

DOE Budget Authority for Energy Research, Development, & Demonstration (millions of current dollars unless otherwise noted)

Data from 1978-1996 from spreadsheet by Paul de Sa and John Holdren dated May 2, 1997

Updated by Kelly Gallagher, Ambuj Sagar, and Diane Segal, June 2004

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
<u>Fossil energy (excluding clean coal)</u>										
Coal R&D	623.9	662.8	728.9	697.7	467.5	204.6	197	210.2	212	175
Petroleum	78.7	100.9	61.7	57.8	39.4	23.7	30.2	31.7	29.1	25.9
Gas	27.4	33.8	30.7	31	11.7	13.7	15.4	10.1	8.5	8
Fuel Cells (FY01-on "other power systems": sequ	35.4	41.1	26	32	34.5	29.9	42.3	40.5	34.1	28.1
Program direction and management	0	0	0	0	13.8	39	45.9	46.2	50.1	58.6
Plant, capital equipment, and construction	0	0	0	0	0	0	0.15	9.3	6.2	3.4
Advanced metallurgical research										
Cooperative R&D	0	0	0	0	0	0	0	0	0	0
Federal Inspector Alaska Gas Pipeline	0	0	0	0	0	0	0	1.4	0.5	0.2
Feasibility Studies	0	0	0	2.8	0	0	0	0	0	0
Prior year balances and adjustments	0	-78	-12	173	-149.1	-93.8	-69.4	-60.4	-31.1	-6
Fossil R&D total (excluding CCT demo)	765.4	760.6	835.3	994.3	417.8	217.1	261.6	289	309.4	293.2
Fossil (other non-CCT demo)	9.2	2.3	0	0	0	0	0.1	0	0	0
Fossil (total all items excluding CCT demo)	774.6	762.9	835.3	994.3	417.8	217.1	261.7	289	309.4	293.2
Clean Coal Technology (CCT demonstration program)	0	0	0	0	0	0	0	0	0	0
Fossil R&D total (including CCT demo)	765.4	760.6	835.3	994.3	417.8	217.1	261.6	289	309.4	293.2
<u>Energy Conservation</u>										
Transportation (FY03-on: changed to "vehicle tec	67.3	99.1	113.4	105.1	58.9	53.8	64.7	61.3	57.5	55.4
Utility	0	0	0	0	0	0	0	0	0	0
Industry	31.9	40	60.2	69.6	28.8	27.9	33.5	31.7	40.7	34.5
Buildings	63.4	79.3	104.4	91.3	47.7	39	37.2	41	37.9	30.2
Multi-sector	10.5	10.2	16.8	26.5	16.5	12.7	12.7	23.8	25.9	28.4
Facilities	0	0	0	0	0	0	0	15.7	9.8	10
Policy and management	0	0	0	0	0	1.2	2	2	1.7	1.9
Power technologies										
Fuel cells (FY03-on)										
Distributed (FY03-on)										
Biomass and biorefinery sytems										
Prior year balances and adjustments										
Conservation R&D total	173.1	228.6	294.8	292.5	151.9	134.6	150.1	175.5	173.5	160.4
Conservation Weatherization Program										
Federal Energy Management Program										
State & local grants										
Conservation (other)	364.7	402.2	484.6	416.8	-6.5	294.5	280.2	281.9	252.7	72
Use of prior year balances										
Conservation (total all items)	537.8	630.8	779.4	709.3	145.4	429.1	430.3	457.4	426.2	232.4
<u>Renewables</u>										
Solar (includes biofuels, wind, ocean up to FY98)	393.5	485.3	559.2	552	268.2	201.6	180.8	171.6	143.5	123.1
Biomass (included in solar until 1998)										
Wind (included in solar until FY98)										
Geothermal (R&D)	107.9	146.2	149.2	156	69.9	57.6	30.3	29.7	26.5	20.7
Hydrogen research	0	0	0	0	0	0	0	0	0	0
Hydropower	10.4	39.2	20.9	3.2	3	2	0.75	0.4	0.5	0.45

Electrical energy systems (FY97-on combined with Energy storage)	41.6	40.8	37.1	39.9	21.3	17.1	18.4	19.7	11.4	11.2
Indian renewables	51.4	58.4	66.3	71.8	38.5	25.7	25.6	18.6	17.1	16.55
	0	0	0	0	0	0	0	0	0	0
Policy and management	0	0	0	0	0	0	0	0	0	0
Prior balances	0	0	0	0	0	0	0	0	0	0
Renewable energy R&D total	604.8	769.9	832.7	822.9	400.9	304	255.9	240	199	172
Renewables (other)	0	0	0	0	0	0	0	0	0	0
Renewables (total all items)	604.8	769.9	832.7	822.9	400.9	304	255.9	240	199	172

Electric Transmission and distribution

Research & Development

Program Direction

Electric Transmission and Distribution Total

Nuclear Fission

Light water reactor	28.1	10.3	0	0	0	0	0	0	47.6	33.6
Advanced reactor	0	0	0	0	0	0	0	0	126.8	75.1
Facilities	0	0	0	0	0	0	0	0	131.2	126.9
University reactors	0	0	0	0	0	0	0	0	0	0
Converter reactor systems	105.9	70.9	60.3	82.9	105.3	78.5	90.1	87.1	0	0
Breeder reactor systems	735.2	733.1	747.7	610.8	675.7	552	467.1	289.3	18.7	13.6
Civilian waste R&D	0	0	0	0	0	0	2.75	25.9	16	6.5
Civilian R&D										
Spent fuel storage R&D	0	0	0	0	0	0	0	0	0	0
Program direction policy and management	0	0	0	0	0	0	0	0	8.3	7.6

