DIRTY KILOWATTS

America's Most Polluting Power Plants

ENVIRONMENTAL INTEGRITY PROJECT

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About the Environmental Integrity Project

The Environmental Integrity Project (EIP) is a nonpartisan, nonprofit organization dedicated to more effective enforcement of environmental laws and to the prevention of political interference with those laws. EIP was founded by Eric Schaeffer, who directed the U.S. Environmental Protection Agency's Office of Regulatory Enforcement until 2002. EIP's research and reports shed light on how environmental laws affect public health. EIP works closely with communities seeking to enforce those laws.

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DIRTY KILOWATTS: America's Most Polluting Power Plants

The large power plants that provide electricity for our homes, businesses, and factories are also major sources of air pollution. But, when it comes to emissions and the serious health consequences they impose, not all plants are created equal. Data from the U.S. Environmental Protection Agency (EPA) and the Department of Energy's Energy Information Administration (EIA) show that a disproportionate share of emissions comes from a handful of plants that have not yet installed modern pollution controls, or which operate inefficiently. This report ranks the top fifty power plant polluters for sulfur dioxide (SO_2), nitrogen oxides (NOx), carbon dioxide (CO_2), and mercury, according to:

- *Emission rate*, which measures the amount of pollution per megawatt-hour of electricity generated, and
- *Total* annual amount of each pollutant emitted, which measures the gross impact on public health and the environment.

The rankings in this report present a snapshot based on the most current publicly available data — 2004 data for SO_2, CO_2, and NOx, and 2002 data for mercury — from two federal agencies. The report ranks only large power plants (i.e. generating at least 2 million megawatt-hours) that reported emissions in EPA's Emission Tracking System. These 359 plants account for almost 90 percent of the electric generation from the 1,000-plus power plants tracked by EPA, and roughly 56 percent of total U.S. electric generation.[1] The vast majority of these large power plants (73 percent) are coal-fired. *Appendix A* provides a detailed listing of these 359 power plants by state, and includes the primary fuel reported by each plant. Additional information on data sources and methodology is provided in a separate section at the end of this report.

Nationwide, power plants account for two thirds of all SO_2, 22 percent of NOx, 35 percent of carbon dioxide CO_2, and a third of mercury emissions. Power plant SO_2 and NOx emissions form acid rain, and also contribute to fine particle pollution that triggers asthma attacks, contributes to lung and heart disease, and causes 20,000 premature deaths a year. Carbon dioxide gases contribute to the global warming, and mercury is a deadly neurotoxin, especially dangerous to developing fetuses.

Some power companies have made long-term commitments to clean up their plants, either to settle legal actions or in anticipation of future regulation. EPA's recently adopted Clean Air Interstate Rule (CAIR) sets emissions caps for sulfur dioxide and nitrogen oxides in eastern states, but the pollution reductions will not be realized until well beyond 2015.

Today, pollution controls that dramatically reduce emissions are widely available, and already being used at many plants. But, until the public and policymakers demand cleanup of the nation's most polluting power plants, we will continue to bear unnecessary health and environmental costs. This report suggests where that cleanup can start.

Top 50 Power Plant SO_2 Polluters

Table 1, *Top 50 Dirtiest Power Plants for SO_2,* ranks the 50 power plants with the highest *emission rates*, expressed as pounds of sulfur dioxide per megawatt-hour of electricity generation. Table 2, *Top 50 Polluting Power Plants for SO_2*, ranks the top 50 emitters, by *total* tons emitted, without regard to how much electricity the plant generated. All rankings include only those facilities that reported emissions to EPA and produced at least 2 million MWh of electricity in 2004.

Emission Rate Highlights

- The top 50 plants averaged 22.8 pounds of sulfur dioxide per megawatt-hour, compared to an average of 8.3 pounds per megawatt-hour among the nation's 359 largest plants, and only one pound per hour for plants equipped with state of the art scrubbers.

- Alcoa's Warrick plant in Indiana claimed the top spot, generating just over 46 pounds of sulfur dioxide per megawatt-hour of electricity.

- Louisville Gas and Electric's Coleman plant came in second, with just over 40 pounds of SO_2 per megawatt-hour of electricity.

- Five of the top ten plants with the worst emission rates are in Pennsylvania.

- Of all 359 plants ranked, the top 50 plants with the worst emission rates accounted for 38 percent of SO_2 emissions, but only 14 percent of electric generation.

- American Electric Power (AEP), Cinergy, and Pennsylvania Power & Light (PPL) have announced plans to reduce SO_2 by installing scrubbers at plants in Indiana, Ohio, Pennsylvania, and West Virginia, by 2008 or later.

Total Tons Highlights

- Of all 359 plants ranked, the top fifty plants with the highest emissions accounted for approximately half (4.5 million of the nearly 9.2 million tons) of SO_2 emissions, but only 25 percent of electric generation.

- Reliant's Keystone plant in Pennsylvania led the way, with 171,000 tons, followed closely by the Southern Company's Bowen plant in Georgia, with nearly 166,000 tons.

- Pennsylvania was home to four of the top 10 highest emitters, and Ohio had three of the top 10.

- FirstEnergy will reduce sulfur dioxide emissions by 80 percent from its Sammis power plant in Ohio (ranked seventh), by the end of 2010, to settle a Clean Air Act lawsuit brought by EPA and the Justice Department.

Thirty Plants Make Both Lists

Many of the nation's dirtiest plants, based on emission rates, are also among the largest polluters, in terms of total tons. Ohio has eight power plants that make both lists, including American Electric Power's (AEP) Muskingum River, which ranks in the top 10 for both emission rate and total tons. Pennsylvania plants also rank high for both total SO_2 output and emission rates, with Allegheny Energy's Hatfield's Ferry and Reliant's Keystone power plants making the top 10 in both lists. Plants in Alabama, Georgia, Indiana, Kentucky, Maryland, Tennessee, Texas, and West Virginia, as shown in the chart below, also made both lists.

Plants Ranked in Top 50 for Emission Rate and Total Tons SO_2, 2004

State	Power Plants
Alabama	Gaston, Gorgas
Georgia	Harllee Branch, Wansley
Indiana	Cayuga, Gallagher, Tanner's Creek, Warrick, Wabash River
Kentucky	Coleman, E.W. Brown
Maryland	Chalk Point*, Morgantown
Ohio	Beckjord, Cardinal, Conesville, Eastlake, Kyger Creek, Miami Fort, Muskingum River, Sammis
Pennsylvania	Brunner Island, Hatfield's Ferry, Homer City, Keystone, Montour
Tennessee	Johnsonville, Kingston
Texas	Big Brown
West Virginia	Fort Martin

*Chalk Point: based on 2003 emission and generation data, due to a reporting error in 2004 EIA net generation data.

