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

Office of Energy Efficiency and Renewable Energy

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

Renewable Energy
- Solar
- Biomass/Biofuels
- Hydrogen/Fuel Cells
- Wind/ Water Power
- Geothermal

Energy Efficiency
- Vehicle Technologies
- Weatherization
- Building Technologies
- Industrial Technologies
- Federal Energy Management

Mission:

Strengthen America's energy security, environmental quality, and economic vitality through R&D and public-private partnerships that –

- diversify the Nation's sources of energy;
- increase efficiency and productivity of the existing energy infrastructure;
- bring clean, reliable and affordable energy technologies to the marketplace; and,
- make a difference in the everyday lives of Americans by productively enhancing their energy choices and quality of life.

EERE Budget Table

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Energy Efficiency and Renewable Energy
FY 2009 - FY 2011 Budget Table

Programs	FY 2009		FY 2010	FY 2011	FY11 vs FY10	
	Current Approp.	Current Recovery	Current Approp.	Congressional Request	$ Change	Percent Change
Biomass and Biorefinery R&D	214,245	777,138	220,000	220,000	0	0%
Vehicles Technologies	267,143	2,795,749	311,365	325,302	+ 13,937	4%
Hydrogen and Fuel Cell Technologies	164,638	42,967	174,000	137,000	- 37,000	-21%
Geothermal Technology	43,322	393,106	44,000	55,000	+ 11,000	25%
Solar Energy	172,414	115,963	247,000	302,398	+ 55,398	22%
Water Power	39,082	31,667	50,000	40,488	- 9,512	-19%
Wind Energy	54,370	106,932	80,000	122,500	+ 42,500	53%
Buildings Technologies (includes Hub)	138,113	319,186	222,000	230,698	+ 8,698	4%
Federal Energy Management Program	22,000	22,388	32,000	42,272	+ 10,272	32%
Industrial Technologies	88,196	261,501	96,000	100,000	+ 4,000	4%
Weatherization & Intergovernmental	516,000	11,544,500	270,000	385,000	+ 115,000	43%
RE-ENERGYSE	0	0	0	50,000	+ 50,000	NA
Program Direction	127,620	80,000	140,000	200,008	+ 60,008	43%
Program Support	18,157	21,890	45,000	87,307	+ 42,307	94%
Facilities and Infrastructure	76,000	258,920	19,000	57,500	+ 38,500	203%
Congressional-Directed Activities	228,803	0	292,135	0	- 292,135	-100%
Use of Prior Year Balances	- 13,238	0	0	0	0	NA
Total, EERE	**2,156,865**	**16,771,907**	**2,242,500**	**2,355,473**	**+ 112,973**	**5%**

Green = Advanced Fuels and Vehicles Red = Energy Efficiency Blue = Clean Energy Generation Orange = Education and Outreach Grey = Corporate Management

