

FY 2013 Budget Request

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



U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

Henry Kelly, Acting Assistant Secretary

March 02, 2012

Message from the President

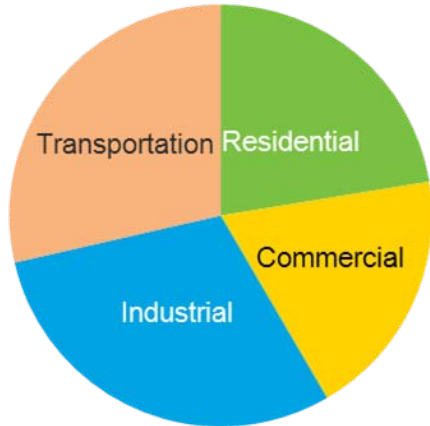
“... I will not walk away from the promise of clean energy. I will not walk away from workers ... I will not cede the wind or solar or battery industry ... It's time ... to double down on a clean energy industry that has never been more promising.”

- President Obama, State of the Union, 24 January 2012



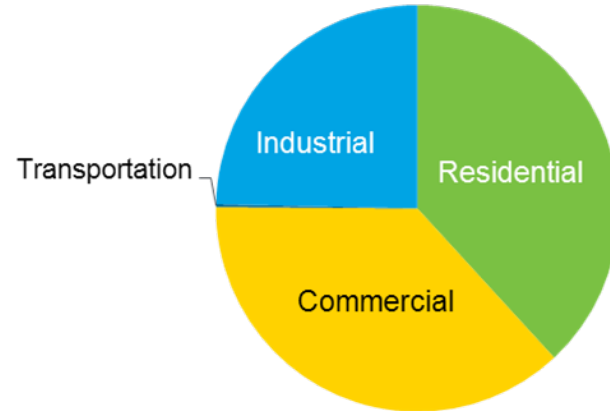
U.S. Energy Supplies and Demand in 2009

Primary Energy Use by Sector



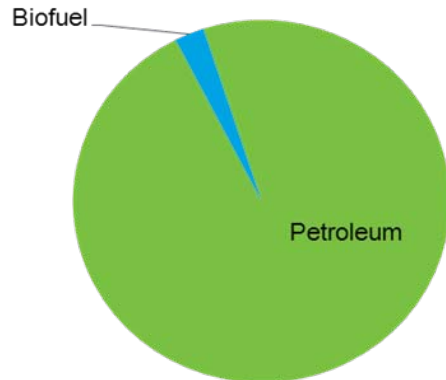
Total: 94.5 Quadrillion BTU, 2009

Electricity Use by Sector



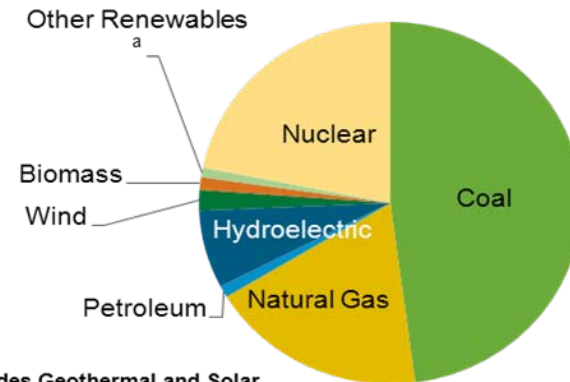
Total: 3.6 billion kWh
(12.2 Quadrillion BTU delivered from 38.3 primary)