Health and Environmental Effects

Power plants, especially those that burn coal, are by far the largest single contributor of SO_2 pollution in the United States, accounting for approximately 67 percent of all SO_2 emissions nationwide.[2] Sulfates (from SO_2) are major components of the fine particle pollution that plagues many parts of the country, especially those communities nearby or directly downwind of coal-fired power plants. Sulfur dioxide also interacts with NOx to form nitric and sulfuric acids, commonly known as acid rain, which damages forests, and acidifies soil and waterways.

Harvard School of Public Health studies have shown that SO_2 emissions from power plants significantly harm the cardiovascular and respiratory health of people who live near the plants. According to EPA studies, fine particle pollution from power plants causes more than 20,000 premature deaths a year.

In April 2005, EPA took final action to designate 177 counties and 31 partial counties — home to more than 100 million Americans — as "nonattainment" for health-based fine particle pollution standards.[3]

Scrubbing: A Cleaner Alternative

Scrubbing is a loose term that describes an array of air pollution control devices that rely on a chemical reaction with a sorbent to remove pollutants, including sulfur dioxide, acid gases, and air toxics, from the process gas stream. For SO_2 removal, these devices are usually called flue gas desulfurization (FGD) systems, or simply, scrubbers.

"Wet" scrubbers, which use liquid to trap particles and gases in the exhaust stream, can reduce SO_2 by 90 to 95 percent, and "dry" scrubbers reduce SO_2 in the range of 50 to 90 percent.[4] According to the White House, scrubbing to eliminate sulfur dioxide is one of the most cost-effective ways to reduce public health risks. Vice President Cheney's *National Energy Policy Report* found that scrubbers could remove sulfur dioxide for less than $300 per ton[5], while the White House Office of Management and Budget (OMB) estimates that every ton of SO_2 removed yields a public health benefit of $7,300.[6] This OMB estimate is based *only* on reduced premature death from heart and lung disease, and does not even account for the added benefits of reducing acid rain, crop damage, and visibility impairments, which have not been monetized.

Large coal plants equipped with scrubbers have shown that clean power is achievable. For example, Allegheny Energy's Conemaugh plant in Pennsylvania and Dominion's Mount Storm plant in West Virginia, both have emission rates of approximately one pound per MWh, well below the top 50 plants' 23 pounds per MWh average.

Table 1. Top 50 Dirtiest Power Plants for SO_2 By Emission Rate - lbs SO_2/MWh (2004)

Rank	Facility	Owner	State	SO2 (Tons)	SO2 Tons Rank	Net Generation (MWh)	Emission Rate (lbs/MWh)
1	WARRICK	ALCOA	IN	106,124.3	11	4,554,713	46.60
2	COLEMAN	LG&E/Western KY	KY	59,149.1	44	2,889,676	40.94
3	R GALLAGHER	Cinergy/PSI	IN	62,653.5	40	3,197,200	39.19
4	MUSKINGUM RIVER	AEP/Ohio Power	OH	141,151.4	6	7,959,231	35.47
5	HATFIELD'S FERRY	Allegheny Energy	PA	148,458.5	5	8,434,098	35.20
6	ARMSTRONG	Allegheny Energy	PA	32,945.2	89	2,063,114	31.94
7	SHAWVILLE	Reliant	PA	44,320.0	61	3,105,814	28.54
8	PORTLAND	Reliant	PA	30,721.0	99	2,180,767	28.17
9	KEYSTONE	Reliant	PA	171,309.0	1	12,287,691	27.88
10	E W BROWN	LG&E/KU	KY	52,267.5	49	3,819,783	27.37
11	COOPER	East Kentucky Power	KY	30,529.1	101	2,275,198	26.84
12	MIAMI FORT	Cinergy/CG&E	OH	100,577.2	13	7,614,546	26.42
13	FORT MARTIN	Allegheny Energy	WV	99,868.9	16	7,669,503	26.04
14	WABASH RIVER	Cinergy/PSI	IN	64,429.5	36	4,964,237	25.96
15	CHESWICK	Orion Power	PA	40,982.1	67	3,174,840	25.82
16	MONTOUR	PPL	PA	126,978.2	8	9,843,261	25.80
17	JOHNSONVILLE	TVA	TN	95,676.9	19	7,473,011	25.61
18	WALTER C BECKJORD	Cinergy/CG&E	OH	74,317.7	31	6,073,757	24.47
19	MORGANTOWN	Mirant	MD	81,000.1	27	6,629,205	24.44
20	DICKERSON	Mirant	MD	39,037.6	72	3,260,199	23.95
21	KAMMER	AEP/Ohio Power	WV	40,016.3	70	3,510,512	22.80
22	HOMER CITY	Midwest Gen	PA	149,957.1	4	13,250,014	22.64
23	ELMER W STOUT	Indianapolis P & L	IN	44,782.7	58	4,019,285	22.28
24	TANNERS CREEK	AEP	IN	64,387.4	37	5,851,570	22.01
25	LELAND OLDS	Basin Electric Power	ND	48,437.5	53	4,430,459	21.87
26	CAYUGA	Cinergy/PSI	IN	70,795.9	34	6,815,395	20.78
27	AVON LAKE	Orion Power	OH	28,358.3	111	2,739,217	20.71
28	E C GASTON	Southern/Alabama Pwr	AL	121,140.6	9	11,753,484	20.61
29	EASTLAKE	FirstEnergy	OH	63,838.1	38	6,302,019	20.26
30	C R HUNTLEY	NRG	NY	31,533.8	95	3,140,723	20.08
31	E D EDWARDS	Ameren/Cntrl Illinois Lt	IL	42,059.0	65	4,253,921	19.77
32	BIG BROWN	TXU	TX	82,023.4	26	8,301,841	19.76
33	CANADYS STEAM	South Carolina E & G	SC	27,087.9	120	2,746,314	19.73
34	CONESVILLE	AEP; Cinergy; DP&L	OH	88,248.7	25	9,022,674	19.56
35	HAMMOND	Southern/Georgia Power	GA	37,696.2	79	3,854,404	19.56
36	KYGER CREEK	Ohio Valley El. Corp	OH	72,850.2	32	7,525,067	19.36
37	MERRIMACK	PSC of New Hamp	NH	29,735.8	104	3,127,790	19.01
38	W H SAMMIS	FirstEnergy/Ohio Edison	OH	127,114.0	7	13,663,811	18.61
39	HARLLEE BRANCH	Southern/Georgia Power	GA	70,136.0	35	7,549,310	18.58
40	CARDINAL	AEP/Buckeye	OH	100,134.6	15	10,794,107	18.55
41	P L BARTOW	Progress Energy	FL	20,226.4	156	2,182,710	18.53
42	GREENE COUNTY	Southern/AL Power	AL	34,111.8	84	3,716,867	18.36
43	GORGAS	Southern/AL Power	AL	71,657.8	33	7,902,681	18.14
44	BRUNNER ISLAND	PPL	PA	92,073.5	22	10,421,732	17.67
45	YATES	Southern/Georgia Power	GA	50,551.6	52	5,777,174	17.50
46	DUNKIRK	NRG	NY	30,623.7	100	3,577,856	17.12
47	CHALK POINT*	Mirant	MD	52,278.7	48	6,164,395	16.96
48	ALLEN S KING	Northern States Power	MN	26,040.7	126	3,085,969	16.88
49	KINGSTON	TVA	TN	75,060.9	30	9,049,917	16.59
50	WANSLEY	Southern/Georgia Power	GA	98,978.1	18	12,332,814	16.05
Total				**3,494,434 tons**		**306,333,876 MWh**	

