



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*

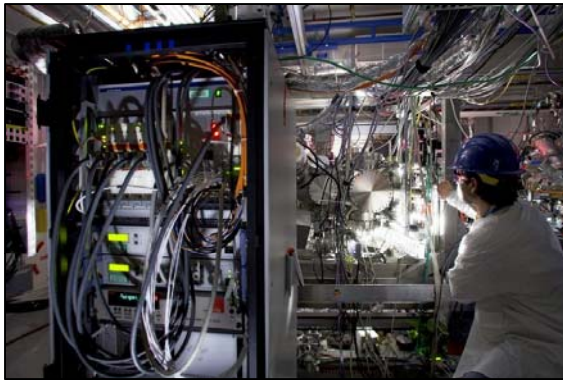
Leading in clean energy innovation
is key to long-term prosperity.

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



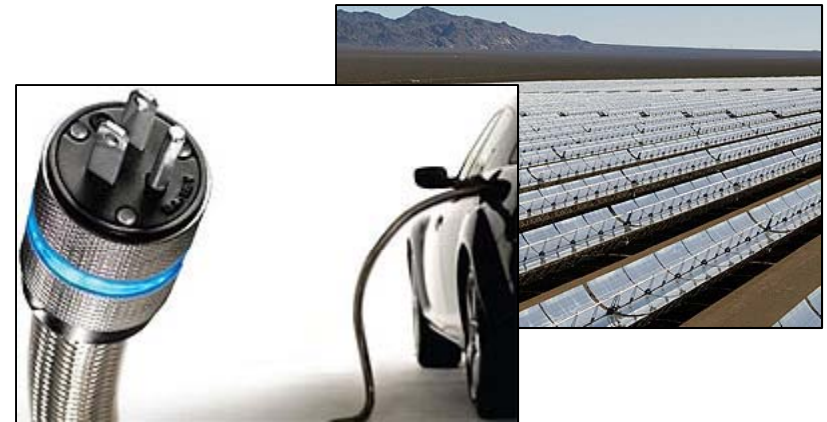
Strategic Investments in America's Prosperity and Security

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.

