

Table II-11. Department of Energy R&D

Table II-11. R&D in the Department of Energy
(budget authority in millions of dollars)

	FY 2007 Actual	FY 2008 Estimate	FY 2009 Budget	Change FY 08-09	
				Amount	Percent
Summary of DOE R&D (see notes at end of table):					
1. Energy Efficiency & Renewables	938	1,238	1,025	-213	-17.2%
2. Electricity Delivery & Reliability	97	111	100	-11	-9.9%
3. Nuclear Energy	300	441	630	189	42.9%
4. Fossil Energy	481	576	625	49	8.5%
5. Science	3,560	3,574	4,314	740	20.7%
6. Atomic Energy Defense	3,649	3,718	3,825	107	2.9%
7. Nuclear Waste Disposal	10	3	0	-3	-100.0%
Total DOE R&D	9,035	9,661	10,519	858	8.9%
Detail of DOE R&D:					
1. Energy Efficiency & Renewable Energy 1/ (does not include non-R&D components)					
Hydrogen Technology	190	211	146	-65	-30.7%
Biomass and Biorefinery Sys.	196	198	225	27	13.5%
Solar Energy	157	168	156	-12	-7.3%
Wind Energy	49	50	53	3	6.0%
Geothermal Tech.	5	20	30	10	51.4%
Hydropower	0	10	3	-7	-69.7%
Vehicle Tech.	184	213	221	8	3.8%
Building Tech.	103	109	124	15	13.5%
Industrial Tech.	56	64	62	-2	-3.6%
Congressional projects	0	187	0	-187	-100.0%
- minus demos & other non-R&D	-1	8	5	-3	-34.4%
Total Efficiency & Renewables R&D	938	1,238	1,025	-213	-17.2%
2. Electricity Delivery & Reliability	97	111	100	-11	-9.9%
3. Nuclear Energy	300	441	630	189	42.9%
4. Fossil Energy 2/ (does not include non-R&D components)					
Coal Research	414	493	624	130	26.4%
- <i>Clean Coal Power Init.</i>	59	69	85	16	22.5%
- <i>FutureGen</i>	53	74	156	82	109.9%
- <i>Carbon sequestration</i>	97	119	149	30	25.4%
- <i>Other Fuels and Power Sys.</i>	206	231	234	3	1.2%
Oil Technology	3	5	0	-5	-100.0%
Natural Gas Technology	12	20	0	-20	-100.0%
Cooperative R&D	0	5	0	-5	-100.0%
Clean Coal Tech 2/	0	-58	0	58	-100.0%
Ultra Deepwater R&D 3/	50	50	0	-50	-100.0%
Congressional Projects	0	48	0	-48	-100.0%
Plant & Cap. Equip. and adjs.	2	13	1	-12	-90.1%
Total Fossil Energy R&D	481	576	625	49	8.5%

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5. Science (does not include non-R&D components)					
High-Energy Physics (HEP)					
Proton Accelerator-Based	344	369	420	51	13.8%
Electron Accelerator-Based	101	66	49	-17	-25.6%
Non-Accelerator Physics	61	74	86	12	16.6%
Theoretical Physics	60	60	63	3	4.7%
Advanced Tech. R&D	167	120	187	67	55.3%
Total HEP	732	689	805	116	16.8%
Nuclear Physics					
Medium-Energy Nuclear Phys.	109	112	121	9	7.7%
Heavy Ion Nuclear Phys.	180	185	202	16	8.8%
Low Energy Nuclear Phys.	78	84	97	13	15.5%
Nuclear Theory	33	34	40	6	17.4%
Isotope Production	0	0	20	20	--
Construction	12	18	31	14	77.1%
Total Nuclear Physics	412	433	510	77	17.9%
Fusion Energy Sciences					
Science	145	164	168	5	2.8%
Facility Operations	146	101	302	201	199.3%
Enabling R&D	21	22	23	1	4.2%
Total Fusion	312	287	493	207	72.1%
Basic Energy Sciences (BES)					
Materials Sciences	879	954	1,126	172	18.0%
Chem. Scis., Geoscis., Energy	217	223	297	75	33.5%
Construction	125	93	145	52	56.0%
Total BES	1,221	1,270	1,568	298	23.5%
Advanced Scientific Computing Research (ASCR)					
Math., Computation. & Compu. Sci.	107	134	151	18	13.2%
High Perf. Computing Network Facil	169	218	218	0	0.0%
Total ASCR	276	351	369	18	5.0%
Biological and Environmental Research (BER)					
Biological Research	350	408	414	6	1.5%
Climate Change Research	130	137	155	18	13.2%
Total BER	480	544	569	24	4.4%
Small Bus. Innov. Research	126	0	0	0	--
Total Science R&D	3,560	3,574	4,314	740	20.7%

