Department of Energy

FY 2012 Budget Overview

14 February, 2011

Winning the Future

-- President Obama,
2011 State of the Union

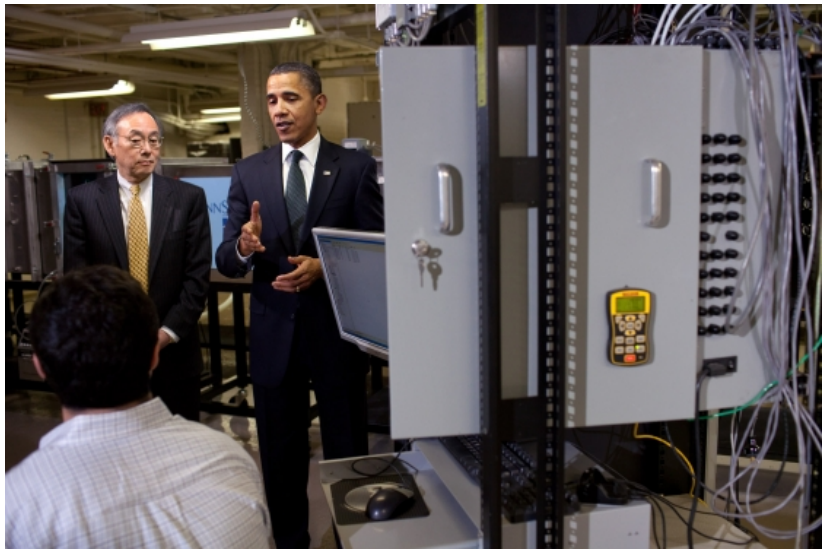
"We know what it takes to compete for the jobs and industries of our time.

"We need to out-innovate, out-educate, and out-build the rest of the world. We have to make America the best place on Earth to do business. We need to take responsibility for our deficit and reform our government.

"That's how our people will prosper. That's how we'll win the future."

Supporting the President's Plan to Win the Future

"Some of the most promising innovation is happening in the area of clean energy technology -- technology that is creating jobs, reducing our dependence on foreign oil, and … making sure our planet is a healthier place to live…" – President Obama, 2/3/11

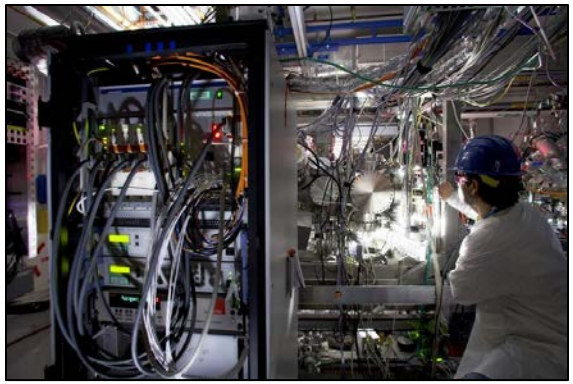


Touring Penn State University Engineering Labs

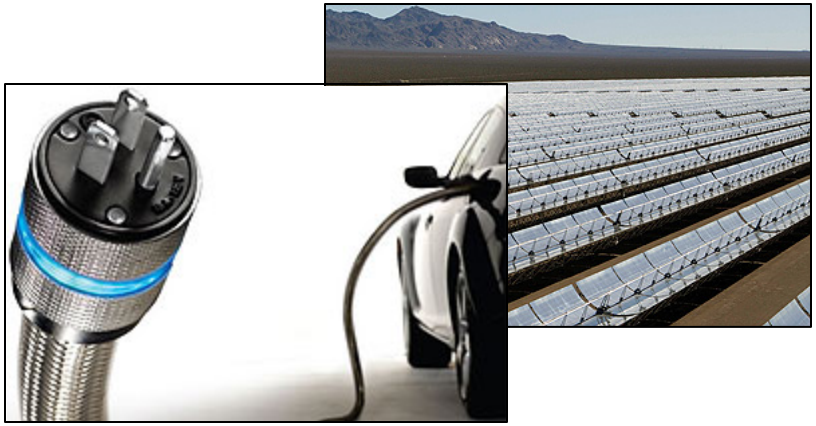
Leading in clean energy innovation is key to long-term prosperity.