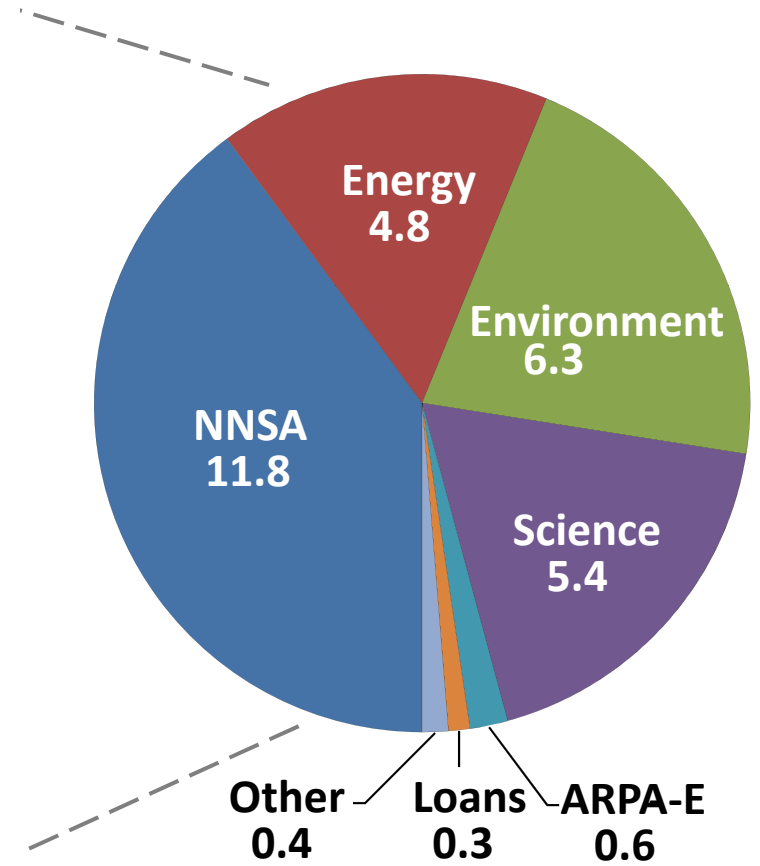
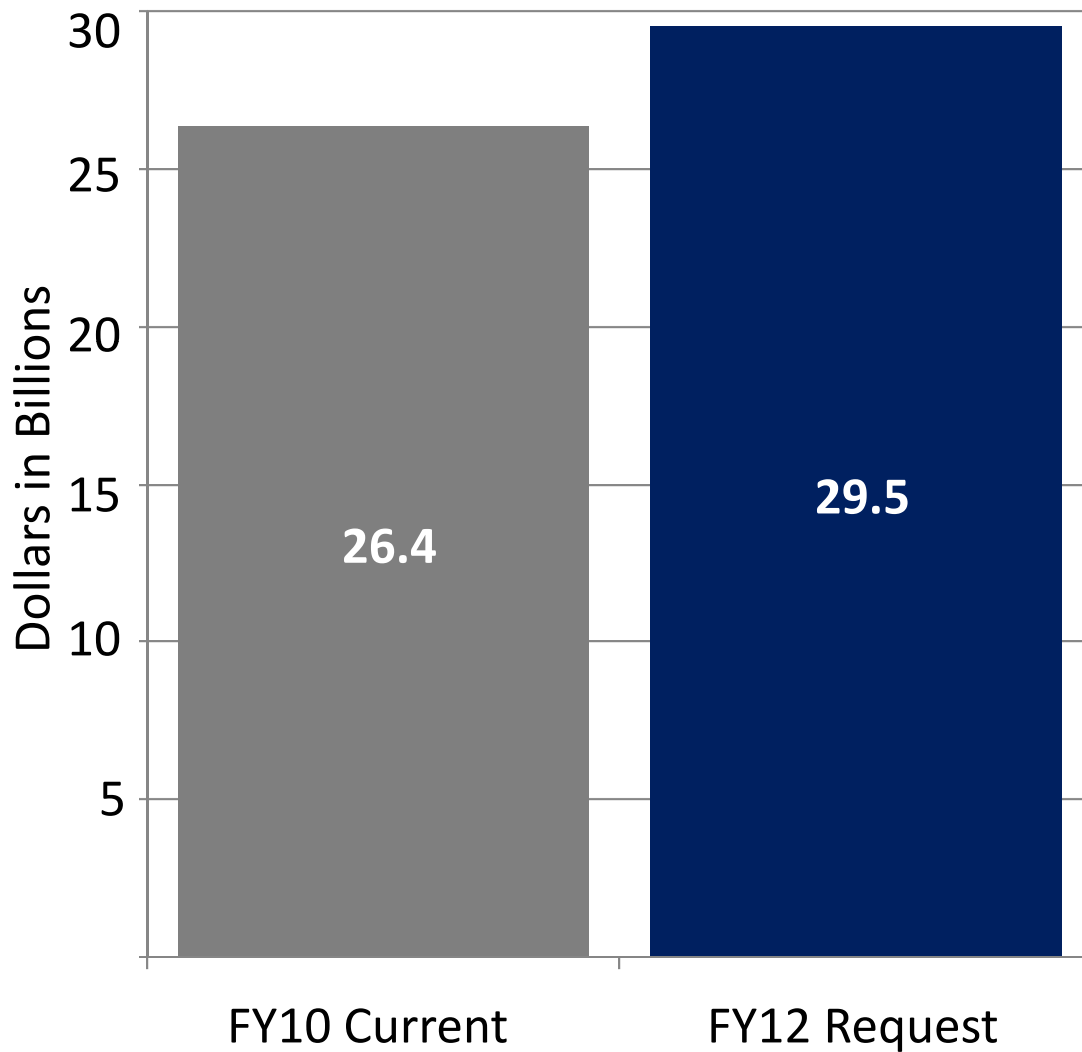
- Develops and deploys the clean and efficient energy technologies the world will demand in the coming years and decades.



- 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.