*2003 emission and generation data was used for Chalk Point plant, due to a reporting error in 2004 EIA net generation data.

Table 2. Top 50 Polluting Power Plants for SO_2 By Tons SO_2 (2004)

Rank	Facility	Owner	State	SO2 (Tons)	Emission Rate Rank
1	KEYSTONE	Reliant	PA	171,309.0	9
2	BOWEN	Southern/Georgia Power	GA	165,914.3	53
3	GIBSON	Cinergy/PSI	IN	164,121.1	56
4	HOMER CITY	Midwest Gen	PA	149,957.1	22
5	HATFIELD'S FERRY	Allegheny Energy	PA	148,458.5	5
6	MUSKINGUM RIVER	AEP/Ohio Power	OH	141,151.4	4
7	W H SAMMIS	FirstEnergy/Ohio Edison	OH	127,114.0	38
8	MONTOUR	PPL	PA	126,978.2	16
9	E C GASTON	Southern/Alabama Power	AL	121,140.6	28
10	J M STUART	Dayton Power & Light	OH	115,566.1	54
11	WARRICK	ALCOA	IN	106,124.3	1
12	ROXBORO	Progress Energy	NC	103,262.0	69
13	MIAMI FORT	Cinergy/CG&E	OH	100,577.2	12
14	JOHN E AMOS	AEP/Appalachian Power	WV	100,152.7	86
15	CARDINAL	AEP/Buckeye	OH	100,134.6	40
16	FORT MARTIN	Allegheny Energy	WV	99,868.9	13
17	MONROE	Detroit Edison	MI	99,734.7	87
18	WANSLEY	Southern/Georgia Power	GA	98,978.1	50
19	JOHNSONVILLE	TVA	TN	95,676.9	17
20	CRYSTAL RIVER	Progress Energy	FL	94,072.1	83
21	MARSHALL	Duke Power	NC	93,588.9	82
22	BRUNNER ISLAND	PPL	PA	92,073.5	44
23	PARADISE	TVA	KY	90,570.3	79
24	BELEWS CREEK	Duke Power	NC	88,303.1	89
25	CONESVILLE	AEP; Cinergy; DP&L	OH	88,248.7	34
26	BIG BROWN	TXU Generation	TX	82,023.4	32
27	MORGANTOWN	Mirant	MD	81,000.1	19
28	SCHERER	Southern/Georgia Power	GA	79,744.2	163
29	MONTICELLO	TXU	TX	75,652.9	102
30	KINGSTON	TVA	TN	75,060.9	49
31	BECKJORD	Cinergy/CG&E	OH	74,317.7	18
32	KYGER CREEK	Ohio Valley Electric Corp	OH	72,850.2	36
33	GORGAS	Southern/Alabama Power	AL	71,657.8	43
34	CAYUGA	Cinergy/PSI	IN	70,795.9	26
35	HARLLEE BRANCH	Southern/Georgia Power	GA	70,136.0	39
36	WABASH RIVER	Cinergy/PSI	IN	64,429.5	14
37	TANNERS CREEK	AEP/Indiana Michigan Pwr	IN	64,387.4	24
38	EASTLAKE	FirstEnergy	OH	63,838.1	29
39	CHESTERFIELD	Virginia Electric & Power	VA	62,665.4	59
40	R GALLAGHER	Cinergy/PSI	IN	62,653.5	3
41	MITCHELL	AEP/Ohio Power	WV	62,617.0	71
42	LABADIE	Ameren-UE	MO	60,711.4	166
43	JEFFREY	Westar Energy	KS	59,980.8	124
44	COLEMAN	LG&E/Western KY	KY	59,149.1	2
45	MARTIN LAKE	TXU	TX	56,477.4	173
46	W A PARISH	Reliant	TX	55,338.5	194
47	CLIFTY CREEK	Indiana-Kentucky Electric	IN	53,136.0	80
48	CHALK POINT*	Mirant	MD	52,278.7	47
49	E W BROWN	LG&E/Kentucky Power	KY	52,267.5	10
50	GHENT	LG&E/Kentucky Power	KY	51,507.1	129
Total				**4,517,753 tons**	

*2003 emission and generation data was used for Chalk Point plant, due to reporting error in 2004 EIA net generation data.

Top 50

Power Plant

CO_2 Polluters

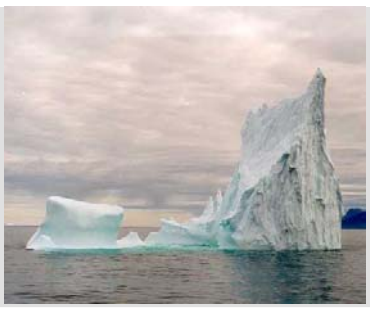

Table 3, *Top 50 Dirtiest Power Plants for CO_2*, ranks the 50 power plants with the highest *emission rates*, expressed as pounds of carbon dioxide per megawatt-hour of electricity generation. Table 4, *Top 50 Polluting Power Plants for CO_2*, ranks the top 50 emitters, by *total* tons emitted, without regard to how much electricity the plants generated. All rankings include only those facilities that produced at least 2 million MWh of electricity in 2004.

Emission Rate Highlights

- The 359 plants that generated more than 2 million MWh in 2004, had an average CO_2 emission rate of approximately 1,970 lbs/MWh, while the average emission rate for the top 50 plants was approximately 2,500 lbs/MWh. Even though the top 50 plants emit at a rate roughly 25 percent higher than the rest of the industry, the overall disparity for CO2 emission rates is not as wide as it is for other (regulated) pollutants.