The Department of Energy FY12 Budget Request makes strategic investments to unleash American innovation and promote economic competitiveness.

Department of Energy FY 12 Budget Request:

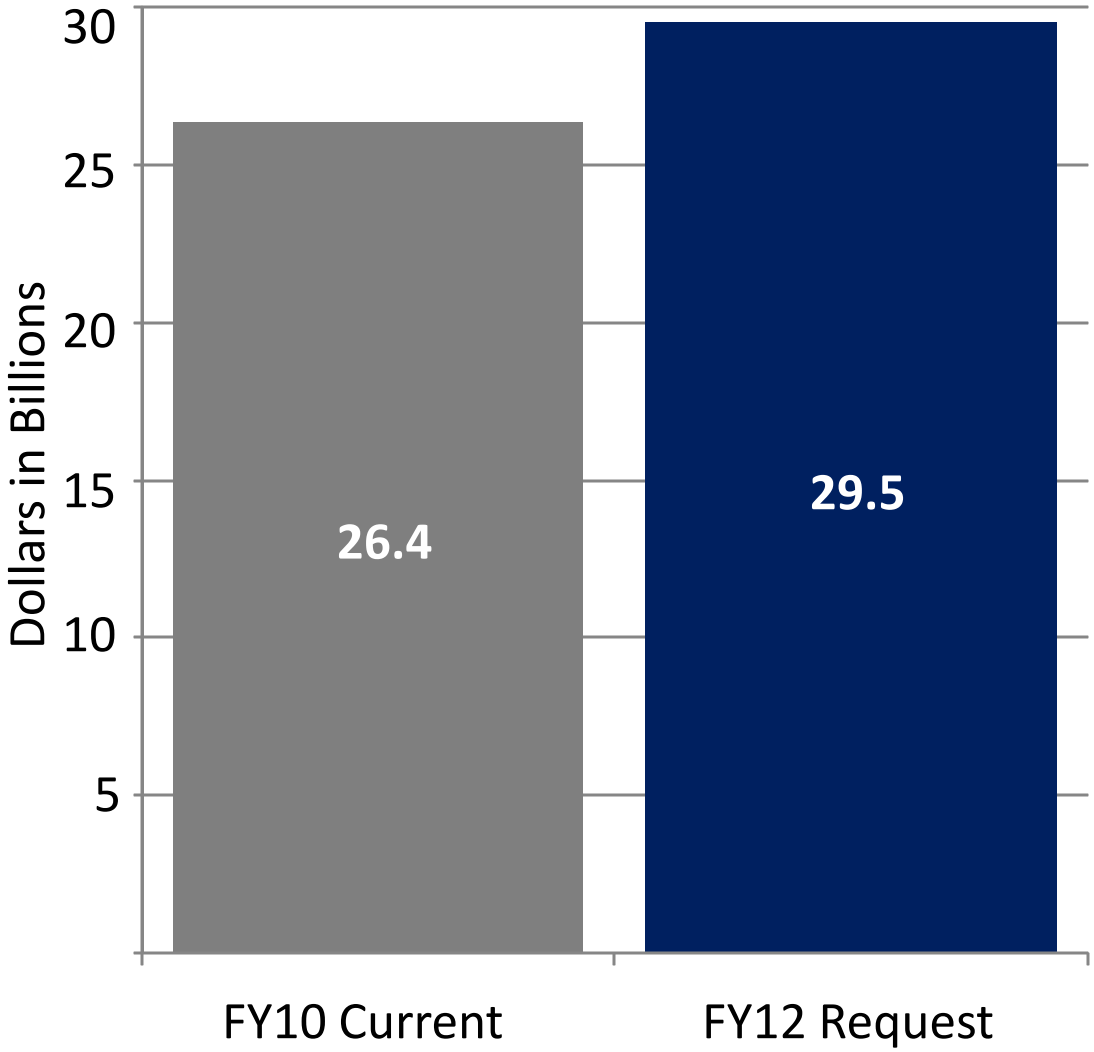


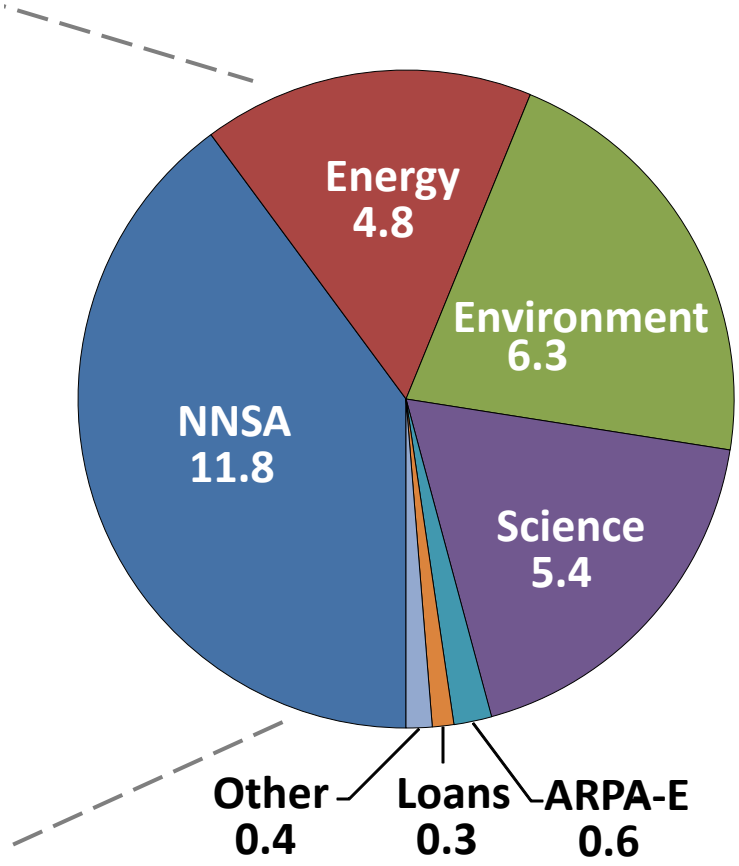
- Supports cutting-edge science and research.
- Marshals the nation's brightest minds to discover and deliver new energy solutions.
- Develops and deploys the clean and efficient energy technologies the world will demand in the coming years and decades.



- Strengthens our security by reducing nuclear dangers and maintaining a safe, secure and effective nuclear deterrent.

FY 2012 Budget Request - $29.5 B





Commitment to Fiscal Responsibility

Investing in what's needed, cutting what's not:

• The President's budget eliminates approximately $3.6 billion in tax subsidies for oil, coal, and gas industries – *expected to generate more than $46 billion in revenue over the next 10 years.*

• Reducing funding for the Fossil Energy Program by $418m – 45%.

• Reducing funding for the Office of Energy Efficiency and Renewable Energy's hydrogen technology program by nearly $70m – more than 40%.

Making hard choices as part of a shared sacrifice:

• Salary and bonus freeze for National Laboratory, site and facility management contractor employees. Money saved is reinvested in Labs.

• Ending operation of the Tevatron and Holifield Radioactive Ion beam facility.

Improving Management and Operations

• Reducing corporate management costs by $45m. We're also reducing administrative expenses across all programs.

• Consolidating programs that carry out the same mission, like the Office of Cost Analysis and the Office of Engineering and Construction Management.