EERE Budget History

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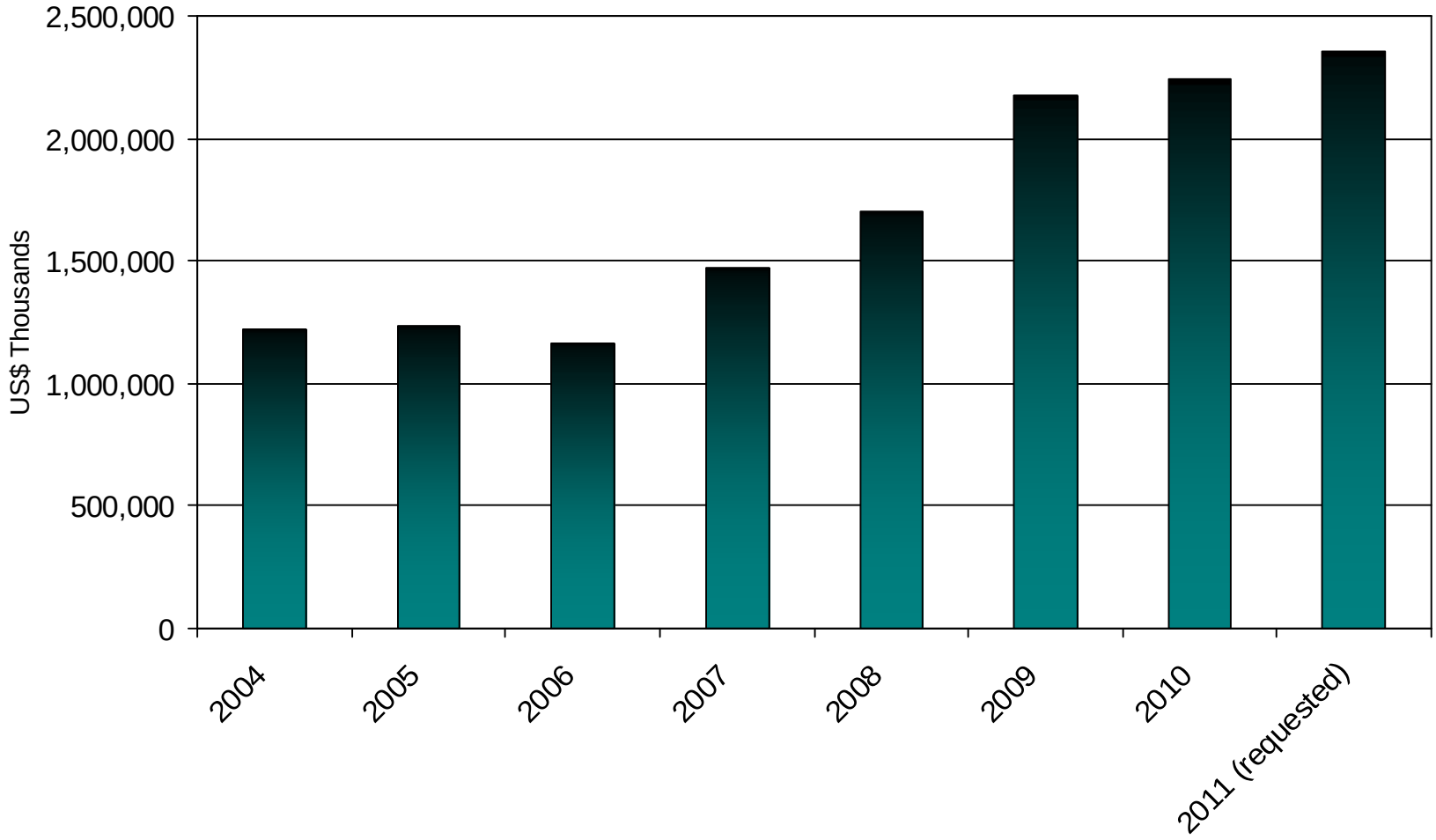
Energy Efficiency and Renewable Energy Budget History FY2004-FY2011 (requested)



Planks

- Scale and Speed
- High Impact Innovation
- Hearts and Minds
- Talent

Efficiency

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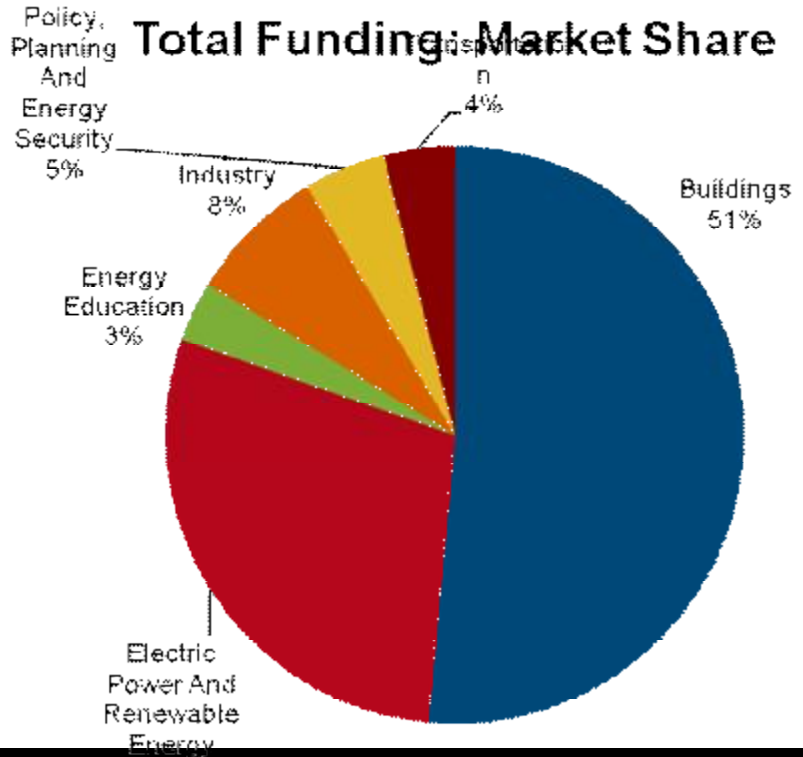
- Largest One Time Investment in Energy Efficiency