Nuclear research initiative

Nuclear energy plant optimization

Generation IV nuclear energy systems initiative

Nuclear hydrogen initiative

Advanced fuel cycle initiative

Use of prior balances 0 0 0 0 0 0 0 0 0 0 0

Nuclear Fission R&D total 869.2 814.3 808 693.7 781 630.5 560 402.3 348.6 263.3

Non-Fission Nuclear (other)	282.8	278	273.1	355.1	304.8	403.8	197.1	206.6	269.6	345
Non-fission Nuclear (total all items)	1152	1092.3	1081.1	1048.8	1085.8	1034	757	608.9	618.2	608.3
Nuclear Fusion R&D	332.4	355.1	350.3	394.1	451.2	458.4	468.4	429.6	361.5	341.6
Fusion (other)	0	0	0	0	0	0	0	0	0	0
Fusion (total all items)	332.4	355.1	350.3	394.1	451.2	458.4	468.4	429.6	361.5	341.6

Total Energy Technology R&D (including clean coal) 2744.9 2928.5 3121.1 3197.5 2202.8 1745 1696 1536.4 1392 1230.5
Total Energy All Items (including clean coal) 3401.6 3611 3878.8 3969.4 2501.1 2443 2173 2024.9 1914 1647.5

Policy & International Affairs

(international component included above)

Basic energy sciences (BES)	180.4	204.7	224.85	227.5	253.95	295.1	335.5	410.8	429.6	532
Research ("general science")	406.2	431	469.9	516.9	529.4	534.5	635.4	721.8	649.3	701.6
Research (other non-fusion "energy research")	161.6	177.2	191.35	252.8	218.65	193.6	289.5	299.1	294.5	330.4
Total Research (all non-fusion items)	748.2	812.9	886.1	997.2	1002	1023	1260	1431.7	1373	1564

Environmental and biological R&D										
Environmental R&D	0	0	0	0	0	0	0	0	0	0
Environmental analysis	0	0	0	0	0	0	0	0	0	0
Environmental policy	0	0	0	0	0	0	0	0	0	0
Biological and environmental research (includes I	158.1	158.5	169.3	165.7	170.7	143.2	183.3	187.7	178	192
Environmental and biological R&D total	158.1	158.5	169.3	165.7	170.7	143.2	183.3	187.7	178	192
TOTAL ENERGY-TECHNOLOGY R&D + BES + ENV	3083.4	3291.7	3515.3	3590.7	2627.5	2183	2215	2134.9	2000	1954.5
GDP deflator to 2000\$ (from FY05 OMB Historical Tab	0.4518	0.4882	0.531	0.583	0.6229	0.65	0.674	0.6963	0.713	0.7311

R&D Totals in 2000\$

Basic Energy Sciences	399.292	419.295	423.45	390.22	407.69	453.7	497.5	589.98	602.9	727.67
Total Research (all non-fusion items)	1656.04	1665.1	1668.7	1710.5	1608.6	1573	1869	2056.2	1928	2139.2

Total energy technology R&D + BES + ENV&BIO	6824.7	6742.52	6620.1	6159	4218.1	3356	3284	3066.1	2806	2673.4
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- Solar
- Biomass
- Wind
- Geothermal (R&D)
- Hydrogen research
- Hydropower
- Electrical energy systems (FY97-on combined with energy storage)
- Indian renewables
- Policy and management

[illegible]

R&D Totals for Fossil in 2000\$[illegible]