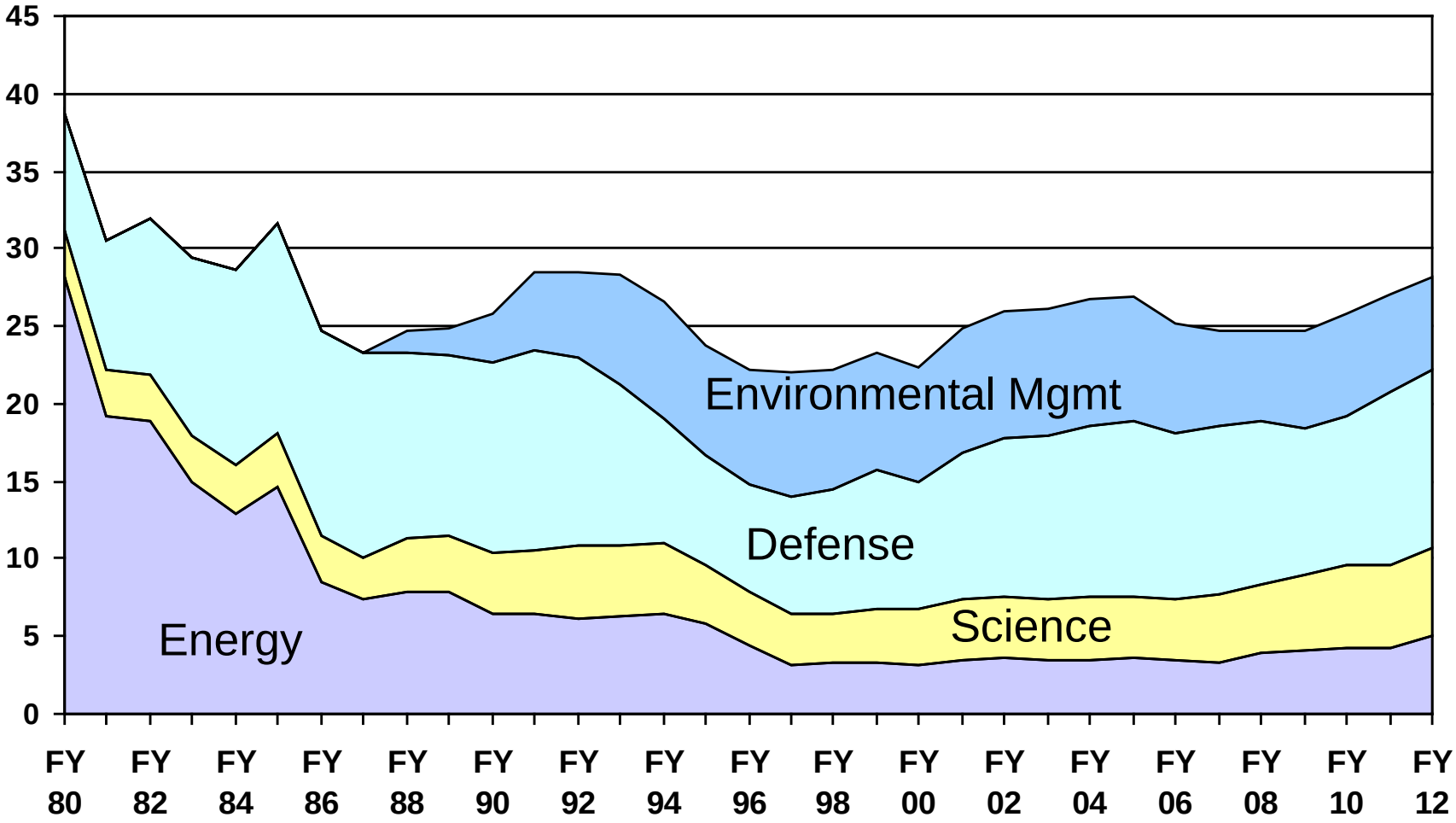
• Promoting good government and improving business practices.

- NNSA Supply Chain Management Center has saved $200m in procurement costs since 2007.

The Budget in Context

History of Department of Energy Funding

(Constant FY 2010 dollars, in billions)



Saving Money by Saving Energy

New Better Buildings Initiative, including $100 million loan guarantee program

$320 million to weatherize homes for low-income families

Leading in Electric Vehicle Technologies

Decreasing our dependence on imported oil, promoting leadership in an important growth industry:

Budget invests $588 million in vehicles to support President Obama's goal of putting one million electric vehicles on the road by 2015.

Leading in Clean Energy Technologies

R&D, Demonstration, and Deployment of:

"SunShot" initiative: $425m -- includes support from EERE, ARPA-E, Office of Science

Offshore Wind: $64m

Geothermal energy: $59m

Budget also supports biomass, CCS and nuclear, including $97m for small modular reactors.

Deploying Clean Energy Projects

Restarting the American nuclear power industry with an additional $36 billion in loan guarantee authority. Combined with existing authority, this will support 6-8 projects.

