduce the cost of the construction, deployment, and maintenance.

(Dollars in Thousands)	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR*	FY 2014 Request
Marine and Hydrokinetic Technologies	33,684	20,000	—	39,500
Hydropower Technologies	24,392	0	—	15,500
Total, Water Power	**58,076**	20,000	**59,147**	**55,000**

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Geothermal Technologies

Fiscal Year 2014 Priority Activities

- **EGS Field Laboratory, $30M:** Launch effort to enable cutting-edge research, drilling, and testing that paves the way to rigorous and reproducible approaches to EGS that will reduce industry development risk. The EGS Field Lab will stimulate collaborative partnerships and data sharing among industry, lab, and university users.
- **EGS R&D, $42M:** R&D on advanced drilling, sub-surface characterization, and reservoir creation technologies with the goal of making EGS broadly cost competitive without subsidies by 2030.
- **Innovative Exploration Technologies R&D, $12M:** R&D in innovative exploration technologies to identify undiscovered new hydrothermal U.S. geothermal resources.
- **Minerals Extraction**: Develop and assess cost-effective methods to extract valuable and strategically important materials from U.S. geothermal brines, thus creating an additional revenue stream from geothermal power production in the near-term.

(Dollars in Thousands)	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR*	FY 2014 Request
Enhanced Geothermal Systems	15,556	45,000	–	42,000
Low Temperature Co-produced Resources	4,940	2,000	–	2,000
Innovative Exploration Technologies	12,483	14,000	–	12,000
Systems Analysis	4,000	4,000	–	4,000
Total, Geothermal Technologies	**36,979**	**65,000**	**38,094**	**60,000**

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Advanced Manufacturing

Fiscal Year 2014 Priority Activities

- **Next Generation Manufacturing R&D Projects, $120M:** Focused on transformational improvements in manufacturing that will strengthen the competitiveness of today's industry, grow the U.S. manufacturing base, and advance foundational technology opportunities for clean energy applications to grow a new clean-energy industry.
- **Advanced Manufacturing R&D Facilities, $217.5M:** Clean Energy Manufacturing Innovation Institutes, Critical Materials Hub and the Manufacturing Demonstration Facility on additive manufacturing are all critical parts of accelerating advanced manufacturing.
- **Industrial Technical Assistance, $27.5M:** Provide technical assistance to improve industrial competitiveness and catalyze better energy management using international standards and other best practices, and assist with adoption of CHP.

(Dollars in Thousands)	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR*	FY 2014 Request
Next Generation Manufacturing R&D Projects	60,334	205,000	—	120,000
Advanced Manufacturing R&D Facilities	34,628	54,000	—	217,500
Industrial Technical Assistance	17,730	31,000	—	27,500
Total, Advanced Manufacturing	**112,692**	**290,000**	**116,287**	**365,000**

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Building Technologies

Fiscal Year 2014 Priority Activities

- **Emerging Technologies, $131.7M:** R&D investments in lighting, HVAC, water heating, envelope, sensors and controls, linked to grid integration of building systems.
- **Commercial Buildings, $36.5M:** Integrated systems meeting savings targets of 50% or more, building-to-grid interoperability, new miles per gallon-like rating system for commercial buildings, and Better Buildings Challenge/Alliances to spur business and technology solutions.
- **Residential Buildings $24.4M:** Integrated home systems meeting savings targets of 30% to 40% cost effectively in new and existing homes, deploy new miles per gallon-like rating system for homes (Home Energy Score), demonstrate program models for home upgrades offering 20% savings, and engage builders in Challenge Home Program (renewable-ready, net zero energy homes).
- **Appliance Standards:** Develop and implement rules for test procedures and minimum standards, pursue labeling of commercial products, address certification and enforcement activities, and assist state and local governments with improved code compliance.

(Dollars in Thousands)	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR*	FY 2014 Request
Commercial Buildings Integration	31,913	73,000	—	36,570
Emerging Technologies	61,182	76,750	—	131,740
Energy Innovation Hub	23,583	25,000	—	24,300
Equipment and Buildings Standards	66,746	98,250	—	82,000
Residential Buildings Integration	31,282	37,000	—	24,390
NREL User Facility	0	0	—	1,000
Total, Building Technologies	**214,706**	**310,000**	**220,546**	**300,000**

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Weatherization and Intergovernmental Program

Fiscal Year 2014 Priority Activities

The program's FY 2014 budget restores funding to weatherization grantees at the level necessary to retain basic program operations.

- **Weatherization Assistance Program, $184M:** Achieve larger energy cost savings for more low-income households and develop new approach for financing multi-family housing retrofits. Actively manage 59 weatherization formula grantees.
- **State Energy Program, $57M:** Maintain the viability and capacity of the State Energy Office network through formula grants and support 20-25 competitively selected projects to expand clean energy development through benchmarking, technical assistance, et cetera. Assist states and local governments with the design and implementation of sustainable energy programs in coordination with the Better Buildings Challenge and Better Buildings Alliance.
- **Tribal Energy Activities, $7M:** Utilize competitive financial support (15-30 grants) and technical assistance to stimulate clean energy project planning and implementation on tribal lands. Develop implementation plan with DOE Office of Indian Energy Policy and Programs on technical assistance and financial support.