1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
201.1	215.8	238.1	246.7	225.6	186.3	165.9	144.5	119.6	100.9	105.3	120.6	121.2	268.3	333	338.6	378.4
29.5	38.3	39	59.2	56.5	61.6	74.3	75.2	54.9	45.2	47.7	47.3	55.7	65.1	56.2	40.98	35.1
10.5	11.4	14.4	15.9	12.4	29	43.7	62.5	58.6	68.5	69.3	69.3	73.9	43.9	44.1	45.9	43
32.7	26.5	38	42.9	50.8	50.4	51.1	46.95	51.2	48.8	39.2	43.1	43.4	51.3	56.7	62	72.1
59	64.3	64.3	65.1	58.9	70.7	73.9	72.7	66.9	68.7	66.8	69.48	75.5	80.1	86	87.2	106.2
18.2	21.8	12	15.8	10.4	4.5	3.8	5	4	2	2.5	2.6	2.6	3.9	13.5	6.95	6.9
0	0	4.6	11.9	10.7	9.9	9.6	8.9	6.2	5.4	5.7	6.7	7.2	7.9	8	8	8.4
0.2	0.2	0.2	0.3	0.2	0	0	0		0							
0	0	0	0	0	0	0	0		0							
														6	2.4	
												13.1				
-27	-1	-1.6	-6.7	-10.9	-13.8	-12.2	-16.9	-7.6	-1.1	-0.06	-0.7	0	-99.4	-43.15	0	0
324.2	377.3	409	451.1	414.6	398.6	410.1	398.9	353.8	343.4	341.4	363.4	397.6	426.3	565.6	598	660
0	0	3.8	3.7	15.9	15.4	15.9	18.2	61.4	15.3	15.1	11	10	9.98	9.9	9.7	9.6
324.2	377.3	412.8	454.8	430.5	414	426	417.1	415.2	358.7	356.5	374.4	407.6	436.3	575.5	607.7	669.6
196.9	187.8	547.4	386.4	410.1	0	221.5	36.3	146.7	-2	-101	-40.2	-146	104	42	-47	-98
521.1	565.1	956.4	837.5	824.7	398.6	631.6	435.2	500.5	341.4	240.4	323.2	251.6	530.3	607.6	551	562
51.4	54.3	64.8	79.5	109.3	139.8	176.9	191.1	174.3	172.5	190	198.7	228.76	251.5	181.4	174.2	178
0	0	0	0	4.7	5	6.7	8.6	0	0	0						
32.8	30.3	51.3	60.2	96.7	112.8	123.9	131.5	108.3	115.4	133.9	162.8	158.97	171.6	100.9	96.8	93.1
34.4	32.6	35.5	49.3	43.1	48.2	65.2	87.1	71.2	80.1	77.7	84.3	79.987	91.23	63.1	58.3	59.9
28.8	32.3	35.9	35.2	0	0	0	0		0							
6	13	0	0	0	0	0	8.3		0							
1.7	1.8	1.8	2.3	2.7	3.4	4.7	0	8.1	26.4	28.9	38	42.87	43.3	47.14	77	85
														0		
														46.7	53.9	65.2
														55.1	60.1	61
														24.8	24.1	7.5
														3.8	2.4	
					-0.25	0	-15.9	0	-0.5	-0.35	-1.4	0	0	0	0	0
155.1	164.3	189.3	226.5	256.5	309.2	377.4	426.6	361.9	394.4	430.2	482.4	510.59	561.4	519.1	546.8	549.7
				193.9	185.4	206.8	214.8	111.8	120.8	125	133	135	152.7	230	223.5	227.2
				4	4.6	15.5	17.2	16.2	19.8	19.8	23.8	23.92	25.6	18.9	19.3	19.7
				16.2	15.5	18.3	24	26	29	30.3	33	33.5	55.8	45	44.7	43.95
153.2	149.5	176.8	234.4	254.8	270	309	324.7	190				0	124.5	49.18	45.92	37.52
												0	0	0		
308.3	313.8	366.1	460.9	511.3	579.2	686.4	751.3	551.9	564	605.3	672.2	703.01	920	862.2	880.2	878.1
96	91.5	93.3	129.5	114	113.8	157.3	171.2	104.4	83.96	87.6	114.6	82.03	91.7	87.1	82.3	83.4
				39	48.4	55.8	52.2	53.2	54.3	96.75	99.3	69.87	85.4	87.7	85.3	86.5
				21.3	24	29.2	44.5	31.4	28.6	32.4	34.4	32.09	39.1	38.2	41.6	41.3
20.7	19.3	17.2	29.9	26.9	23.3	23	41.4	29.4	29.6	28.7	28.2	23.33	26.6	27	28.4	25.5
0	0	0	0	0	0	9.6	8.8	14.3	14.8	18.9	24.98	24.29	26.6	28.9	38.1	81.99
0	0	0	1	1	1	1	4.8	3.5	1	0.7	3.21	4.86	4.9	5	5	4.9

15.1	23.6	16.9	28	30.4	32.1	37	37.5	31.8	31.4	43.3	40.9	37.34	51.7				
14.45	13.2	11.7	12.8	7.2	10.2	7.2	5.1	2									
0	0	0	0	0	0	0	0	0	4	3.9	4.8	3.9	6.6	0			
														76.8			
														6.23	12.9	12.95	
0	0	0	0	1.9	2.9	3.8	4.8	14.2	16.4	23.7	30	29.87	37.6	25.8	28.4	34.1	
0	0	0	0	0	0	-5.7	-9.3	-15.8	-18.9	-24.4	-1	0	0	0	0	-13	
146.25	147.6	139.1	201.2	241.7	255.7	318.2	361	268.4	245.2	311.6	379.4	307.58	370.2	382.7	322	357.6	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12.9	12.9	
146.25	147.6	139.1	201.2	241.7	255.7	318.2	361	268.4	245.2	311.6	379.4	307.58	370.2	382.7	334.9	370.5	