- EECBG - $3.2 Billion
- SEP - $3.1 Billion
- WAP - $5 Billion
- Appliance Rebates - $300 Million

Total = $11.6 Billion

Efficiency

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- **RTR**
- **R Squared**
- **PHEVs**
- **FEMP**

Solar Energy

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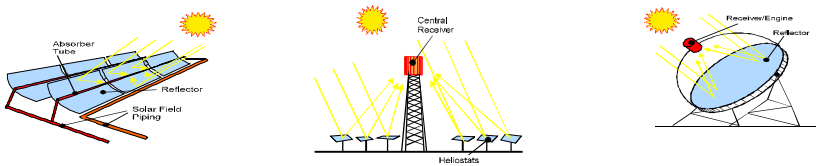
FY 2011 Budget Request: $302.4 M (+22% FY2010)

Photovoltaics (PV) – Direct Conversion of Light to Electricity



Trough Tower Dish

Concentrating Solar Power Technologies

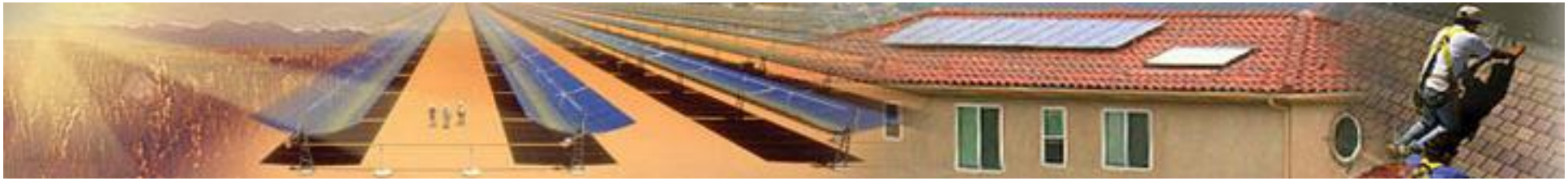
Market Status:

In 2008, total installed solar photovoltaic (PV) capacity reached 1,100 MW with 30 percent CAGR for the past 6 years

In 2007, the first large-scale concentrating solar power (CSP) plant in 15 years came online in Nevada

Solar Program RD&D Goals and Focus:

- Achieve grid parity with PV and other solar technologies by 2015 through advanced R&D over the entire supply chain.
- Expand funding of the Concentrated Solar Power program through launch of energy storage research and demonstration
- Funding solar research across the entire value chain
- Transforming solar markets through initiatives that break down market barriers and promote the adoption of solar power