Promoting renewable energy and energy efficiency projects with $300 million in credit subsidy to support $3 - $4 billion in projects.

Builds on progress made by the Loan Programs Office over the past 2 years: Committed more than $26 billion in loans or loan guarantees to support 23 clean energy projects, estimated to create or save 58,000 direct jobs.

Unleashing American Innovation

"What we can do -- what America does better than anyone else -- is spark the creativity and imagination of our people….In America, innovation doesn't just change our lives. It is how we make our living."

– President Obama, 2011 State of the Union

President's budget maintains commitment to double investment in key basic research agencies, including Office of Science.

Provides $36 million – a 72% increase – to support the development of a skilled scientific workforce.

Positions the U.S. to maintain international leadership in scientific computing.

Supporting "the Apollo projects of our time"

<u>Energy Innovation Hubs</u>: $146 million to support 6 Hubs

"We're issuing a challenge. We're telling America's scientists and engineers that if they assemble teams of the best minds in their fields, and focus on the hardest problems in clean energy, we'll fund the Apollo projects of our time." – President Obama, 2011 State of the Union

Existing:	New:
Fuels from sunlight	Batteries and Energy Storage
Energy Efficiency in Buildings	Smart Grid Technology and Systems
Modeling & Simulation for Nuclear Reactors	Critical Materials

Builds on success of DOE's Bioenergy Research Centers: Combined 66 inventions in the patent process in the first three years of operation.

jbei Joint BioEnergy Institute

GLBRC Great Lakes Bioenergy Research Center

BESC BioEnergy Science Center

Supporting Potentially Transformational Research

Advanced Research Projects Agency – Energy: $550 million

Funding the development of potentially game-changing clean energy technologies

Budget Request builds on ARPA-E's progress

Energy Firms Aided by U.S. Find Backers

By MATTHEW L. WALD
Published: February 2, 2011

WASHINGTON — In late 2009, the federal government gave $151 million in grants to advance 37 clean energy ideas deemed too radical or too preliminary to attract much private financing — like electricity storage that mimics photosynthesis and batteries that double or triple the energy stored per pound.