- AEP's Coleto Creek (Texas) plant, topped the list, with an emission rate of more than 4,500 lbs of CO_2 per megawatt-hour, followed by Alcoa's Warrick (Indiana) plant, with an emission rate of almost 3,000 lbs/MWh.

- Five large lignite-burning North Dakota power plants rank in the top 25. Lignite is abundant in places like Texas and North Dakota, but has a comparatively low BTU (heat) value, which means more CO_2 for the electricity it generates.

Total Tons Highlights

Because CO_2 pollution is not federally regulated, power plants do not control emissions. Coal-fired power plants emit roughly a ton of carbon dioxide for every megawatt-hour of electricity they produce, and the largest fossil fuel fired plants typically have the highest CO_2 emissions.

- The top 50 emitters account for 35 percent of total tons of CO_2 emitted and 33 percent of net generation from all plants.

Two Plants Make Both Lists

- Westar's Jeffrey Energy Center (Kansas), and Tri-State's Craig (Colorado) plant are ranked in the top 50 for emissions rate as well as total tons of CO_2.

A Dirty Natural Gas-fired Power Plant, Or a Reporting Error?

In terms of emissions, natural gas-fired power plants are more environmentally friendly than coal-fired plants. According to EPA, the average emission rates from natural gas-fired generation are: 1,135 lbs/MWh of carbon dioxide, 0.1 lbs/MWh of sulfur dioxide, and 1.7 lbs/MWh of nitrogen oxides.*

Yet, Calpine's Corpus Christi Energy Center has by far the highest CO_2 emission rate of any facility that reported emissions to EPA's Acid Rain Program. In 2004, the plant reported 10,832,856 tons of CO_2 and 2,223,813 megawatt-hours of electricity, an emission rate of roughly 9,700 pounds per MWh! One possible explanation for this apparent outlier is that the plant sells steam to nearby industries as well as electricity, and therefore, net electric generation (MWh) may not be an accurate factor for this plant's emission rate. For that reason, we have not included the facility on the top 50 list. However, using another emission rate measure — pounds of pollutant per unit of *heat input* — the plant still appears to top the list.

*Source: U.S. EPA, "Electricity from Natural Gas," at http://www.epa.gov/cleanenergy/natgas.htm

Increasing Efficiency Will Reduce Environmental Impacts

Carbon dioxide, one of several greenhouse gases that contributes to climate change, is released into the atmosphere when fossil fuels (oil, natural gas, and coal), wood, and solid waste are burned. Power plants are responsible for at least 35 percent of all man-made CO_2 emissions in the nation, and unlike emissions of SO_2 and NOx, the electric power industry's CO_2 emissions are steadily rising.

Power plant CO_2 emissions are directly linked to the efficiency with which fossil fuels are converted into electricity, and coal-fired power plants are inherently inefficient. According to EIA, in a typical power plant, only about a third of the energy contained in coal is converted into electricity, while the remainder is emitted as waste heat.[7] In fact, coal-fired power plant efficiency has remained largely unchanged since the mid 1960's.

Carbon capture and sequestration (removing and storing the carbon either before or after the fuel is burned) may become technologically and economically feasible in the future. In the meantime, efficiency improvements — and lower CO_2 emissions — can be achieved through currently available and economically viable technologies that can almost double fossil-fuel-fired plants' thermal efficiency, up to 60 percent.[8] For example, combined-cycle generators and combined heat and power systems capture and use "waste heat" to produce additional electricity. In addition, new "supercritical"

designs for steam boilers, new materials, and gas turbines (instead of steam), which withstand higher temperatures and pressures, could significantly improve power plant efficiency and lower CO_2 emissions.

Table 3. Top 50 Dirtiest Power Plants for CO2
By Emission Rate - lbs CO2/MWh (2004)

Rank	Facility	Owner	State	CO2 (Tons)	CO2 Tons Rank	Net Generation (MWh)	Emission Rate (lbs/MWh)
1	COLETO CREEK	AEP	TX	5,037,380.4	165	2,225,245	4,527.48
2	WARRICK	ALCOA	IN	6,807,507.6	117	4,554,713	2,989.21
3	LAWRENCE	Westar Energy	KS	5,295,313.4	157	3,650,489	2,901.15
4	RED HILLS	Choctaw Generating	MS	4,520,203.8	183	3,204,601	2,821.07
5	SAN MIGUEL	San Miguel Electric Coop	TX	3,729,421.0	217	2,648,725	2,816.01
6	PULLIAM	Wisconsin Public Service	WI	3,251,803.4	243	2,473,405	2,629.41
7	EDDYSTONE	Exelon Generation	PA	4,172,268.0	196	3,205,701	2,603.03
8	MILTON R YOUNG	Minnkota Power	ND	6,208,610.6	130	4,782,502	2,596.39
9	REID GARDNER	Nevada Power	NV	5,284,335.5	158	4,071,644	2,595.68
10	LELAND OLDS	Basin Electric Power	ND	5,748,624.9	142	4,430,459	2,595.05
11	WYODAK	PacifiCorp	WY	3,475,884.6	228	2,685,120	2,589.00
12	RIVERSIDE	Northern States Power	MN	2,756,340.7	266	2,137,092	2,579.52
13	F B CULLEY	Southern Ind. Gas & Elec	IN	3,373,991.6	235	2,616,100	2,579.41
14	ELMER SMITH	Owensboro Mun Utilities	KY	3,200,994.1	246	2,482,038	2,579.33
15	COYOTE	Otter Tail Power Co	ND	4,096,414.7	199	3,180,023	2,576.34
16	WESTON	Wisconsin Public Service	WI	4,435,419.1	184	3,461,247	2,562.90
17	MONTROSE	Kansas City Pwr & Light	MO	3,967,560.2	208	3,099,781	2,559.90
18	D B WILSON	Western Farmers Electric	KY	4,047,386.0	202	3,174,119	2,550.24
19	COAL CREEK	Coop Power Assn	ND	10,599,180.0	59	8,475,101	2,501.25
20	R D MORROW	South Mississippi El Pwr	MS	3,169,060.5	250	2,538,048	2,497.24
21	BAILLY	Northern Indiana PSC	IN	3,861,484.8	213	3,099,025	2,492.06
22	ANTELOPE VALLEY	Basin Electric Power	ND	8,058,265.8	90	6,486,681	2,484.56
23	COMANCHE	PSC of Colorado	CO	5,332,088.5	153	4,303,272	2,478.16
24	LOWMAN	Alabama Electric	AL	4,831,375.1	171	3,919,833	2,465.09
25	MERAMEC	Ameren-UE	MO	6,810,520.5	116	5,536,197	2,460.36
26	SHAWNEE	TVA	KY	11,199,768.9	51	9,132,574	2,452.71
27	GRDA	Grand River Dam Auth	OK	7,896,952.7	92	6,445,146	2,450.51
28	CRAIG	Tri-State G & T	CO	11,452,115.4	50	9,381,931	2,441.31
29	J T DEELY	San Antonio (City of)	TX	7,215,087.5	109	5,921,615	2,436.86
30	BIG STONE	Otter Tail Power Co	SD	4,232,299.6	192	3,477,704	2,433.96
31	DAVE JOHNSTON	PacifiCorp	WY	7,079,829.8	112	5,824,643	2,430.99
32	COLUMBIA	Alliant Energy	WI	8,629,847.0	80	7,110,046	2,427.51
33	PRESQUE ISLE	Wisconsin Electric Power	MI	3,942,439.0	209	3,256,808	2,421.04
34	CRAWFORD	Midwest Gen	IL	3,602,906.4	222	2,982,597	2,415.95
35	DOLET HILLS	Central Louisiana Electric	LA	5,685,011.1	143	4,719,309	2,409.26
36	APACHE STATION	Arizona Electric Pwr Coop	AZ	3,413,833.4	234	2,835,669	2,407.78
37	BIG BROWN	TXU	TX	9,983,596.9	65	8,301,841	2,405.15
38	HUGO	Western Farmers Electric	OK	3,529,058.5	226	2,942,014	2,399.08
39	HAYDEN	PSC of Colorado	CO	4,191,118.7	194	3,495,078	2,398.30
40	WAUKEGAN	Midwest Gen	IL	5,045,549.5	164	4,219,490	2,391.54
41	RAWHIDE	Platte River Power Auth	CO	2,735,539.3	267	2,289,744	2,389.38
42	BIG BEND	Tampa Electric	FL	10,858,527.3	54	9,092,935	2,388.34
43	C R HUNTLEY	NRG	NY	3,750,093.3	216	3,140,723	2,388.04
44	CHOLLA	Arizona PSC	AZ	8,075,685.2	89	6,769,115	2,386.04
45	GENTLEMAN	Nebraska Public Pwr Dist	NE	11,110,052.2	52	9,324,650	2,382.94
46	PAWNEE	PSC of Colorado	CO	4,192,125.9	193	3,519,284	2,382.37
47	OTTUMWA	IES Utilities Inc	IA	4,978,418.1	166	4,179,388	2,382.37
48	JEFFREY	Westar Energy; Aquila	KS	16,445,255.4	17	13,807,267	2,382.12
49	R M SCHAHFER	Northern Indiana PSC	IN	11,107,524.6	53	9,350,916	2,375.71
50	POTOMAC RIVER	Mirant	VA	2,479,842.8	275	2,088,321	2,374.96
Total				**294,903,913 tons**		**236,049,969 MWh**	

