

Table II-11. Department of Energy R&amp;D

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

	FY 2004 Actual	FY 2005 Estimate	FY 2006 Budget	Change FY 05-06	
				Amount	Percent
<b>Summary of DOE R&amp;D (see notes at end of table):</b>					
1. Energy Supply	382	423	<b>397</b>	-27	-6.4%
2. Science	3,229	3,334	<b>3,184</b>	-150	-4.5%
3. Fossil Energy	547	448	<b>382</b>	-66	-14.7%
4. Energy Conservation	379	367	<b>356</b>	-11	-3.0%
5. Atomic Energy Defense	4,198	4,138	<b>4,031</b>	-107	-2.6%
6. Clean Coal Technology 1/	-98	-160	<b>0</b>	160	100.0%
7. Radioactive Waste Mngmt.	75	63	<b>44</b>	-19	-30.2%
<b>Total DOE R&amp;D</b>	<b>8,713</b>	<b>8,614</b>	<b>8,393</b>	<b>-221</b>	<b>-2.6%</b>
<b>Detail of DOE R&amp;D:</b>					
1. Energy Supply (does not include non-R&D components)					
Renewable Energy	224	247	<b>230</b>	-17	-7.0%
Electricity Transm. & Distrib.	71	91	<b>72</b>	-20	-21.5%
Nuclear Energy	87	85	<b>95</b>	10	11.8%
Total Energy Supply R&D	382	423	<b>397</b>	-27	-6.4%
2. Science (does not include non-R&D components)					
High-Energy Physics (HEP)					
Proton Accelerator-Based	383	401	<b>387</b>	-14	-3.5%
Electron Accelerator-Based	145	144	<b>133</b>	-11	-7.7%
Non-Accelerator Physics	47	47	<b>39</b>	-8	-17.8%
Theoretical Physics	49	49	<b>49</b>	0	0.2%
Advanced Tech. R&D	79	95	<b>106</b>	12	12.3%
Construction	12	1	<b>0</b>	-1	-100.0%
Total HEP	716	736	<b>714</b>	-23	-3.1%
Nuclear Physics					
Medium-Energy Nuclear Phys.	119	125	<b>112</b>	-13	-10.6%
Heavy Ion Nuclear Phys.	161	175	<b>162</b>	-13	-7.3%
Low Energy Nuclear Phys.	71	76	<b>69</b>	-7	-9.8%
Nuclear Theory	28	29	<b>27</b>	-3	-9.3%
Construction	0	0	<b>2</b>	2	--
Total Nuclear Physics	380	405	<b>371</b>	-34	-8.4%
Fusion Energy Sciences					
Science	143	155	<b>143</b>	-12	-7.9%
Facility Operations	86	90	<b>128</b>	38	41.8%
-ITER 3/	3	5	<b>56</b>	51	1021.9%
Technology	27	29	<b>20</b>	-9	-29.9%
Total Fusion	256	274	<b>291</b>	17	6.1%

(continued)

Table II-11. Department of Energy R&amp;D

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

	FY 2004 Actual	FY 2005 Estimate	FY 2006 Budget	Change FY 05-06 Amount	Percent
<b>Basic Energy Sciences (BES)</b>					
Materials Sciences	559	635	<b>746</b>	111	17.5%
Chem. Scis., Geoscis., Energy	214	239	<b>222</b>	-18	-7.4%
Construction	219	230	<b>178</b>	-52	-22.6%
<i>-Spallation Neutron Source 2/</i>	142	113	<b>149</b>	36	31.5%
Total BES	991	1,105	<b>1,146</b>	41	3.7%
<b>Advanced Scientific Computing Research (ASCR)</b>					
Math., Info. and Compu. Sci.	194	232	<b>207</b>	-25	-10.9%
Laboratory Technology Res.	3	0	<b>0</b>	0	--
Total ASCR	197	232	<b>207</b>	-25	-10.9%
<b>Biological and Environmental Research (BER)</b>					
Life Sciences	200	203	<b>204</b>	1	0.6%
Climate Change Research	138	141	<b>143</b>	2	1.4%
Environmental Remediation	105	104	<b>95</b>	-10	-9.3%
Medical Apps./ Measure.	131	124	<b>14</b>	-110	-88.7%
Construction	0	10	<b>0</b>	-10	-100.0%
Total BER	574	582	<b>456</b>	-126	-21.7%
Small Bus. Innov. Research	115	0	<b>0</b>	0	--
Total Science R&D	3,229	3,334	<b>3,184</b>	-150	-4.5%
<b>3. Fossil Energy R&amp;D (does not include non-R&amp;D components)</b>					
Coal Research Initiative	369	273	<b>286</b>	13	4.9%
Other Power Systems	70	78	<b>65</b>	-13	-17.1%
Oil Technology	34	34	<b>10</b>	-24	-70.5%
Natural Gas Technology	42	45	<b>10</b>	-35	-77.7%
Cooperative R&D	8	8	<b>3</b>	-5	-63.8%
Other Fossil R&D and adjs.	24	10	<b>8</b>	-2	-18.6%
Total Fossil Energy R&D	547	448	<b>382</b>	-66	-14.7%
4. Energy Conservation	379	367	<b>356</b>	-11	-3.0%
<b>5. Atomic Energy Defense Activities (does not include non-R&amp;D components)</b>					
<b>National Nuclear Security Administration (NNSA)</b>					
<b>Weapons Activities</b>					
Science Campaigns	259	276	<b>262</b>	-14	-5.1%
Adv. Simulation & Computing	715	697	<b>661</b>	-36	-5.2%