80.4 69.5
3.1 3.7
83.5 73.2

31.6	26.5	24.1	44.3	61.9	57.8	55.2	62.8	39.1	37								
91.5	78.5	58	63.3	60	60	40	19.4										
117	124.7	168.8	91.1	96.6	92.7	6.5	7										
0	0	0	0	0	0	0	0	3.5	4	7	11	12	11.97	17.5	18	22.9	
0	0	0	0	4.9	0	0	0										
0	8.5	57.6	96.8	67	0	0	0										
5	2.5	1	0.7	5.1	4.8	0	0										
												0	8.2				
0	0	0	0	0	0.1	0.6	0.6										
8.5	0	31.3	34.6	48.8	49.05	22.4	25.36	13	14.1	21	24.7	24.7	21.96	22.5	23.97	59.97	
							20.6		19.5								
										0	18.5	21.8	33.9	31	17.4	6.6	
										0		4.8	4.9	6.3	4.8	2.9	
												0	7.48	11.9	31.58	19.6	
														16.94	27.7		
														2	6.4		
														77.2	57.3	66.7	
0	0	0	0	0	0	-8.69	-2.99	-0.98	-0.867	-0.06	-0.62	-0.285	-0.13	0	-0.2	0	
					30.902	10.08	10.7	3.315	3.58	0.682	2.56	4.0489	5.238	12.04	12.79	22.43	
						-28	-4.4	-4.9	-3.1	-1.8	-5.5	-1.6	-0.5	0	-0.8	0	
253.6	240.7	340.8	330.8	344.3	264.45	116	132.8	44.93	63.21	7.624	31.44	50.564	63.36	155.9	160.8	175.2	
										-13.3	7.36	26.149	41.53	133.4	137	115.3	
342.8	369.2	0	-0.1	33.9	84.15	238	262	178.4	169	187.5	200.4	176.9	94.3	81.6	62.9	63.4	
596.4	609.9	340.8	330.7	378.2	348.6	354	394.8	223.3	232.2	195.1	231.8	227.46	157.7	237.5	223.7	238.6	
331.3	346.8	316.7	286.6	332.2	335.1	328.6	352.4	238.9	232.5	224.2	217.2	238.6	242	241.1	240.7	262.6	
0	0	0	0	0	0	0	0	0	0	0							
331.3	346.8	316.7	286.6	332.2	335.1	328.6	352.4	238.9	232.5	224.2	217.2	238.6	242	241.1	240.7	262.6	

1407.4	1465	1942.3	1883	1999.4	1563.1	1772	1708	1415	1277	1214	1434	1358.9	1767	1906	1821	1907	
1903.4	1983	2122.9	2121	2304	1932.6	2335	2313	1844	1631	1592	1835	1738.3	2230	2341	2240	2321	
						18.97	9.6	22.6	19.9	17.8	16.3	15.955	16.47	16.8	16	14.7	
											7.7	0.355	9				
559.5	545.9	564.1	705.8	760.4	851.9	757.8	713.7	774.3	649.7	651.8	783.2	755.6	973.8	979.6	1002	1011	
804.7	913.3	1084.2	1139	1458.8	1406.5	1605	969.2	965.8	996								
417.5	417.7	440.9	547.8	535.6	544.5	588.4	710.4	559.9	596.4								
1781.7	1877	2089.2	2392	2754.8	2802.9	2951	2393	2300	2242	651.8	783.2	755.6	973.8	979.6	1002	1011	

0	0	0	0	0	0	141.1	120.2	114.4	0								
0	0	0	0	0	0	14.7	17.2	13.4	0								
0	0	0	10.4	12.3	12.3	9.6	0	0	0								
267.8	255.7	305.4	390.6	352.4	352.2	395.2	418.5	411	389.1	395.7	425.9	421.8	470.1	525.3	494.4	641.5	

267.8	255.7	305.4	401	364.7	364.5	560.6	555.9	538.8	389.1	395.7	425.9	421.8	470.1	525.3	494.4	641.5	
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2234.7	2266	2811.8	2989	3124.5	2779.5	3090	2978	2728	2315	2261	2643	2536.3	3211	3411	3318	3559	
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0.7541	0.783	0.8125	0.843	0.8642	0.8838	0.903	0.922	0.94	0.956	0.968	0.98	1	1.023	1.042	1.059	1.072	
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336.29	307.3	419.45	392.4	398.4	299.22	128.5	144	47.83	66.13	7.88	32.08	50.564	61.91	149.7	151.9	163.4	
439.33	442.7	389.78	340	384.4	379.16	364	382.3	254.3	243.2	231.7	221.6	238.6	236.4	231.5	227.4	244.9	
205.68	209.7	232.98	268.7	296.81	349.85	418	462.8	385.2	412.6	444.6	492.1	510.59	548.6	498.5	516.6	512.6	
193.94	188.4	171.2	238.7	279.68	289.32	352.5	391.6	285.7	256.5	322	387.1	307.58	361.7	367.5	304.2	333.5	
691.02	721.3	1177.1	993.5	954.29	451.01	699.6	472.1	532.7	375.2	248.5	329.7	251.6	518.2	583.3	520.6	524.1	
429.92	481.6	503.38	535.1	479.75	451.01	454.3	432.7	376.6	359.2	352.9	370.7	397.6	416.6	543	565	615.4	
261.11	239.7	673.72	458.4	474.54	0	245.3	39.38	156.1	-2.092	-104	-41.01	-146	101.6	40.33	-44.4	-91.4	
1866.3	1869	2390.5	2233	2313.6	1768.6	1963	1853	1506	1336	1255	1463	1358.9	1727	1830	1721	1778	
2524	2532	2612.8	2516	2666	2186.7	2586	2509	1963	1706	1645	1872	1738.3	2179	2248	2116	2165	

741.94	696.8	694.28	837.2	879.89	963.91	839.4	774.2	824.2	679.7	673.7	799	755.6	951.5	940.5	946.5	942.4	
2362.7	2396	2571.3	2838	3187.7	3171.4	3268	2596	2448	2346	673.7	799	755.6	951.5	940.5	946.5	942.4	

355.13	326.4	375.88	463.3	407.78	398.51	437.7	454	437.5	407.1	409	434.5	421.8	459.4	504.4	467.1	598.2	
--------	-------	--------	-------	--------	--------	-------	-----	-------	-------	-----	-------	-------	-------	-------	-------	-------	--