Table 4. Top 50 Polluting Power Plants for CO_2 By Tons CO_2 (2004)

Rank	Facility	Owner	State	CO2 (Tons)	Emission Rate Rank
1	SCHERER	Southern/Georgia Power	GA	25,588,702.4	128
2	BOWEN	Southern/Georgia Power	GA	20,994,336.3	213
3	GIBSON	Cinergy/PSI	IN	20,763,998.1	228
4	JAMES H MILLER JR	Southern/Alabama Power	AL	20,728,733.0	166
5	W A PARISH	Reliant	TX	20,577,075.2	154
6	NAVAJO	Salt River Proj Ag I & P Dist	AZ	20,237,545.0	88
7	MARTIN LAKE	TXU	TX	20,071,663.5	69
8	CUMBERLAND	TVA	TN	19,965,232.6	140
9	GEN J M GAVIN	Ohio Power	OH	19,061,592.6	196
10	SHERBURNE COUNTY	Northern States Power	MN	18,118,477.0	68
11	BRUCE MANSFIELD	Pennsylvania Power Co	PA	17,654,260.7	232
12	COLSTRIP	PP&L Montana LLC	MT	17,638,217.5	95
13	JIM BRIDGER	PacifiCorp	WY	16,810,031.0	91
14	LABADIE	Ameren-UE	MO	16,708,978.0	253
15	ROCKPORT	AEP/Indiana Michigan Power	IN	16,700,803.6	221
16	MONTICELLO	TXU	TX	16,584,320.9	53
17	JEFFREY	Westar Energy; Aquila	KS	16,445,255.4	48
18	MONROE	Detroit Edison	MI	16,265,158.8	223
19	INTERMOUNTAIN	Los Angeles (City of)	UT	16,062,474.3	119
20	CRYSTAL RIVER	Progress Energy	FL	15,894,823.7	176
21	JOHN E AMOS	AEP/Appalachian Power	WV	15,612,703.5	236
22	ROXBORO	Progress Energy	NC	15,440,704.5	189
23	LARAMIE RIVER	Basin Electric Power Coop	WY	15,106,779.8	54
24	FOUR CORNERS	Arizona PSC	NM	15,106,254.9	208
25	PARADISE	TVA	KY	14,893,035.4	169
26	HARRISON	Allegheny Energy	WV	14,488,660.2	161
27	BIG CAJUN 2	Entergy	LA	14,351,898.9	66
28	W H SAMMIS	FirstEnergy/Ohio Edison	OH	14,196,168.6	185
29	BELEWS CREEK	Duke Power	NC	13,829,000.1	256
30	BALDWIN	Dynegy Midwest Gen	IL	13,818,638.7	175
31	J M STUART	Dayton Power & Light	OH	13,653,398.8	254
32	LIMESTONE	Reliant	TX	13,300,832.4	197
33	BARRY	Southern/Alabama Power	AL	13,217,576.4	261
34	SAN JUAN	Public Serv Co Of New Mexico	NM	13,147,181.1	174
35	HOMER CITY	Midwest Gen	PA	13,052,616.6	217
36	MT STORM	Virginia Electric & Power	WV	12,966,450.5	114
37	MARSHALL	Duke Power	NC	12,937,177.4	268
38	WANSLEY	Southern/Georgia Power	GA	12,779,648.3	187
39	PETERSBURG	Indianapolis Power & Light	IN	12,670,793.7	104
40	E C GASTON	Southern/Alabama Power	AL	12,530,485.4	162
41	WHITE BLUFF	Arkansas Power & Light	AR	12,500,770.4	86
42	GHENT	Kentucky Power	KY	12,398,224.4	193
43	CONEMAUGH	Reliant	PA	12,336,450.1	243
44	CENTRALIA	Transalta Centralia Generation	WA	12,289,830.6	77
45	INDEPENDENCE	Arkansas Power & Light	AR	12,254,764.5	90
46	SAM SEYMOUR	Lower Colorado River Authority	TX	12,112,844.7	167
47	LA CYGNE	Kansas City Power & Light	KS	12,062,445.8	59
48	WELSH	Southwestern Electric Power	TX	11,985,838.9	79
49	KEYSTONE	Reliant	PA	11,756,542.9	234
50	CRAIG	Tri-State G & T	CO	11,452,115.4	28
Total				**771,121,513 tons**	

Top 50

Power Plant

NOx Polluters

Table 5, *Top 50 Dirtiest Power Plants for NOx,* ranks the 50 plants with the highest *emission rates*, expressed as pounds of nitrogen oxides per megawatt-hour. Table 6, *Top 50 Polluting Power Plants for NOx,* ranks the top 50 emitters, by *total* tons emitted, without regard to how much electricity the plant generated. Rankings only include those plants that generated at least 2 million MWh of electricity in 2004.