Biomass Energy for Transportation

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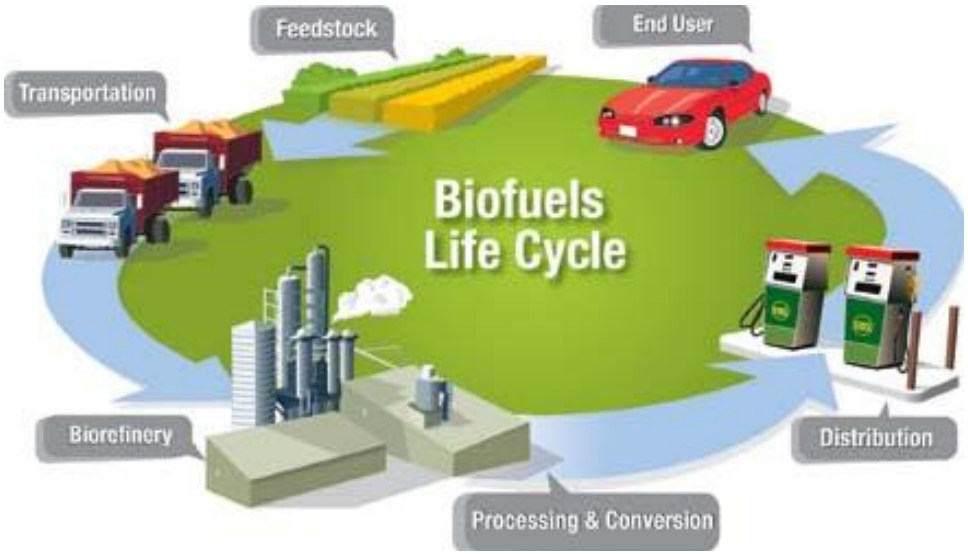
FY 2011 Budget Request: $220 M (0% FY2010)



Market Status:

- In 2008, the U.S. produced 9 billion gallons of ethanol or 6 percent of light duty fuel needs
- For the past 4 years the U.S. has led the world in ethanol production
- ~7 million flexible fuel vehicles on the road
- Cellulosic biofuels pilot/demo plants planned for 2010-2012

Biomass Program RD&D Goals and Focus:

- Achieve cost competitive cellulosic ethanol and other cellulosic and advanced biofuels through applied research, development and biorefinery demonstrations. Support infrastructure activities to enable 36 bgy biofuels by 2022.
- Advanced biofuels that reduce GHG emissions up to 80% compared to a 2005 gasoline baseline
- Advances in enzymes and catalysis
- Engineering of new microorganisms
- Novel sustainability indicators
- Test intermediate blends of ethanol

Wind Energy

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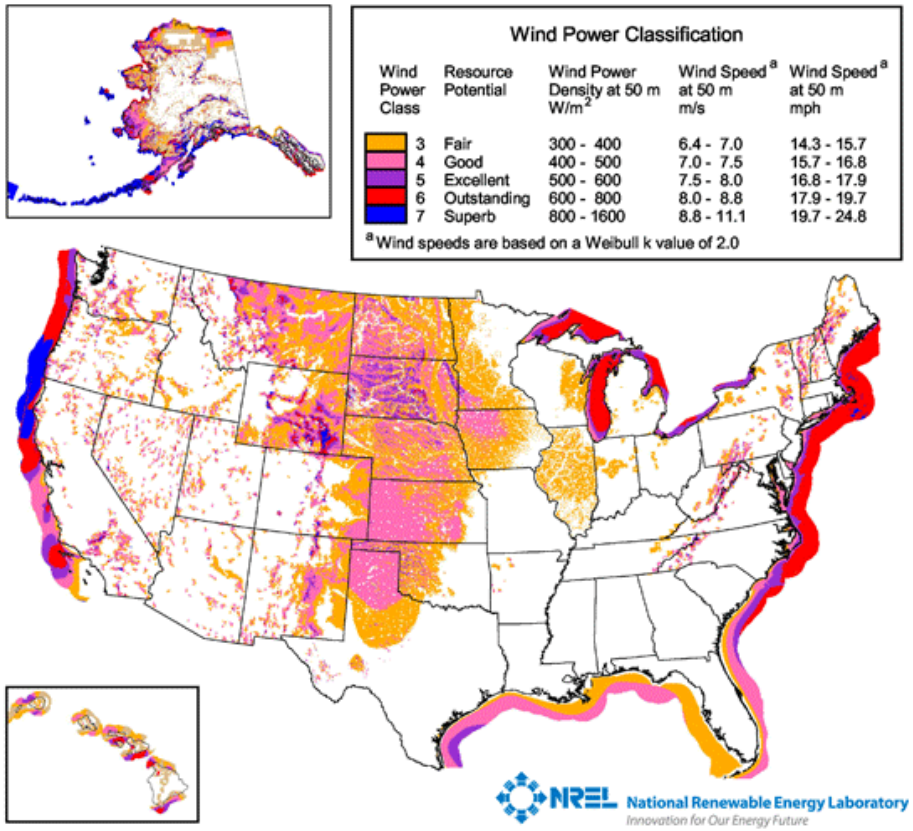
FY 2011 Budget Request: $122.5 M (+53% FY2010)