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Table II-11. Department of Energy R&D

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

	FY 2004 Actual	FY 2005 Estimate	FY 2006 Budget	Change FY 05-06 Amount	Percent
Inertial Confinement Fusion	512	536	<b>460</b>	-75	-14.1%
All Other Weapons R&D	1,700	1,575	<b>1,557</b>	-19	-1.2%
<b>Total Weapons Acts. R&amp;D</b>	<b>3,186</b>	<b>3,084</b>	<b>2,940</b>	-144	-4.7%
Nonproliferation & Verification	226	224	<b>272</b>	48	21.4%
Naval Reactors	735	772	<b>756</b>	-16	-2.1%
<b>Total NNSA R&amp;D</b>	<b>4,147</b>	<b>4,080</b>	<b>3,968</b>	-112	-2.8%
Environmental Management	43	56	<b>61</b>	5	8.9%
Other AEDA R&D	8	2	<b>2</b>	0	0.0%
<b>Total Atomic Defense R&amp;D</b>	<b>4,198</b>	<b>4,138</b>	<b>4,031</b>	-107	-2.6%
6. Clean Coal Technology 1/	-98	-160	<b>0</b>	160	-100.0%
7. Radioactive Waste Mngmt.	75	63	<b>44</b>	-19	-30.2%
<b>Total DOE R&amp;D</b>	<b>8,713</b>	<b>8,614</b>	<b>8,393</b>	-221	-2.6%
Conduct of R&D	7,465	7,477	<b>7,301</b>	-176	-2.3%
R&D Facilities	1,248	1,137	<b>1,092</b>	-45	-4.0%
DOE R&D by Function:					
Defense	4,198	4,138	<b>4,031</b>	-107	-2.6%
General Science	3,229	3,334	<b>3,184</b>	-150	-4.5%
Energy	1,285	1,141	<b>1,179</b>	37	3.2%

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/ Negative budget authority because of rescissions and deferrals of previously appropriated funds. Coal research is now funded in the Fossil Energy program.
- 2/ Operations and construction costs. Operations costs are in Materials Sciences.
- 3/ International Thermonuclear Experimental Reactor. Most costs are in Facility Operations.

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

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Table II-11. Department of Energy R&D

**Department of Energy Budget** (discretionary budget authority in millions of dollars)

	FY 2004 Actual	FY 2005 Estimate	<b>FY 2006 Budget</b>	Change FY 05-06	
				Amount	Percent
DOE Defense Programs:					
National Nuclear Security Administration (NNSA):					
Weapons Activities	6,647	6,583	<b>6,630</b>	47	0.7%
Other NNSA Activities	2,283	2,581	<b>2,767</b>	187	7.2%
Total NNSA	8,930	9,164	<b>9,397</b>	233	2.5%
Defense Env. Activities	6,328	6,572	<b>6,015</b>	-557	-8.5%
Nuclear Waste & Other Defense	1,064	902	<b>987</b>	86	9.5%
Total DOE Defense	16,306	16,637	<b>16,400</b>	-238	-1.4%
Science	3,536	3,600	<b>3,463</b>	-137	-3.8%
Energy Supply	795	932	<b>903</b>	-30	-3.2%
Fossil Energy	659	572	<b>491</b>	-80	-14.1%
Energy Conservation	868	868	<b>847</b>	-21	-2.5%
Other Energy Programs	517	650	<b>931</b>	281	43.2%
Non-defense Environmental Mgmt	308	289	<b>178</b>	-111	-38.6%
Power Marketing Administrations	213	209	<b>57</b>	-152	-72.6%
Departmental Administration & IG	149	160	<b>173</b>	13	8.0%
<b>Total DOE Budget</b>	23,351	23,918	<b>23,443</b>	-475	-2.0%

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.

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

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