Emission Rate Highlights

- The top 50 plants had an average emission rate of 5.8 pounds of NOx per megawatt-hour, almost double the 3.0 lbs/MWh average emission rate for all 359 of the nation's largest power plants.

- Of the 359 plants, the top 50 accounted for 26 percent of all NOx emissions but only 14 percent of net electric generation.

- Northern State's Riverside (Minnesota) and Minnkota's Milton Young (North Dakota) power plants claimed the top two spots, with emission rates of just over 11 and just under 10 pounds of NOx per megawatt-hour, respectively.

- Many plants in the top 50, including seven out of the top 10, are in states with less stringent NOx emission limits because they do not fall under the "NOx SIP call," a federal rule designed to reduce summertime ozone in eastern states (NOx is a precursor to ground-level ozone). Not surprisingly, electric utilities do not reduce NOx emissions unless they are required to do so.

Total Tons Highlights

- Of the 359 plants, the top 50 accounted for 1.3 million tons of NOx, or 40 percent of emissions, but only 29 percent of net generation.

- Arizona Public Service Company's Four Corners plant and AEP's Gavin plant (Ohio), topped the list, emitting more than 40,000 tons of NOx apiece.

Health and Environmental Effects

Electric utilities account for 22 percent of all NOx emissions in the U.S.[9] Ground-level ozone, which is especially harmful to children and people with respiratory problems such as asthma, is formed when NOx and volatile organic compounds (VOCs) react in sunlight. NOx also reacts with ammonia, moisture, and other compounds to form fine particle pollution, which damages lung tissue and is linked to premature death. Small particles penetrate deeply into sensitive parts of the lungs and can cause or worsen respiratory disease such as emphysema and bronchitis, and aggravate existing heart disease.

NOx also increases nitrogen loading in water bodies, especially in sensitive coastal estuaries. Too much nitrogen accelerates eutrophication, which leads to oxygen depletion and kills fish and shellfish. According to EPA, NOx emissions are one of the largest sources of nitrogen pollution in the Chesapeake Bay.[10]

NOx Controls: SCR and SNCR

Selective catalytic reduction (SCR), which uses a catalyst bed to reduce NOx to nitrogen and water, can cut NOx emissions by more than 90 percent. Selective non-catalytic reduction (SNCR), which reduces NOx to nitrogen and water using a reducing agent (typically ammonia or urea), achieves up to 75 percent NOx removal. According to the White House Office of Management and Budget, the public health benefit of reducing power plant NOx emissions amounts to $1,300 per ton, considering *only* the benefits of reduced mortality from fine particle pollution linked to heart and lung disease. This government estimate does not even account for the added benefits of reducing acid rain, crop damage, and visibility impairments, which have not been monetized.

Large coal plants equipped with NOx controls demonstrate that cleaner power is achievable. For example, TexasGenco's (also known as Reliant) W.A. Parish plant in Texas, has steadily lowered its NOx emissions and become one of the lowest emitting coal plants in the nation through a combination of low NOx design features and SCR controls.[11] Ameren's Labadie plant in Missouri, has achieved one of the best NOx emission rates in the nation, slightly above one pound of NOx per megawatt-hour, without use of an SCR, using low NOx burners and other technologies.[12]

Table 5. Top 50 Dirtiest Power Plants for NOx By Emission Rate - lbs NOx/MWh (2004)