Enlarge This Image

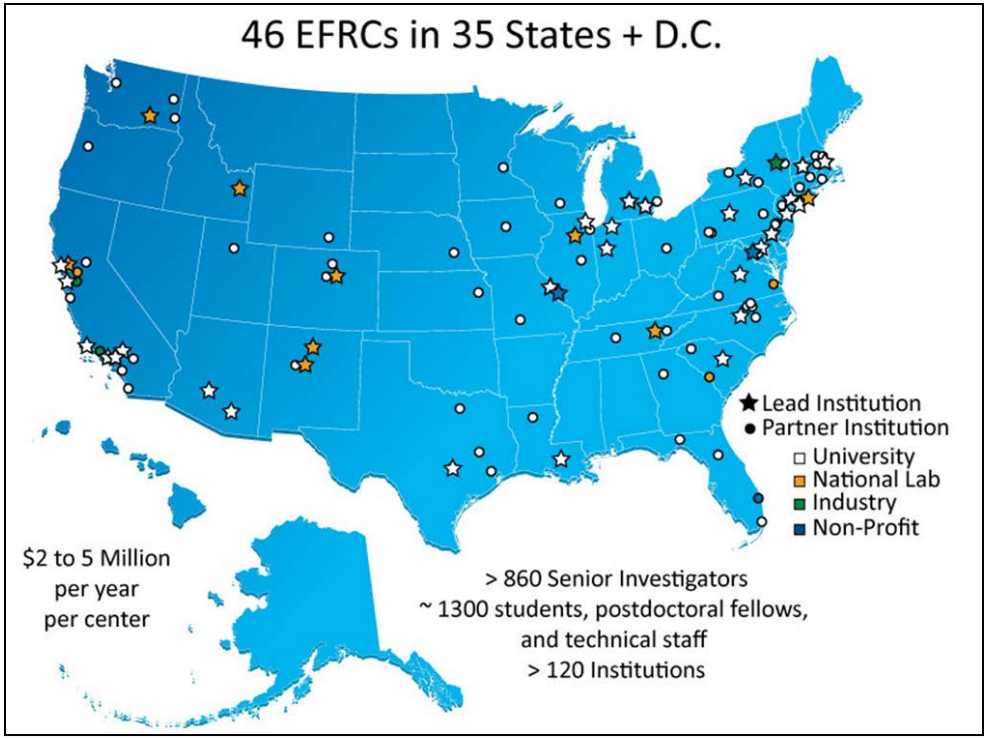
Rick Friedman for The New York Times

Kate Passino works with wafers at 1366 Technologies in Lexington, Mass., which

Since then, six of the projects have made enough progress to attract $108 million in private venture capital financing — about four private dollars for every dollar that the taxpayers spent to get them rolling — the Department of Energy plans to announce Thursday.

EFRCs: Breaking Down Barriers

<u>Energy Frontier Research Centers</u>: $100 million to continue supporting 46 projects started in 2009



Linking together small groups of researchers to clear scientific roadblocks that prevent energy breakthroughs

Supporting the President's Nuclear Security Agency

$11.8 billion for the National Nuclear Security Administration

Building on momentum over the past year:

- Negotiation, Ratification and Entry into Force of New START Treaty
- Historic Nuclear Security Summit
- Completed and began operations at the world's most secure HEU storage facility, the Highly Enriched Uranium Materials Facility at Y-12 National Security Complex
- Release of Nuclear Posture Review
- Secured nuclear material equivalent to more than 800 nuclear weapons
- Installed radiation detection equipment in more than 65 border crossings, airports and seaports around the world to help prevent nuclear smuggling

Reducing nuclear dangers and environmental risks

Modernize our Nuclear Security Enterprise: $7.6B
Part of $85B commitment over next 10 years
To promote stockpile management, infrastructure, science technology & engineering

Reduce the Risk of Proliferation: $2.5B
Part of $14.2B commitment over next 5 years
To support the President's goal of securing vulnerable nuclear materials worldwide in 4 years

Environmental Clean-up
$6.1B
To clean up the Cold War legacy sites

FY 2012 Budget Submission

Organizations (Discretionary $ in millions)	FY 2010 Current Approp	FY 2012 Request	FY12 vs FY10* %	FY12 vs FY10* $
National Nuclear Security Administration	9,874	11,783	+ 5%	+ 568
Weapons Activities	6,386	7,630	+ 9%	+ 621
Defense Nuclear Nonproliferation	2,131	2,549	- 5%	- 138
Naval Reactors	945	1,154	+ 8%	+ 83
Office of the Administrator	411	450	+ 0%	+ 2
Energy & Environment	10,575	11,111	+ 5%	+ 536
Energy Efficiency and Renewable Energy	2,216	3,200	+ 44%	+ 984
Electricity Delivery & Energy Reliability	168	238	+ 41%	+ 69
Fossil Energy	939	521	- 45%	- 418
Nuclear Energy	858	853	- 1%	- 5
Environmental Management	6,006	6,130	+ 2%	+ 124
Civilian Radioactive Waste Management	197	----	- 100%	- 197
Legacy Management	191	170	- 11%	- 21
Science	4,964	5,416	+ 9%	+ 452
ARPA-E	----	550	+ 41%	+ 161
Loan Programs	20	311	----	+ 291
Other (Corp Mgmt, HSS, EIA, PMA, FERC)	993	946	- 5%	- 47
One-Time Adjustments	----	- 570	----	- 570
TOTAL, Discretionary Funding	26,426	29,547	+ 12%	+ 3,121