(Dollars in Thousands)	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR*	FY 2014 Request
Weatherization Assistance Program				
Weatherization Grants	65,000	135,700	—	181,000
Training and Technical Assistance	3,000	3,300	—	3,000
Total, Weatherization Assistance Program	**68,000**	**139,000**	**—**	**184,000**
State Energy Program	50,000	49,000	—	57,000
Tribal Energy Program	10,000	7,000	—	7,000
Total, Weatherization and Intergovernmental	**128,000**	**195,000**	**128,783**	**248,000**

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Federal Energy Management Program

Fiscal Year 2014 Priority Activities

- **Technical Guidance and Assistance, $9M:** Help agencies implement projects and practices to meet sustainability goals for energy savings, water savings, GHG reductions, and increased use of renewable energy.
- **Federal Fleet, $2M:** Activities including the tracking and reporting activities for the federal fleet required by federal law.
- **DOE Specific Investments, $2.5M**: Support activities that facilitate achievement of DOE's environmental, energy and transportation (sustainability) goals.
- **Federal Energy Efficiency Fund, $10M:** Provide direct funding to leverage cost-sharing at federal agencies for capital projects and other initiatives to increase the energy efficiency, water conservation and renewable energy investments at agency facilities.

(Dollars in Thousands)	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR*	FY 2014 Request
DOE Specific Investments**	3,986	3,000	—	2,509
Federal Fleet	1,793	2,000	—	2,000
Planning, Reporting and Evaluation	4,832	4,000	—	3,491
Project Financing	9,640	9,581	—	9,000
Technical Guidance and Assistance	9,640	8,419	—	9,000
Federal Energy Efficiency Fund	0	5,000	—	10,000
Total, Federal Energy Management	**29,891**	**32,000**	**30,074**	**36,000**

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**** Funding located with SPO**

Strategic Programs

Fiscal Year 2014 Priority Activities

- **Technology-to-Market, $14.25M:** Prioritize activities that catalyze and support nationwide clean energy innovation and commercialization, educate the next generation of energy entrepreneurs, and help enable the market adoption of clean energy technologies.
- **Strategic Priorities and Impact Analysis, $11M:** Prioritize activities that provide essential decision support by demonstrating the possible results and impacts of various research portfolios and technology policy scenarios, as well as help identify important new opportunities for EERE research, development, and demonstration activities.
- **International, $4.75M:** Prioritize partnerships with key countries that provide the greatest opportunities to increase learning rates, promote the global adoption of clean energy technologies, and ease foreign market entry for U.S. firms.
- **Communications and Outreach, $6M**: Prioritize activities that help ensure key information is accessible, reliable, and delivered through multiple channels.

(Dollars in Thousands)	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR*	FY 2014 Request
Communication and Outreach	6,500	8,900	—	6,000
Technology-to-Market	6,500	33,500	—	14,250
International	5,000	8,500	—	4,750
Strategic Priorities and Impact Analysis	7,000	8,000	—	11,000
Total, Strategic Programs	**25,000**	**58,900**	**25,153**	**36,000**

*FY 2013 amount shown reflect the P.L. 112 175 continuing resolution level annualized to a full year. These amounts are shown only at the "congressional control" level and above; below that level, a dash (-) is shown.

Program Direction

Fiscal Year 2014 Priority Activities

- **Active Project Management:** Implementing "ARPA-E style" Active Project Management, under which every EERE project will be subject to aggressive annual "go-no go" milestones, rigorous quarterly reviews, and early termination in the event of insufficient technical performance, will require additional personnel and other resources to develop and increase project management staff and conduct regular monitoring visits.

- **IT Reform**: Consolidating and replacing more than 100 IT systems with a single integrated and cloud-based Enterprise IT solution.

(Dollars in Thousands)	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR*	FY 2014 Request
Salaries and Benefits	101,094	108,000	—	120,084
Travel	3,806	4,600	—	7,612
Support Services	34,433	26,840	—	30,071
Other Related Expenses	25,667	25,260	—	27,233
Total, Program Direction	**165,000**	**164,700**	**166,010**	**185,000**

*FY 2013 amount shown reflect the P.L. 112 175 continuing resolution level annualized to a full year. These amounts are shown only at the "congressional control" level and above; below that level, a dash (-) is shown.

Facilities and Infrastructure

Fiscal Year 2014 Priority Activities

- **Support for NREL's Energy Systems Integration Facility (ESIF), $20M:** With construction completed in 2013, begin research operations at this important new user resource for EERE and other DOE, university, and private-sector partners.

- **Funding Facility Support Costs, $30M:** Begin to directly fund NREL's site-wide facility support costs that are not currently included directly in the program's budget, rather than continue to fund these costs in the laboratory overhead rate. This practice is consistent with other National Laboratories and will reduce NREL's labor rate multiplier by an estimated 15-20%.

(Dollars in Thousands)	FY 2012 Current	FY 2013 Request	FY 2013 Annualized CR*	FY 2014 Request
Operations and Maintenance	26,311	26,400	-	26,000
Facility Management	0	0	-	20,000
Total, Facilities and Infrastructure	**26,311**	**26,400**	**26,472**	**46,000**

*FY 2013 amount shown reflect the P.L. 112 175 continuing resolution level annualized to a full year. These amounts are shown only at the "congressional control" level and above; below that level, a dash (-) is shown.