2963.3	2893	3460.7	3546	3615.5	3144.9	3423	3230	2903	2422	2337	2696	2536.3	3138	3275	3134	3319	
--------	------	--------	------	--------	--------	------	------	------	------	------	------	--------	------	------	------	------	--

	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	2003	2004
131.91	128.76	174.2	185.7	111.1	87.83	90.54	117	82.03	89.6	83.63	77.75	77.77	
45.128	54.764	61.81	56.63	56.63	56.81	100	101.3	69.87	83.45	84.21	80.59	80.66	
24.647	27.155	32.34	48.28	33.42	29.92	33.49	35.09	32.09	38.21	36.68	39.3	38.51	
31.127	26.363	25.48	44.91	31.29	30.97	29.66	28.77	23.33	25.99	25.92	26.83	23.78	
0	0	10.63	9.547	15.22	15.48	19.53	25.48	24.29	25.99	27.75	35.99	76.45	
1.1571	1.1315	1.108	5.207	3.725	1.046	0.724	3.275	4.86	4.788	4.801	4.724	4.569	
35.177	36.32	40.98	40.68	33.85	32.85	44.75	41.73	37.34	50.52	0	0	0	
0	0	0	0	0	4.185	4.031	4.897	3.9	6.449	0	0	0	
2.1986	3.2813	4.209	5.207	15.11	17.16	24.5	30.61	29.87	36.74	24.77	26.83	31.8	

68.2	69.3	79.8	94.3	126.5	158.2	195.9	207.3	185.5	180.5	196.4	202.7	228.8	245.7	174.2	164.6	166.0	
0.0	0.0	0.0	0.0	5.4	5.7	7.4	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
43.5	38.7	63.1	71.4	111.9	127.6	137.2	142.7	115.3	120.7	138.4	166.1	159.0	167.7	96.9	91.5	86.8	
45.6	41.6	43.7	58.5	49.9	54.5	72.2	94.5	75.8	83.8	80.3	86.0	80.0	89.1	60.6	55.1	55.9	
38.2	41.2	44.2	41.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8.0	16.6	0.0	0.0	0.0	0.0	0.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2.3	2.3	2.2	2.7	3.1	3.8	5.2	0.0	8.6	27.6	29.9	38.8	42.9	42.3	45.3	72.7	79.3	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.8	50.9	60.8	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.9	56.8	56.9	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.8	22.8	7.0	

266.7	275.5	293.0	292.6	261.1	210.8	183.8	156.8	127.3	105.6	108.8	123.0	121.2	262.2	319.7	319.9	352.9
39.1	48.9	48.0	70.2	65.4	69.7	82.3	81.6	58.4	47.3	49.3	48.3	55.7	63.6	54.0	38.7	32.7
13.9	14.6	17.7	18.9	14.3	32.8	48.4	67.8	62.4	71.7	71.6	70.7	73.9	42.9	42.3	43.4	40.1
43.4	33.8	46.8	50.9	58.8	57.0	56.6	50.9	54.5	51.1	40.5	44.0	43.4	50.1	54.4	58.6	67.2
78.2	82.1	79.1	77.2	68.2	80.0	81.9	78.9	71.2	71.9	69.0	70.9	75.5	78.3	82.6	82.4	99.0
24.1	27.8	14.8	18.7	12.0	5.1	4.2	5.4	4.3	2.1	2.6	2.7	2.6	3.8	13.0	6.6	6.4
0.0	0.0	5.7	14.1	12.4	11.2	10.6	9.7	6.6	5.6	5.9	6.8	7.2	7.7	7.7	7.6	7.8
0.3	0.3	0.2	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
261.1	239.7	673.7	458.4	474.5	0.0	245.3	39.4	156.1	-2.1	-104.4	-41.0	-146.0	101.6	40.3	-44.4	-91.4

1995 Notes

Fossil energy (excluding clean coal)

Coal R&D

Petroleum

Gas

Fuel Cells (FY01-on "other power systems": sequestration R&D, fuels, etc.)

Program direction and management

Plant, capital equipment, and construction

Advanced metallurgical research

Cooperative R&D

Federal Inspector Alaska Gas Pipeline

Feasibility Studies

Energy efficiency science initiative

Black liquor gasification

Prior year balances and adjustments

Source: DOE FY1997 Congressio

Source: DOE FY1997 Congressio

Fossil R&D total (excluding CCT demo)

Fossil (other non-CCT demo)

Fossil (total all items excluding CCT demo)

Clean Coal Technology (CCT demonstration program)

Fossil R&D total (including CCT demo)

Energy Conservation

Transportation (FY03-on: changed to "vehicle technologies")

Utility

Industry

Buildings

Multi-sector

Facilities

Policy and management

Power technologies

Fuel cells (FY03-on)

Distributed energy resources (FY03-on)

Biomass and biorefinery systems

Energy efficiency science initiative

Prior year balances and adjustments (excludes PODRA adjustments)

Conservation R&D total

Conservation Weatherization Program

Federal Energy Management Program

State & local grants

| Deployment activities

Conservation (total other)

Use of prior year balances

Conservation (total all items)

Renewables

Solar (includes biofuels, wind, ocean up to FY98)

Biomass (included in solar until 1998)

Wind (included in solar until FY98)

Geothermal (R&D)

Hydrogen research

Hydropower

Electrical energy systems (FY97-on combined with energy storage)
Energy storage
Indian renewables
Electricity Reliability
Other
Policy and management
Prior balances