** For NNSA, comparisons are made to the FY 2011 Congressional Request.*

** For ARPA-E, comparisons are made to the FY 2009 ARRA Current Appropriation.*

Energy Efficiency and Renewable Energy

(Discretionary $ in millions)	FY 2010 Current Approp	FY 2012 Request	FY12 vs FY10 %	FY12 vs FY10 $
Energy Efficiency and Renewable Energy	2,216	3,200	+ 44%	+ 984
Solar Energy	243	457	+ 88%	+ 214
Wind Energy	79	127	+ 61%	+ 48
Biomass and Biorefinery Systems RD&D	216	341	+ 57%	+ 124
Geothermal Technology	43	102	+ 135%	+ 58
Water Power	49	39	- 21%	- 10
Hydrogen and Fuel Cell Technologies	170	100	- 41%	- 70
Vehicle Technologies	304	588	+ 93%	+ 284
Building Technologies	219	471	+ 115%	+ 252
Hub: EE Building Systems Design	*22*	*24*	*+ 10%*	*+ 2*
Industrial Technologies	94	320	+ 239%	+ 226
Hub: Critical Materials	----	*20*	----	*+ 20*
Weatherization	210	320	+ 52%	+ 110
Other	588	337	- 43%	- 251

Electricity Delivery & Energy Reliability

(Discretionary $ in millions)	FY 2010 Current Approp	FY 2012 Request	FY12 vs FY10 %	FY12 vs FY10 $
Electricity Delivery & Energy Reliability	168	238	+ 41%	+ 69
Clean Energy Transmission and Reliability	37	61	+ 63%	+ 23
Hub: Smart Grid Technology and Systems	----	*19*	----	*+ 19*
Smart Grid Research and Development	32	45	+ 43%	+ 13
Energy Storage	14	57	+ 319%	+ 43
Cyber Security for Energy Delivery Systems	39	30	- 23%	- 9
Permitting, Siting and Analysis	6	8	+ 25%	+ 2
Infrastructure Security & Energy Restoration	6	6	----	----
Program Direction	21	31	+ 46%	+ 10
Other	13	- 1	- 104%	- 14

Fossil Energy

(Discretionary $ in millions)	FY 2010 Current Approp	FY 2012 Request	FY12 vs FY10 %	FY12 vs FY10 $
Fossil Energy	939	521	- 45%	- 418
Coal				
Carbon Capture	----	69	----	+ 69
Carbon Storage	----	115	----	+ 115
Advanced Energy Systems	----	64	----	+ 64
Cross Cutting Research	----	43	----	+ 43
Subtotal, Coal	*393*	*291*	*- 26%*	*- 102*
Naval Petroleum & Oil Shale Reserves	24	15	- 37%	- 9
Strategic Petroleum Reserve & SPR Petroleum	244	122	- 50%	- 122
Other	278	93	- 67%	- 185

Nuclear Energy

(Discretionary $ in millions)	FY 2010 Current Approp	FY 2012 Request	FY12 vs FY10 %	FY12 vs FY10 $
Nuclear Energy	858	853	- 1%	- 5
Nuclear Energy Enabling Technologies	----	97	----	+ 97
*Hub: Modeling and Simulation for Reactors**	*22*	*24*	*+ 10%*	*+ 2*
Small Modular Reactors	----	97	----	+ 97
Reactor Concepts RD&D (Non-SMR)	----	95	----	+ 95
Gen IV Nuclear Energy Systems Initiative *	213	----	----	- 213
Nuclear Power 2010	102	----	- 100%	- 102
Fuel Cycle R&D	132	155	+ 17%	+ 23
Other	411	408	- 1%	- 3

** NE has restructured its budget since FY 2010 to provide greater transparency. Gen IV funding is now located within NEET and Reactor Concepts RD&D. In 2010, funding for the Energy Innovation Hub for Modeling and Simulation was included in the Generation IV Nuclear Energy Systems program*

Science

(Discretionary $ in millions)	FY 2010 Current Approp	FY 2012 Request	FY12 vs FY10 %	FY12 vs FY10 $
Science	4,964	5,416	+ 9%	+ 452
Advanced scientific computing research	383	466	+ 22%	+ 82
Basic energy sciences	1,599	1,985	+ 24%	+ 386
Hub: Fuels from Sunlight	*22*	*24*	*+ 10%*	*+ 2*
Hub: Batteries and Energy Storage	----	*34*	----	*+ 34*
Biological and environmental research	588	718	+ 22%	+ 130
Fusion energy sciences program	418	400	- 4%	- 18
High energy physics	791	797	+ 1%	+ 6
Nuclear physics	522	605	+ 16%	+ 83
Workforce development for teachers and scient	21	36	+ 72%	+ 15
Science laboratories infrastructure	128	112	- 12%	- 16
Safeguards and security	83	84	+ 1%	+ 1
Science program direction	189	217	+ 15%	+ 27
Other	242	- 3	- 101%	- 245