Wind Energy Resource Potential



Market Status:

U.S. installed capacity is 35,159 MW, including over 9,900 MW installed in 2009

Wind power is the leading source of new renewable energy capacity

U.S. investment in wind power was close to $20B in 2009

Wind Program RD&D Goals and Focus:

Facilitate wind energy's rapid market expansion

Improve cost, performance and reliability of wind turbine technology

Supporting U.S. manufacturing and workforce development

Reducing barriers to deployment

Supporting grid interconnection

Facilitating offshore wind power deployment

Water Power

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FY 2011 Budget Request: $40.5 M (-19% FY2010)

Market Status:

U.S. ocean power industry still in early technology development stages; no clear cost and performance data; high capital costs

U.S. wave & current resource estimated at 51 GW of extractable energy; Global OTEC resource = 3–5 TW

Remaining conventional hydropower potential is large (>50 GW), but limited by licensing and regulatory barriers, as well as environmental concerns

Water Power Program RD&D Goals and Focus:

- Reduce the barriers to deployment for marine and hydrokinetic technologies through technology development and testing, resource assessments, and environmental impact studies.
- Wave, current, tidal technologies:
  - Device and component development and testing
  - Resource assessments
- Conventional hydropower:
  - Efficiency and capacity upgrades
  - Licensing and environmental impacts
  - Resource assessments for non-powered dams, small hydropower facilities

Geothermal Energy

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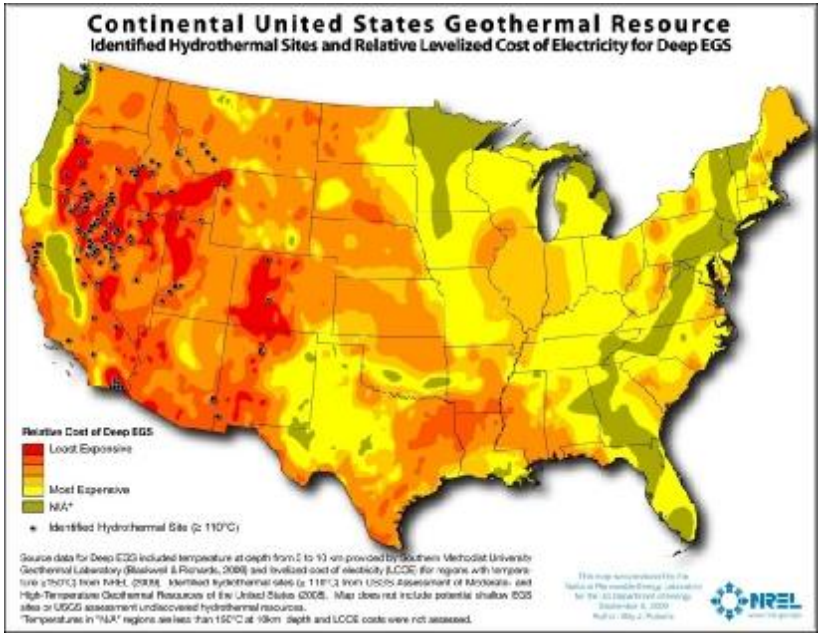
FY 2011 Budget Request: $55 M (+25% FY2010)



Industry Status:

Installed capacity of 3,000 MW e

Total of 132 new projects underway in 12 states, resulting up to 6,442 MW

EGS potential > 100 GW by 2050

Geothermal Program RD&D Goals and Focus:

- Demonstrate technical feasibility of Enhanced Geothermal Systems (EGS) in different geological conditions;
- Cost-shared step-out approach to EGS Demonstration Projects
- Emphasis on EGS while supporting undiscovered hydrothermal;
- Expand program to include co-produced fluids and power from oil and gas wells, and low-temperature resources;
- Remove institutional barriers for all geothermal resources
  - National Geothermal Data Systems
  - Workforce Development and Education

For more information…

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http://www.eere.energy.gov/

THANK YOU