Renewable energy R&D total

Renewables (other)

Renewables (total all items)

Electric Transmission and distribution

Research & Development

Program Direction

Electric Transmission and Distribution Total

Nuclear Fission

Light water reactor

Advanced reactor

Facilities

University reactors

Converter reactor systems

Breeder reactor systems

Civilian waste R&D

Civilian R&D

Spent fuel storage R&D

Program direction policy and management - TOTAL

Nuclear technology R&D

Nuclear research initiative

Nuclear energy plant optimization

Nuclear energy technologies

Generation IV nuclear energy systems initiative

Nuclear hydrogen initiative

Advanced fuel cycle initiative (addressing issues relating to spent nuclear fuel) - INCLUDE

Use of prior balances - R&D share

Program direction policy and management - R&D share

Use of prior balances - TOTAL

Nuclear Fission R&D total

Nuclear Fission R&D total without program direction and prior balances adjustments (matches Holdren/de Sa number)

Non-Fusion Nuclear (other)

Non-fusion Nuclear (total all items)

Nuclear Fusion R&D

Fusion (other)

Fusion (total all items)

Total Energy Technology R&D (including clean coal)

Total Energy All Items (including clean coal)

Policy & International Affairs

(international component included above)

Basic energy sciences (BES)

Research ("general science")

Research (other non-fusion "energy research")

Total Research (all non-fusion items)

Environmental and biological R&D
 Environmental R&D
 Environmental analysis
 Environmental policy
 Biological and environmental research (includes human genome project)

Environmental and biological R&D total

TOTAL ENERGY-TECHNOLOGY R&D + BES + ENV&BIO R&D

GDP deflator to 2000\$ (from FY05 OMB Historical Tables)

ALL FIGURES BELOW THIS LINE ARE IN 2000 DOLLARS

Sum of 1985-2004)

4584 Fission
6843 Fusion
7481 Conservation
5890 Renewables
11294 Fossil (including CCT demo)

Transportation (FY03-on: changed to "vehicle technologies")
Utility
Industry
Buildings
Multi-sector
Facilities
Policy and management
Power technologies
Fuel cells (FY03-on)
Distributed (FY03-on)
Biomass and biorefinery sytems (FY03-on)

1996 Notes

1997 Notes

1998 Notes

1999 Notes

Source: DOE FY1998 Statistical Tables by Appropriation, p. 11, column "FY1995 Comparable Approp.", includes the following items: "Fossil Energy Research And Development"; Source: DOE FY1999 Statistical Tables by Appropriation, p. 17, column "FY1995 Comparable Approp.", includes the following items: "Fossil Energy Research And Development"; Source: DOE FY2000 Statistical Tables by Appropriation, p. 17, column "FY1995 Comparable Approp.", includes the following items: "Fossil Energy Research And Development"; Source: DOE FY2001 Statistical Tables by Appropriation, p. 17, column "FY1995 Comparable Approp.", includes the following items: "Fossil Energy Research And Development".

Source: DOE FY1998 Statistical Tables by Appropriation, p. 50, column "FY1996 Current Approp."

Row 21 + Row 24

Source: DOE FY1998 Statistical Tables by Appropriation, p. 50, column "FY1996 Current Approp."; Source: DOE FY1999 Statistical Tables by Appropriation, p. 17, column "FY1995 Comparable Approp."; Source: DOE FY2000 Statistical Tables by Appropriation, p. 17, column "FY1995 Comparable Approp."; Source: DOE FY2001 Statistical Tables by Appropriation, p. 17, column "FY1995 Comparable Approp.".

Buildings sector total minus FEMP

Total building technology, state and local Includes "building research & standards"

Source: DOE FY2001 Control Table

Source: DOE FY1998 Statistical Tables by Appropriation, p. 11, column "FY1995 Comparable Approp."; Source: DOE FY1999 Statistical Tables by Appropriation, p. 17, column "FY1995 Comparable Approp."; Source: DOE FY2000 Statistical Tables by Appropriation, p. 17, column "FY1995 Comparable Approp."; Source: DOE FY2001 Statistical Tables by Appropriation, p. 17, column "FY1995 Comparable Approp.".

Called program direction plus NR Includes NREL Includes NREL, federal buildings/ Includes program direction, federal t
Source: DOE FY1998 Control Tal Source: DOE FY1998 Control Tal Source: DOE FY2000 Control Tables by Appropriation, p. 6, column "F

Source: DOE FY1998 Statistical ` Source: DOE FY1999 Statistical ` Source: DOE FY2000 Statistical ` Source: DOE FY2001 Statistical Tat

Program direction plus policy and management

Source: DOE FY1997 Control Tables by Appropriation, p. 6, column "FY1996 Current Approp." use o Source: DOE FY2001 Control Table
"Program direction" and "policy and management" attributable to energy RD&D
Source: DOE FY1998 Control Tables by Appropriation, p. 6, columr Source: DOE FY2001 Control Table

ers)

Source: DOE FY2000 Control Tal Source: DOE FY2001 Control Table

Source: DOE FY2000 Control Tal Source: DOE FY2001 Control Table

Source: DOE FY2000 Control Tal Source: DOE FY2001 Control Table
Source: DOE FY2001 Control Table

Source: DOE FY2000 Control Tal Source: DOE FY2001 Control Table

Source: DOE FY2000 Control Table Source: DOE FY2001 Control Table

2000 Notes

2001 Notes

2002 Notes

2003 Notes

(No FY2002 Current Approp. Avail.)