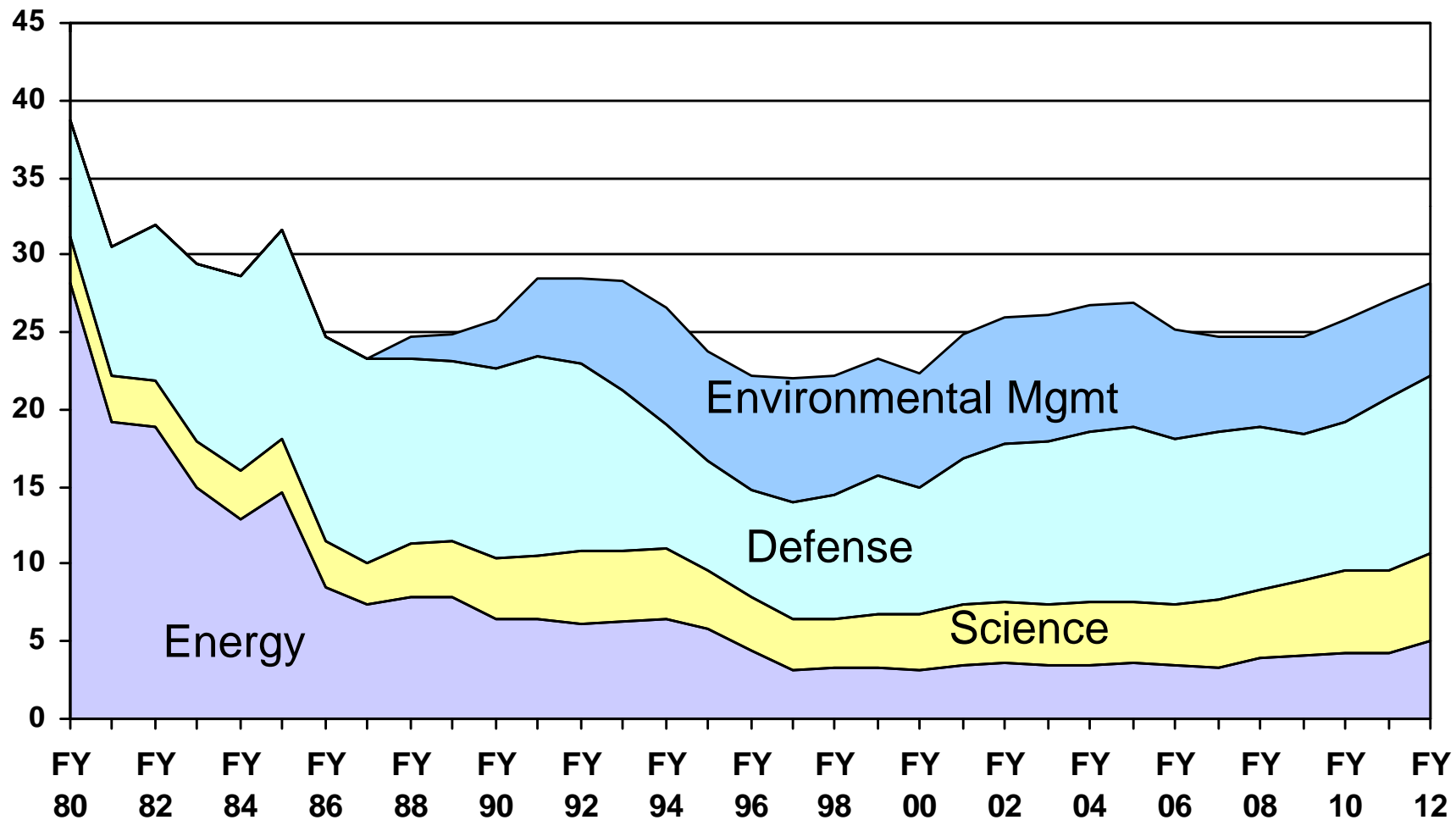
Improving Management and Operations

- 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
electric 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”

Energy Innovation Hubs: \$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:

Fuels from sunlight

Energy Efficiency in Buildings

Modeling & Simulation for Nuclear Reactors

New:

Batteries and Energy Storage

Smart Grid Technology and Systems

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.





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



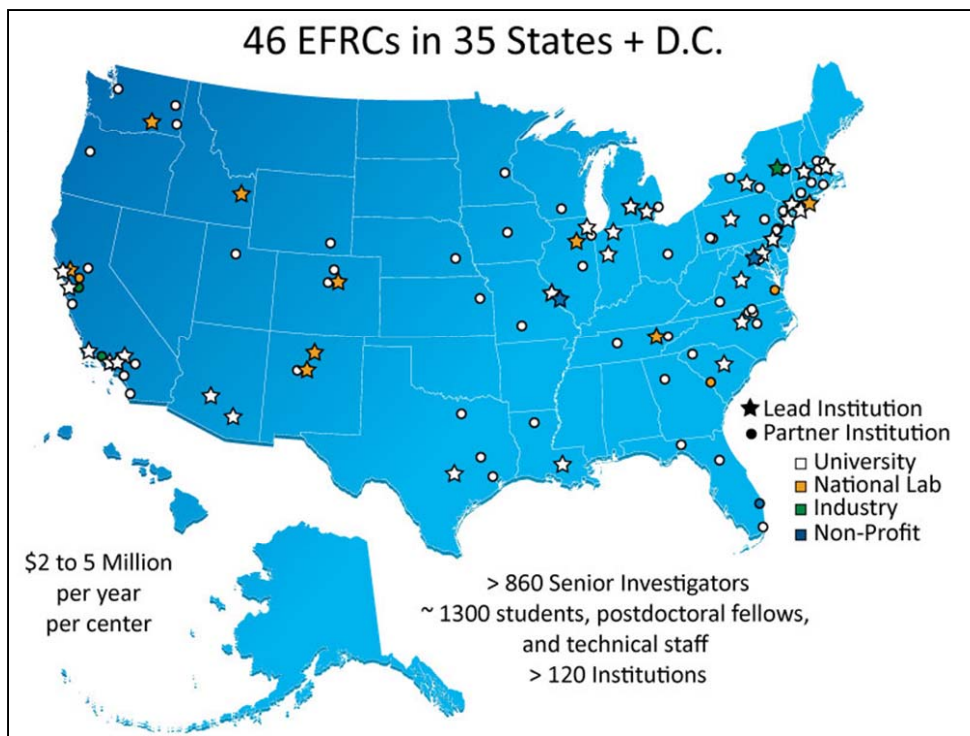
Rick Friedman for The New York Times
Kate Passino works with wafers at 1366 Technologies in Lexington, Mass., which has a process that helps it make cheaper