(continued)

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	FY 2007 Actual	FY 2008 Estimate	FY 2009 Budget	Change FY 08-09	
				Amount	Percent
<i>Science Non-R&D Items 4/</i>	237	399	408	9	2.4%
<i>Total Science Budget (incl nonR&D)</i>	3,797	3,973	4,722	749	18.9%
6. Atomic Energy Defense Activities (does not include non-R&D components)					
National Nuclear Security Administration (NNSA)					
Weapons Activities					
Science Campaigns	268	288	323	35	12.3%
Adv. Simulation & Computing	611	575	562	-13	-2.2%
Inertial Confinement Fusion	490	470	421	-49	-10.4%
All Other Weapons R&D	1,295	1,410	1,481	71	5.1%
Total Weapons Acts. R&D	2,664	2,742	2,787	45	1.6%
Nonproliferation & Verification	209	208	208	0	0.0%
Naval Reactors	752	743	794	51	6.9%
Total NNSA R&D	3,625	3,693	3,789	96	2.6%
Environmental Management	21	22	33	11	50.0%
Other AEDA R&D	3	3	3	0	0.0%
Total Atomic Defense R&D	3,649	3,718	3,825	107	2.9%
7. Nuclear Waste Disposal	10	3	0	-3	-100.0%
Total DOE R&D	9,035	9,661	10,519	858	8.9%
DOE R&D by Function:					
Defense	3,649	3,718	3,825	107	2.9%
General Science	3,560	3,574	4,314	740	20.7%
Energy	1,826	2,369	2,380	11	0.5%

Source: DOE budget justification, OMB data for R&D, and agency supporting documents.

Some data adjusted by AAAS based on DOE agency budget documents.

1/ Combined from the former Energy Supply and Energy Conservation accounts.

2/ Rescissions and deferrals of previously appropriated funds.

3/ There is \$50 million in mandatory funding for ultra-deepwater and unconventional natural gas R&D for all three years, but the FY 2009 request proposes to cancel FY 2009 funds.

4/ Includes 2008 congressional projects.

Please see Chapter 9 for a discussion of DOE R&D.

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(budget authority in millions of dollars)

	FY 2007 Actual	FY 2008 Estimate	FY 2009 Budget	Change FY 08-09 Amount Percent	
Department of Energy Budget (discretionary budget authority in millions of dollars)					
DOE Defense Programs:					
National Nuclear Security Administration (NNSA):					
Weapons Activities	6,259	6,297	6,618	321	5.1%
Defense Nuclear Nonprolif.	1,824	1,336	1,247	-89	-6.7%
Naval Reactors	782	775	828	53	6.9%
Other NNSA	358	402	404	2	0.5%
Total NNSA	9,223	8,810	9,097	287	3.3%
Defense Env. Cleanup	5,731	5,349	5,297	-52	-1.0%
Other Def. Environ. Activities	983	954	1,561	607	63.7%
Total DOE Defense	15,937	15,113	15,955	842	5.6%
Science	3,837	3,973	4,722	749	18.8%
Energy Supply and Conservation 1/	2,145	2,857	2,243	-613	-21.5%
Fossil Energy Research & Develop.	581	743	754	11	1.5%
Other Fossil Energy 2/	194	161	373	212	131.1%
Nondef. Environ. Cleanup	350	182	213	31	17.1%
Nuclear Waste Disposal	99	187	247	60	32.1%
Power Marketing Administrations	271	245	209	-36	-14.6%
Departmental Administration & IG	190	194	207	12	6.3%
All Other	647	722	591	-131	-18.2%
Total DOE Budget	24,250	24,378	25,515	1,137	4.7%

Source: Department of Energy budget justification.

DOE appropriations only (discretionary), excluding offsets.

Includes R&D and non-R&D components.

All figures are rounded to the nearest million. Changes calculated from unrounded figures.

1/ Former Energy Supply and Energy Conservation accounts. Includes nuclear energy, and electricity delivery and energy reliability.

2/ Includes clean coal, naval petroleum, and strategic petroleum reserve.

Please see Chapter 8 for a discussion of DOE R&D.

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