Source: DOE FY2002 Statistical Table by Appropriation, p. 23-24, column "FY2000 Current Approp."

nt / Total, Coal"

Source: DOE FY2003 Statistical

Source: DOE FY2004 B

Source: DOE FY2005 Control Tal

nt / Petroleum"

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Includes "prior year balances" and "previously appropriated Source: DOE FY2005 Control Tal

Excludes fossil energy environmental restoration and impor

Source: DOE FY2004 B Source: DOE FY2005 Control Tal

Source: DOE FY2004 B Source: DOE FY2005 Control Tal

Source: DOE FY2002 Statistical Source: DOE FY2003 Statistical Source: DOE FY2004 Budget Request to Congress, Statist

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Includes "building research & star Includes "building research & standards" plus "cooperative Source: DOE FY2005 Control Tal

Portion of "program man Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

by Appropriation, p. 18

Source: DOE FY2005 Budget Re

Source: DOE FY2005 Budget Re

Includes "State energy program" and "community partners Source: DOE FY2005 Budget Re

Source: DOE FY2005 Budget Re

Source: DOE FY2002 Statistical Source: DOE FY2003 Statistical Table by Appropriation, p. 5, column "FY2001 Current Approp

search, PV, concentrating solar power, international solar, and sola Source: DOE FY2004 B Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal

Includes "facilities and in Source: DOE FY2005 Control Tal
Includes program direction, NREI Includes "program direction" + "d Includes "program directi Source: DOE FY2005 Control Tal
FY1998 Current Approp." use of prior year balances (EE)

Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal
Source: DOE FY2005 Control Tal

Source: DOE FY2002 Statistical Source: DOE FY2003 Statistical Source: DOE FY2004 Budget Request to Congress, Statist

Source: DOE FY2005 Control Tal

Program direction attribu Source: DOE FY2005 Control Tal

Source: DOE FY2005 Control Tal
Source: DOE FY2005 Control Tal
Source: DOE FY2005 Control Tal
Source: DOE FY2005 Control Tal
Source: DOE FY2005 Control Tal
Source: DOE FY2005 Control Tal
Source: DOE FY2005 Control Tal

Total prior balances multiplied by nuclear R&D divided by total nuclear

Program Direction Attributable to ERD&D

by Appropriation, p. 6, column "F" "Program direction" portion attri No allocation of percenta Source: DOE FY2005 Control Tal

by Appropriation, p. 5, column "F" Source: DOE FY2003 Control Tal I'm not sure what to inc Source: DOE FY2005 Control Tal

of Appropriation, p.7, column "FY Source: DOE FY2003 Control Table of Appropriation, p.7, Source: DOE FY2005 Control Tal

Source: DOE FY2002 Control Tal Source: DOE FY2003 Control Table of Appropriation, p.8, Source: DOE FY2005 Control Tal
of Appropriation, p.8, column "FY1999 **Comparable** Approp.", includes the following items: "Departmental Administration / Adm

Source: DOE FY2002 Control Tal Source: DOE FY2003 Control Tal Source: DOE FY2004 C Source: DOE FY2005 Control Tal

Source: DOE FY2002 Control Tal Source: DOE FY2003 Control Table of Appropriation, p.7, (Source: DOE FY2005 Control Tal

2004 Notes

[illegible]

Source: DOE FY2005 Control Table by Appropriation, p. 12, column "FY2004 Comparable Approp.", includes the following items: "Fossil Fuel Energy Research and Development, Energy Efficiency and Conservation Research and Development, and Energy Efficiency and Conservation Programs."

[illegible]

rt/export authorization

Source: DOE FY2005 Control Table by Appropriation, p. 12, column "FY2004 Comparable Approp.", includes the following items: "Foss

Source: DOE FY2005 Control Table by Appropriation, p. 2, column "FY2004 Comparable Approp.", includes the following items: "Interic

tical Table by Appropriation, p. 20, column "FY2002 Comparable Approp."

Source: DOE FY2005 Control Table by Appropriation, p. 12, column "FY2004 Comparable Approp.", includes the following items: "Ener

Source: DOE FY2005 Control Table by Appropriation, p. 12, column "FY2004 Comparable Approp.", includes the following items: "Ener

Source: DOE FY2005 Control Table by Appropriation, p. 12, column "FY2004 Comparable Approp.", includes the following items: "Ener

Source: DOE FY2005 Control Table by Appropriation, p. 12, column "FY2004 Comparable Approp.", includes the following items: "Ener

Source: DOE FY2005 Control Table by Appropriation, p. 12, column "FY2004 Comparable Approp.", includes the following items: "Ener

Source: DOE FY2005 Control Table by Appropriation, p. 12, column "FY2004 Comparable Approp.", includes the following items: "Ener

Source: DOE FY2005 Control Table by Appropriation, p. 12, column "FY2004 Comparable Approp.", includes the following items: "Ener

Source: DOE FY2005 Control Table by Appropriation, p. 12, column "FY2004 Comparable Approp.", includes the following items: "Ener

Source: DOE FY2005 Budget Request to Congress, Statistical Table by Appropriation, p. 20, column "FY2004 Comparable Approp.", in

Source: DOE FY2005 Budget Request to Congress, Statistical Table by Appropriation, p. 21, column "FY2004 Comparable Approp.", in

Source: DOE FY2005 Budget Request to Congress, Statistical Table by Appropriation, p. 20, column "FY2004 Comparable Approp.", in

Source: DOE FY2005 Budget Request to Congress, Statistical Table by Appropriation, p. 20, column "FY2004 Comparable Approp.", in

эр."