Rank	Facility	Owner	State	NOx (Tons)	NOx Tons Rank	Net Generation (MWh)	Emission Rate (lbs/MWh)
1	RIVERSIDE	Northern States Power	MN	12,117.0	100	2,137,092	11.34
2	MILTON R YOUNG	Minnkota Power	ND	23,599.7	28	4,782,502	9.87
3	BIG STONE	Otter Tail Power Co	SD	17,031.9	59	3,477,704	9.79
4	CHALK POINT*	Mirant	MD	29,926.9	13	6,164,395	9.71
5	GERALD ANDRUS	Mississippi Power & Light	MS	10,028.6	129	2,193,343	9.14
6	BAILLY	Northern Indiana PSC	IN	13,900.6	80	3,099,025	8.97
7	COYOTE	Otter Tail Power Co	ND	13,856.0	81	3,180,023	8.71
8	ALLEN S KING	Northern States Power	MN	11,853.7	105	3,085,969	7.68
9	LA CYGNE	Kansas City Pwr & Light	KS	39,177.7	3	10,263,435	7.63
10	NEW MADRID	Associated Electric Coop	MO	28,662.8	15	7,668,430	7.48
11	SIBLEY	Aquila, Inc	MO	10,163.1	127	2,905,849	6.99
12	BLACK DOG	Northern States Power	MN	7,056.0	180	2,077,342	6.79
13	L V SUTTON	Progress Energy	NC	8,906.4	146	2,679,282	6.65
14	PULLIAM	Wisconsin Public Service	WI	8,033.2	159	2,473,405	6.50
15	KAMMER	AEP/Ohio Power	WV	10,883.2	118	3,510,512	6.20
16	JACK WATSON	Mississippi Power	MS	14,413.3	75	4,701,525	6.13
17	POWERTON	Midwest Gen	IL	26,271.4	22	8,898,231	5.90
18	LELAND OLDS	Basin Electric Power	ND	12,889.0	91	4,430,459	5.82
19	R D MORROW	South Mississippi El Pwr	MS	7,317.6	177	2,538,048	5.77
20	GEORGE NEAL NORTH	MidAmerican Energy	IA	15,732.7	64	5,489,791	5.73
21	STATE LINE	State Line Energy	IN	8,348.0	152	2,933,561	5.69
22	CHARLES R LOWMAN	Alabama Electric	AL	11,119.5	114	3,919,833	5.67
23	CLIFTY CREEK	Indiana-Kentucky Electric	IN	22,678.3	30	8,285,533	5.47
24	NAUGHTON	PacifiCorp	WY	14,277.0	76	5,245,831	5.44
25	FOUR CORNERS	Arizona PSC	NM	40,742.3	1	14,987,221	5.44
26	CAPE CANAVERAL	Florida Power & Light	FL	7,048.2	182	2,618,365	5.38
27	APACHE STATION	Arizona Electric Pwr Coop	AZ	7,621.0	169	2,835,669	5.38
28	JOHNSONVILLE	TVA	TN	20,043.0	40	7,473,011	5.36
29	HUDSON	PSEG Fossil LLC	NJ	8,238.5	154	3,071,765	5.36
30	PARADISE	TVA	KY	37,424.3	4	14,119,719	5.30
31	MUSKINGUM RIVER	AEP/Ohio Power	OH	20,937.0	36	7,959,231	5.26
32	WARRICK	ALCOA	IN	11,872.8	104	4,554,713	5.21
33	MITCHELL	AEP/Ohio Power	WV	23,575.3	29	9,100,750	5.18
34	MICHIGAN CITY	Northern Indiana PSC	IN	6,992.5	183	2,704,298	5.17
35	KINCAID	Kincaid Generation	IL	19,387.3	44	7,508,665	5.16
36	DOLET HILLS	Central Louisiana Electric	LA	12,183.7	98	4,719,309	5.16
37	JIM BRIDGER	PacifiCorp	WY	37,117.5	5	14,771,166	5.03
38	DAVE JOHNSTON	PacifiCorp	WY	14,587.4	74	5,824,643	5.01
39	KYGER CREEK	Ohio Valley Electric Corp	OH	18,708.5	48	7,525,067	4.97
40	BECKJORD	Cinergy/CG&E	OH	14,895.4	71	6,073,757	4.90
41	PRESQUE ISLE	Wisconsin Electric Power	MI	7,976.0	162	3,256,808	4.90
42	ST JOHNS RIVER	JEA	FL	22,333.4	32	9,159,324	4.88
43	MERCER	PSEG Fossil LLC	NJ	6,026.2	206	2,486,960	4.85
44	ANCLOTE	Florida Power	FL	10,678.7	122	4,487,885	4.76
45	ALLEN	TVA	TN	11,302.1	112	4,834,503	4.68
46	GENTLEMAN	Nebraska Public Pwr Dist	NE	21,707.0	34	9,324,650	4.66
47	E C GASTON	Southern/Alabama Power	AL	27,357.5	20	11,753,484	4.66
48	CONESVILLE	AEP; Cinergy; DP&L	OH	20,957.5	35	9,022,674	4.65
49	CRYSTAL RIVER	Florida Power & Light	FL	35,157.8	8	15,148,669	4.64
50	CORONADO	Salt River Proj Ag I & P	AZ	13,379.0	88	5,797,381	4.62
Total				**856,494 tons**		**297,260,807 MWh**	

*2003 emission and generation data was used for Chalk Point plant, due to a reporting error in 2004 EIA net generation data.

Table 6. Top 50 Polluting Power Plants for NOx
By Tons NOx (2004)

Rank	Facility	Owner	State	NOx (Tons)	Emission Rate Rank
1	FOUR CORNERS	Arizona PSC	NM	40,742.3	25
2	GEN J M GAVIN	Ohio Power	OH	40,631.9	68
3	LA CYGNE	Kansas City Power & Light	KS	39,177.7	9
4	PARADISE	TVA	KY	37,424.3	30
5	JIM BRIDGER	PacifiCorp	WY	37,117.5	37
6	GIBSON	Cinergy/PSI	IN	36,850.1	143
7	JOHN E AMOS	AEP/Appalachian Power	WV	35,948.1	65
8	CRYSTAL RIVER	Florida Power & Light	FL	35,157.8	49
9	CUMBERLAND	TVA	TN	35,039.8	110
10	MONROE	Detroit Edison	MI	34,761.8	83
11	NAVAJO	Salt River Proj Ag I & P	AZ	33,985.7	107
12	COLSTRIP	PP&L Montana LLC	MT	33,592.2	72
13	CHALK POINT*	Mirant	MD	29,926.9	4
14	W H SAMMIS	FirstEnergy/Ohio Edison	OH	29,625.8	69
15	NEW MADRID	Associated Electric Coop	MO	28,662.8	10
16	JEFFREY	Westar Energy; Aquila	KS	28,245.9	91
17	J M STUART	Dayton Power & Light	OH	27,931.3	111
18	INTERMOUNTAIN	Los Angeles (City of)	UT	27,672.5	106
19	BELEWS CREEK	Duke Power	NC	27,587.0	121
20	E C GASTON	Southern/Alabama Power	AL	27,357.5	47
21	SAN JUAN	PSC Of New Mexico	NM	26,880.2	75
22	POWERTON	Midwest Gen	IL	26,271.4	17
23	MT STORM	Virginia Electric & Power	WV	26,143.2	57
24	SHERBURNE	Northern States Power	MN	25,048.5	159
25	BOWEN	Southern/Georgia Power	GA	24,770.1	229
26	BRUCE MANSFIELD	Pennsylvania Power Co	PA	24,077.0	212
27	HARRISON	Allegheny Energy Supply	WV	23,872.8	138
28	MILTON R YOUNG	Minnkota Power	ND	23,599.7	2
29	MITCHELL	AEP/Ohio Power	WV	23,575.3	33
30	CLIFTY CREEK	Indiana-Kentucky Electric Corp	IN	22,678.3	23
31	JAMES H MILLER JR	Southern/Alabama Power	AL	22,523.7	232
32	ST JOHNS RIVER	JEA	FL	22,333.4	42
33	ROXBORO	Progress Energy Carolinas	NC	21,862.5	186
34	GENTLEMAN	Nebraska Public Pwr Dist	NE	21,707.0	46
35	CONESVILLE	AEP; Cinergy; DP&L	OH	20,957.5	48
36	MUSKINGUM RIVER	AEP/Ohio Power	OH	20,937.0	31
37	MOHAVE	Southern California Edison	NV	20,868.7	90
38	SEMINOLE	Seminole Electric Coop Inc	FL	20,311.2	56
39	HOMER CITY	Midwest Gen	PA	20,124.1	176
40	JOHNSONVILLE	TVA	TN	20,043.0	28
41	WIDOWS CREEK	TVA	AL	19,842.6	70
42	CONEMAUGH	Reliant	PA	19,741.3	178
43	LARAMIE RIVER	Basin Electric Power Coop	WY	19,497.7	175
44	KINCAID	Kincaid Generation	IL	19,387.3	35
45	BARRY	Southern/Alabama Power	AL	19,312.6	206
46	HATFIELD'S FERRY	Allegheny Energy Supply	PA	19,198.8	53
47	MARSHALL	Duke Power	NC	18,807.4	220
48	KYGER CREEK	Ohio Valley Electric Corp	OH	18,708.5	39
49	HUNTER (EMERY)	PacifiCorp	UT	18,624.8	116
50	SHAWNEE	TVA	KY	18,598.7	92
Total				**1,317,743 tons**	

*2003 emission and generation data was used for Chalk Point plant, due to a reporting error in 2004 EIA net generation data.