Liquid Fuel by Source



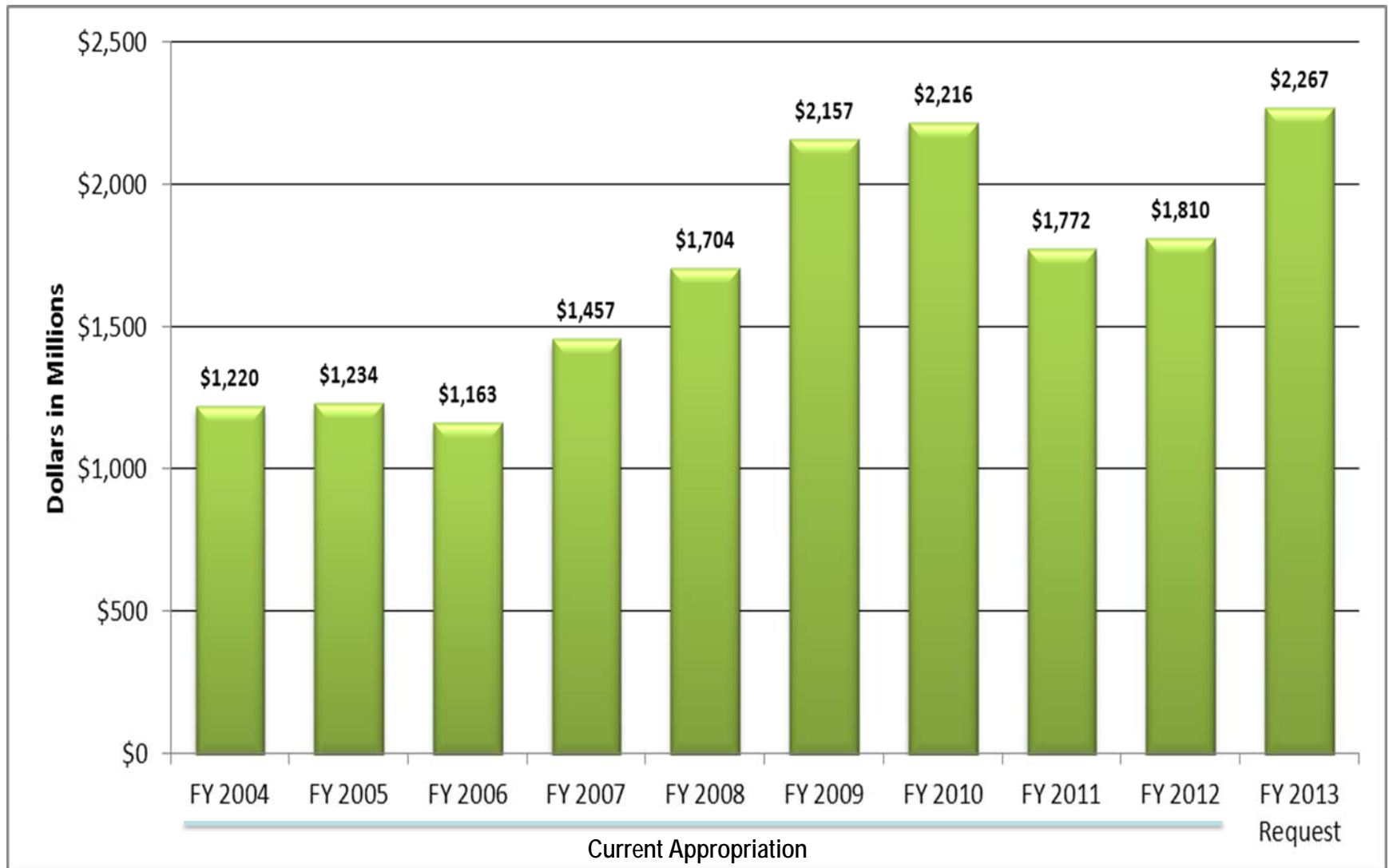
Total: 36.1 Quadrillion BTU

Electricity Generation by Source



^a Includes Geothermal and Solar

EERE Budget Trends: FY 2004 – FY 2013



EERE Budget Summary

Programs	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY13 vs FY12	
(Dollars in Thousands)					
Renewable Energy				\$ Change	% Change
Biomass and Biorefinery R&D	179,979	199,276	270,000	70,724	35.49%
Geothermal Technology	36,992	37,862	65,000	27,138	71.68%
Hydrogen and Fuel Cell Technologies	95,847	103,624	80,000	(23,624)	-22.80%
Solar Energy	259,556	288,951	310,000	21,049	7.28%
Water Power	29,201	58,787	20,000	(38,787)	-65.98%
Wind Energy	78,834	93,254	95,000	1,746	1.87%
Energy Efficiency					
Advanced Manufacturing	105,899	115,580	290,000	174,420	150.91%
Building Technologies	207,310	219,204	310,000	90,796	41.42%
Federal Energy Management Program	30,402	29,891	32,000	2,109	7.06%
Vehicle Technologies	293,151	328,807	420,000	91,193	27.73%
Weatherization & Intergovernmental	231,300	128,000	195,000	67,000	52.34%
Corporate					
Facilities and Infrastructure	51,000	26,311	26,400	89	0.34%
Program Direction	170,000	165,000	164,700	(300)	-0.18%
Strategic Programs	32,000	25,000	58,900	33,900	135.60%
Subtotal, EERE	1,801,471	1,819,547	2,337,000		
Use of Prior Year Balances	(29,750)	(9,909)	0		
Cancellation of Prior Year Balances	0	0	(69,667)		
Total, EERE	1,771,721	1,809,638	2,267,333		

EERE Impact

Strategic EERE and private sector innovation and investments have led to wider clean energy deployment and better products now commonly used or near market entry:



Refrigerators: Half the price and 75 percent more efficient.



Windows: 3x better performance (insulation) widely available; 5x better now on the market.



Lighting: 75 percent+ lower cost to operate (LEDs and CFLs).