Advanced Research Projects Agency-Energy

($ in millions)	FY 2009 ARRA	FY 2012 Request	FY12 vs FY09 ARRA %	FY12 vs FY09 ARRA $
ARPA-E Discretionary.....	389	550	+ 41%	+ 161
Wireless Innovation Fund (Mandatory).....	----	100	----	+ 100

Loan Programs

(Discretionary $ in millions)	FY 2010 Current Approp	FY 2012 Request	FY12 vs FY10 %	FY12 vs FY10 $
Loan Programs	20	311	----	+ 291
Innovative Technology Loan Guarantee	----	200	----	+ 200
Better Building Initiative	----	105	----	+ 105
Advanced Technology Vehicles Manufacturing	20	6	- 70%	- 14

(Authority in billions)	Existing Authority	FY12 Request
Self-Pay, 1703 Total	51.0	36.0
1703 Energy Efficiency/Renewables	18.5	----
1703 Nuclear Power	18.5	36.0
1703 Front End Nuclear*	4.0	----
1703 Advanced Fossil	8.0	----
1703 Mixed	2.0	----
Appropriated Credit Subsidy		
1705 Loan Guarantee Program ($2.4 B subsidy)	16.0-20.0	----
1703 Energy Efficiency and Renewable Energy ($200 M subsidy)	----	1.0-2.0
Better Buildings Pilot Loan Guarantee Initiative ($100 M subsidy)	----	2.0
ATVM ($7.5 B subsidy)	25.0	----

* $2 billion of loan authority was reprogrammed in FY 2010 from Mixed to Front End Nuclear.

National Nuclear Security Administration

(Discretionary $ in millions)	FY 2011 Request	FY 2012 Request	FY12 vs FY11 %	FY12 vs FY11 $
National Nuclear Security Administration	11,215	11,783	+ 5%	+ 568
Naval Reactors	1,070	1,154	+ 8%	+ 83
Defense Nuclear Nonproliferation	2,687	2,549	- 5%	- 138
Weapons Activities	7,009	7,630	+ 9%	+ 621
Office of the Administrator	448	450	+ 0%	+ 2
Note: Basis for comparison is FY11 Request				

Environmental Management

(Discretionary $ in millions)	FY 2010 Current Approp	FY 2012 Request	FY12 vs FY10 %	FY12 vs FY10 $
Environmental Management	6,006	6,130	+ 2%	+ 124
Los Alamos	198	362	+ 83%	+ 164
Technology Development and Deployment	19	32	+ 66%	+ 13
River Protection	1,097	1,361	+ 24%	+ 265
Savannah River	1,342	1,364	+ 2%	+ 22
West Valley	60	60	+ 0%	+ 0
Portsmouth	310	310	- 0%	- 0
Carlsbad/WIPP	235	234	- 1%	- 1
Richland/Hanford	1,081	1,006	- 7%	- 75
Oak Ridge	436	401	- 8%	- 35
Nevada	74	66	- 11%	- 8
Paducah	165	144	- 13%	- 21
Idaho	469	392	- 16%	- 77
Program Direction	345	322	- 7%	- 23
ETEC	11	11	+ 2%	+ 0
Other	164	66	- 60%	- 98
Research and Development (included above)	*70*	*133*	*+ 90%*	*+ 63*

Corporate Management and Other Activities

(Discretionary $ in millions)	FY 2010 Current Approp	FY 2012 Request	FY12 vs FY10 %	FY12 vs FY10 $
Other	993	946	- 5%	- 47
Energy Information Administration	111	124	+ 12%	+ 13
Health, Safety And Security	444	456	+ 3%	+ 13
Corporate Management	350	305	- 13%	- 45
Power Marketing Administrations	99	85	- 14%	- 14
Federal Energy Regulatory Commission	- 11	- 25	+ 129%	- 14

Additional Budget Information

Additional budget information can be found at:
www.energy.gov