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energ

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2003 Comparable Approp.", includes the following items: "Energy
Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy
Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy

tical Table by Appropriation, p. 4-5, column "FY2002 Comparable Approp."

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy

Source: DOE FY2005 Control Table by Appropriation, p. 3, column "FY2004 Comparable Approp.", includes the following items: "Energy

Source: DOE FY2005 Control Table by Appropriation, p. 4-5, column "FY2004 Comparable Approp.", equals "Energy Supply / Adjustm

Source: DOE FY2005 Control Table by Appropriation, p. 5, column "FY2004 Comparable Approp.", includes the following item: "Energy

Source: DOE FY2005 Control Table by Appropriation, p. 4, column "FY2004 Comparable Approp.", includes the following items: "Energy

Source: DOE FY2005 Control Table of Appropriation, p.6, column "FY2004 Current Approp.", includes the following items: "Science / F

Source: DOE FY2005 Control Table of Appropriation, p.7, column "FY2004 Current Approp.", includes the following items: "Department
ministrative operations / International affairs / Total, International affairs" -- No value under Current Approp. Use Comparable Approp. in

Source: DOE FY2005 Control Table of Appropriation, p.6, column "FY2004 Current Approp.", includes the following items: "Science / B

Source: DOE FY2005 Control Table of Appropriation, p.6, column "FY2004 Current Approp.", includes the following items: "Science / B

sil Energy Research And Development / Coal and other power systems / President's Coal Research Initiative"
sil Energy Research And Development / Petroleum - Oil technology"
sil Energy Research And Development / Natural gas technologies"
sil Energy Research And Development / Coal and other power systems / Other power systems"
sil Energy Research And Development / Total, Program direction and management support"
sil Energy Research And Development / GP-F-100 General plant projects"
sil Energy Research And Development / Advanced metallurgical processes"
sil Energy Research And Development / Cooperative research and development"

sil Energy Research And Development / Energy efficiency science initiative"

sil Energy Research And Development / Use of prior year balances" + "Use of previously appropriated clean coal funds"

sil Energy Research And Development / Fossil energy environmental restoration"

or And Related Agencies Appropriation Summary / Clean Coal Technology"

rgy Conservation / Vehicle technologies"

rgy Conservation / Industrial technologies"

rgy Conservation / Building technologies"

rgy Conservation / Program management"

rgy Conservation / Fuel cell technologies"

rgy Conservation / Distributed energy resources"

rgy Conservation / Biomass and biorefinery systems R&D"

rgy Conservation / Energy efficiency science initiative"

cludes the following items: "Energy Conservation / Weatherization & intergovernmental activities / weatherization assistance grant

cludes the following items: "Energy Conservation / Federal energy management program"

cludes the following items: "Energy Conservation / Weatherization & intergovernmental activities / State energy program grants"

cludes the following items: "Energy Conservation / Weatherization & intergovernmental activities / State energy activities" + "Gate

gy Supply / Energy Efficiency and Renewable Energy / Solar energy"

gy Supply / Energy Efficiency and Renewable Energy / Biomass and biorefinery systems R&D"

gy Supply / Energy Efficiency and Renewable Energy / Wind energy"

gy Supply / Energy Efficiency and Renewable Energy / Geothermal technology"

gy Supply / Energy Efficiency and Renewable Energy / Hydrogen technology"

gy Supply / Energy Efficiency and Renewable Energy / Hydropower"

gy Supply / Energy Efficiency and Renewable Energy / Zero energy buildings" + "Facilities and infrastructure"
gy Supply / Energy Efficiency and Renewable Energy / Intergovernmental activities" + "Departmental energy management program

gy Supply / Energy Efficiency and Renewable Energy / Zero energy buildings" + Facilities and infrastructure" -- Discrepancy with 20

gy Supply / Electric Transmission and Distribution / Research and development"
gy Supply / Electric Transmission and Distribution / Program direction"

gy Supply / Nuclear Energy / University reactor fuel assistance and support"

gy Supply / Program direction"

gy Supply / Nuclear Energy / Research and development / Nuclear energy research initiative"
gy Supply / Nuclear Energy / Research and development / Nuclear energy plant optimization"
gy Supply / Nuclear Energy / Research and development / Nuclear energy technologies"
gy Supply / Nuclear Energy / Research and development / Generation IV nuclear energy systems initiative"
gy Supply / Nuclear Energy / Research and development / Nuclear hydrogen initiative"
gy Supply / Nuclear Energy / Research and development / Advanced fuel cycle initiative"
ents / Use of prior year balances (NE)" * ("Total, Nuclear Energy") / ("Subtotal, Energy Supply")

y Supply / Adjustments / Use of prior year balances (NE)"

gy Supply / Infrastructure / Radiological facility management"

usion energy sciences program"

tal Administration / Policy and international affairs / Total, Policy and international affairs"
instead of Current?

iasic energy sciences"

biological and environmental research"

ts"

way deployment"

i" + "Renewable program support" + "Program direction"

002 number for which we included "facilities and infrastructure" in policy and management