Batteries: 35 percent cost reduction for hybrid and EV car batteries; Nearly every hybrid electric vehicle sold in the U.S. today uses battery technology initially developed with Energy Dept. support.



Federal Energy Management. 44% reduction in the energy intensity of Federal buildings from 1975 to 2011.



EERE Impact



Solar: Innovations contributing to 10x PV cost reduction up to 2010.



Wind: Nearly 47 GW of installed capacity in the U.S.; wind energy installations represent over 35 percent of all new installed capacity over the last 4 years.



Biofuels: Cellulosic (non-food) biofuels are becoming close to cost-competitive with other fuels.



Vehicles: Technologies that saved businesses more than \$7.5 billion and helped manufacturers meet fuel economy standards.



Fuel Cells: R&D contributing to more than 80 percent estimated cost reduction of automotive fuel cell technologies since 2002.



Manufacturing: Combined Heat and Power sites increased by 9x, reducing energy costs by up to 50 percent for some manufacturers.



EERE Recent Accomplishments



Appliances: Standards issued since 2009 will save consumers hundreds of billions of dollars through 2030; plan to issue nine new standards through 2013 to save consumers an additional hundreds of billions over 35 years.



Renewables: Industry added enough non-hydro renewable generation in 2010 to power 2M homes; renewables now provide 10 percent of U.S. generation.



Weatherization: Improved the energy performance of 830,000 homes for low-income and other Americans since 2009, supporting more than 13,200 jobs in the quarter ending December 2011.



Batteries: Licensed technology that can pack 50-100 percent more energy into the same space compared to conventional cathodes, enabling smaller, lighter batteries.



Solar: \$60M in EERE-funded research leveraged more than \$1.6B in private capital since 2007.

Program Request

Energy Efficiency

- Building Technologies
- Vehicle Technologies
- Advanced Manufacturing
- Federal Energy Management Program
- Weatherization & Intergovernmental

Renewable Energy

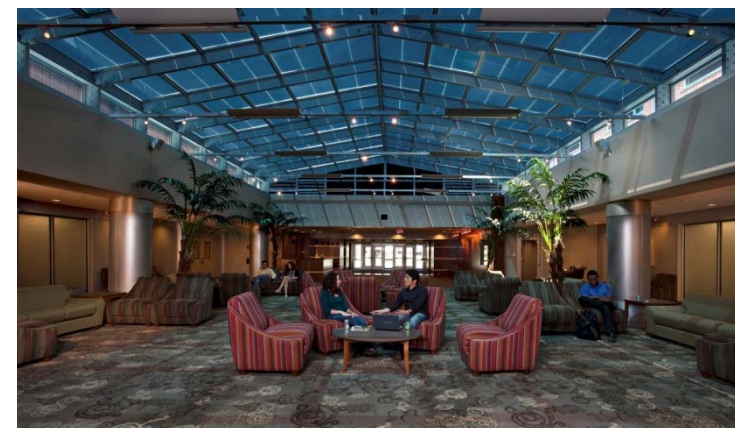
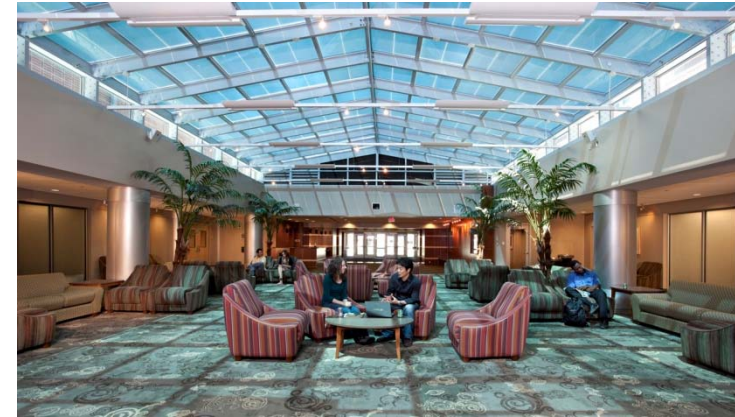
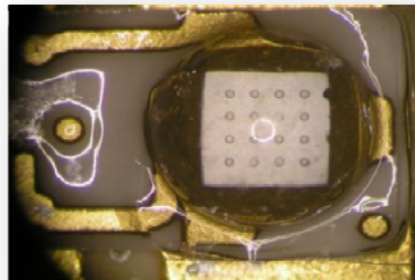
- Solar Energy
- Wind Energy
- Geothermal Technology
- Water Power
- Hydrogen & Fuel Cell Technologies
- Biomass & Biorefinery R&D

Corporate

- Strategic Programs

Building Technologies

- Residential Buildings Integration
- Commercial Buildings Integration
- Codes and Standards
- Sensors and Control R&D
- Solid-State Lighting