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

Energy Frontier Research Centers: \$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 Agenda



\$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	FY 2012	FY12 vs FY10*	
	Current Approp	Request	%	\$
National Nuclear Security Administration	9,874	11,783	+ 5%	+ 568
<i>Weapons Activities</i>	6,386	7,630	+ 9%	+ 621
<i>Defense Nuclear Nonproliferation</i>	2,131	2,549	- 5%	- 138
<i>Naval Reactors</i>	945	1,154	+ 8%	+ 83
<i>Office of the Administrator</i>	411	450	+ 0%	+ 2
Energy & Environment	10,575	11,111	+ 5%	+ 536
<i>Energy Efficiency and Renewable Energy</i>	2,216	3,200	+ 44%	+ 984
<i>Electricity Delivery & Energy Reliability</i>	168	238	+ 41%	+ 69
<i>Fossil Energy</i>	939	521	- 45%	- 418
<i>Nuclear Energy</i>	858	853	- 1%	- 5
<i>Environmental Management</i>	6,006	6,130	+ 2%	+ 124
<i>Civilian Radioactive Waste Management</i>	197	----	- 100%	- 197
<i>Legacy Management</i>	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	FY 2012	FY12 vs FY10	
	Current Approp	Request	%	\$
<i>Energy Efficiency and Renewable Energy</i>	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
<i>Hub: EE Building Systems Design</i>	22	24	+ 10%	+ 2
Industrial Technologies.....	94	320	+ 239%	+ 226
<i>Hub: Critical Materials</i>	---	20	---	+ 20
Weatherization.....	210	320	+ 52%	+ 110
Other.....	588	337	- 43%	- 251



Electricity Delivery & Energy Reliability

(Discretionary \$ in millions)	FY 2010	FY 2012	FY12 vs FY10	
	Current Approp	Request	%	\$
<i>Electricity Delivery & Energy Reliability</i>	168	238	+ 41%	+ 69
Clean Energy Transmission and Reliability.....	37	61	+ 63%	+ 23
<i>Hub: Smart Grid Technology and Systems...</i>	----	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	FY 2012	FY12 vs FY10	
	Current Approp	Request	%	\$
Fossil Energy	939	521	- 45%	- 418
<i>Coal</i>				
Carbon Capture.....	----	69	----	+ 69
Carbon Storage.....	----	115	----	+ 115
Advanced Energy Systems.....	----	64	----	+ 64
Cross Cutting Research.....	----	43	----	+ 43
<i>Subtotal, Coal</i>	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	FY 2012	FY12 vs FY10	
	Current Approp	Request	%	\$
Nuclear Energy	858	853	- 1%	- 5
Nuclear Energy Enabling Technologies.....	----	97	----	+ 97
<i>Hub: Modeling and Simulation for Reactors *..</i>	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	FY 2012	FY12 vs FY10	
	Current Approp	Request	%	\$
Science	4,964	5,416	+ 9%	+ 452
Advanced scientific computing research.....	383	466	+ 22%	+ 82
Basic energy sciences.....	1,599	1,985	+ 24%	+ 386
<i>Hub: Fuels from Sunlight</i>	22	24	+ 10%	+ 2
<i>Hub: Batteries and Energy Storage</i>	----	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	FY 2012	FY12 vs FY09 ARRA	
	ARRA	Request	%	\$
<i>ARPA-E Discretionary</i>	389	550	+ 41%	+ 161
<i>Wireless Innovation Fund (Mandatory)</i>	----	100	----	+ 100



Loan Programs

(Discretionary \$ in millions)	FY 2010	FY 2012	FY12 vs FY10	
	Current Approp	Request	%	\$
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
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	
			%	\$
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	FY 2012	FY12 vs FY10	
	Current Approp	Request	%	\$
<i>Environmental Management</i>	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
<i>Research and Development (included above)..</i>	70	133	+ 90%	+ 63



Corporate Management and Other Activities

(Discretionary \$ in millions)	FY 2010	FY 2012	FY12 vs FY10	
	Current Approp	Request	%	\$
<i>Other</i>	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