Vehicle Technologies

- **Battery/Energy Storage**
- **Advanced Combustion Engines**
- **Power Electronics and Electric Motors**
- **Materials Research**



Advanced Manufacturing

- Next Generation Manufacturing Processes R&D's
- Next Generation Materials R&D
- Technology Deployment



Federal Energy Management Program

- **Project Financing**
- **Technical Guidance and Assistance**
- **Planning, Reporting and Evaluation**
- **Federal Fleet**
- **Federal Energy Efficiency Fund**
- **DOE Specific Investments**



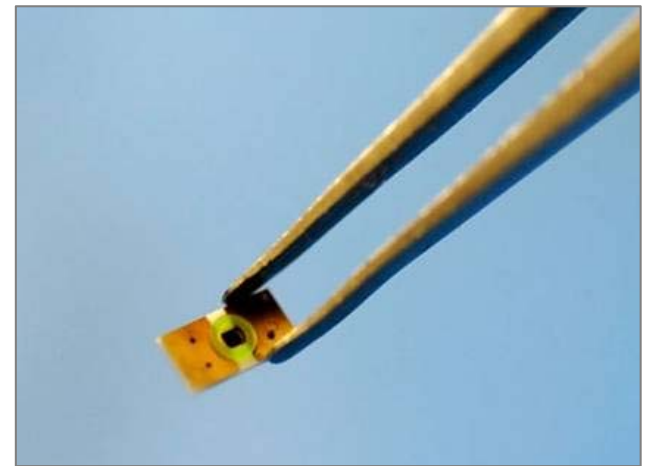
Weatherization and Intergovernmental Activities

- **Weatherization Assistance Program (WAP)**
- **State Energy Program (SEP)**
- **Tribal Energy Activities**



Solar Energy

- Photovoltaic (PV) Module
- Innovations in Manufacturing R&D
- Concentrated Solar Power (CSP) Systems
- Power Electronics & Systems
- Balance of Systems (BOS)



Wind Energy

- **Technology R&D**
- **Innovation Concepts and Emerging Technologies**
- **System Integration**
- **Market Barriers**



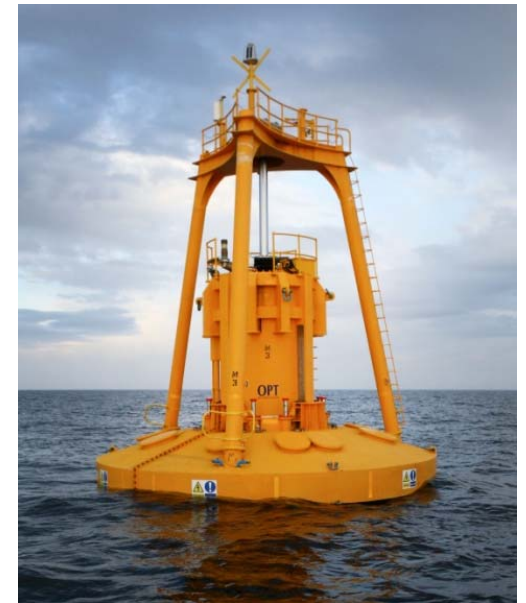
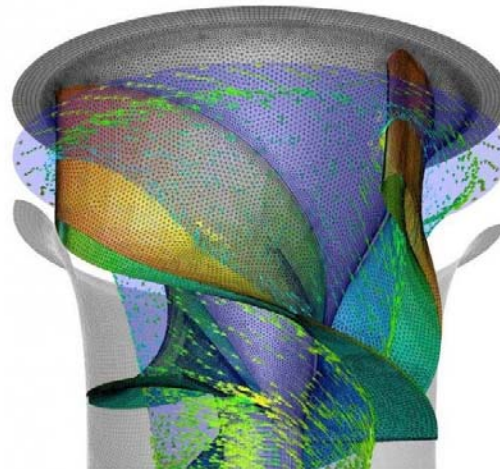
Geothermal Technology

- **Enhanced Geothermal Systems (EGS)**
- **Hydrothermal and Resource Confirmation (HRC)**
- **Resource Assessment**



Water Power

- Marine and Hydrokinetics (MHK) Technology
- Conventional Hydropower Technology



Hydrogen and Fuel Cell Technologies

- Fuel Cell R&D
- Hydrogen Fuel R&D
- Safety, Codes and Standards
- Manufacturing R&D
- Systems Analysis



Biomass

- **Integrated Biorefineries**
- **Biochemical Conversion**
- **Thermochemical Conversion**
- **Algae**
- **Feedstock Logistics**
- **Biopower**



Strategic Programs

- Communications & Outreach
- Innovation & Deployment
 - Green Jobs Training
 - Research Management
 - Innovation
 - Information Management
- International
- Strategic Priorities & Analysis