Top 50

Power Plant

Mercury Polluters

EPA's Toxics Release Inventory (TRI) tracks mercury emissions for 491 electric generating facilities. These plants released 45.12 tons of mercury into the air in 2002, the latest year for which data is available.[13]

Table 7, *Top 50 Dirtiest Power Plants for Mercury,* ranks 50 power plants with the highest *emission rates*, expressed as pounds of mercury per million megawatt-hours (MMWh). Table 8, *Top 50 Polluting Power Plants for Mercury,* ranks the top 50 emitters, by total pounds emitted, without regard to how much electricity the plant generated. Rankings include only power plants listed in EPA's TRI database that generated at least 2 million megawatt-hours of electricity in 2002.

Emission Rate Highlights

- The top 50 plants with the highest emission rates emitted 30 percent of all power plant mercury pollution, but generated only about 14 percent of the electricity.

- Texas and Pennsylvania power plants topped the list for the highest mercury emission rates. AEP's Pirkey plant (Texas) and Reliant's Shawville plant (Pennsylvania) are the top two dirtiest plants based on mercury emission rates.

Total Tons Highlights

- The top fifty power plant mercury polluters accounted for 42 percent (19.06 tons) of all mercury emissions in the inventory, but generated only about 29 percent of the electricity.

- Reliant's Limestone (Texas) plant emitted 1,800 pounds of mercury, far more than any other power plant. TXU's Monticello (Texas) plant and AEP's Conesville (Ohio) plant came in second and third, emitting 1,324 and 1,300 pounds, respectively.

Twenty Three Plants Make Both Lists

- Twenty three plants in 14 states ranked in the top 50 for both emission rate and total pounds emitted. The states are: Alabama, Arizona, Arkansas, Illinois,

Kansas, Louisiana, Maryland, Missouri, North Dakota, Ohio, Pennsylvania, Texas, Wisconsin, and Wyoming.

- Six Texas power plants appear on both lists. Ohio, Pennsylvania, North Dakota, and Wisconsin each had two plants on both top 50 lists.

- Two AEP plants, Pirkey (Texas) and Conesville (Ohio), and Reliant's Limestone (Texas) plant, are in the top 10 for both emission rate and total pounds.

Health Effects

Coal-fired power plants are the single largest source of mercury air pollution, accounting for roughly 40 percent of all mercury emissions nationwide.[14] Mercury is a highly toxic metal that, once released into the atmosphere, settles in lakes and rivers, where it moves up the food chain to humans. In 2003, the Centers for Disease Control found that roughly 10 percent of American women carry mercury concentrations at levels considered to put a fetus at risk to neurological damage.[15]

Mercury Removal: Activated Carbon Injection

Activated carbon injection, which is commercially available and has been tested through the Department of Energy's Clean Coal Power Initiative, can achieve mercury reductions of 80 to 90 percent (and better when coupled with a fabric filter for particulate control). In addition, mercury can be significantly reduced as "co-benefits" of controls for other pollutants, such as fabric filters, electrostatic precipitators, SO_2 scrubbers, and selective catalytic reduction.

Table 7. Top 50 Dirtiest Power Plants for Mercury (Hg) By Emission Rate - lbs Hg/million MWh (2002)

Rank	Facility	Owner	State	Hg (Pounds)	Hg Pounds Rank	Net Generation (MWh)	Emission Rate (lbs/MMWh)
1	Pirkey	AEP	TX	1,000	9	4,504,102	222
2	Shawville	Reliant	PA	631	31	3,034,284	208
3	Limestone	Reliant	TX	1,800	1	11,385,520	158
4	Armstrong	Allegheny Energy	PA	247	127	2,140,768	115
5	Twin Oaks	Twin Oaks Power	TX	282	108	2,472,216	114
6	J C Weadock	Consumers Energy	MI	240	128	2,205,967	109
7	Conesville	AEP; Cinergy; DP&L	OH	1,300	3	12,041,120	108
8	Gibbons Creek	Texas Mun. Power	TX	348	86	3,230,075	108
9	Pleasant Prairie	Wisc. Electric Power	WI	838	14	7,898,581	106
10	Avon Lake	Orion Power	OH	397	66	3,777,922	105
11	Springerville	Tucson Electric	AZ	592	35	5,830,542	102
12	Coyote	Otter Tail Power	ND	310	98	3,060,200	101
13	Keystone	Reliant	PA	1,235	4	12,218,840	101
14	Monticello	TXU	TX	1,324	2	13,127,881	101
15	Milton R Young	Minnkota Power	ND	502	42	5,117,272	98
16	Coal Creek	Coop Power Assn	ND	832	15	8,559,089	97
17	Red Hills	Choctaw	MS	220	140	2,379,000	92
18	Big Cajun	Entergy	LA	880	11	9,782,275	90
19	Sandow	ALCOA	TX	230	135	2,564,226	90
20	Dave Johnston	PacifiCorp	WY	496	44	5,759,784	86
21	R D Morrow	South Mississippi	MS	193	154	2,329,127	83
22	C R Huntley	NRG	NY	240	129	2,923,168	82
23	Greene County	Southern/Alabama Power	AL	317	95	3,940,228	80
24	Big Stone	Otter Tail Power	SD	250	125	3,119,519	80
25	Jeffrey	Westar; Aquila	KS	1,216	5	15,319,780	79
26	Dickerson	Mirant	MD	259	122	3,270,102	79
27	Columbia	Wisc Pwr & Light	WI	491	47	6,472,154	76
28	White Bluff	Arkansas P&L	AR	670	27	8,850,935	76
29	Brandon Shores & Wagner	Constellation	MD	709	24	9,593,676	74
30	Lawrence	Westar	KS	270	115	3,759,861	72
31	Dunkirk	NRG	NY	250	126	3,591,017	70
32	Martin Lake	TXU	TX	1,027	8	14,825,001	69
33	Powerton	Midwest Gen	IL	527	41	7,618,895	69
34	Sam Seymour (Fayette)	LCRA	TX	811	16	11,749,703	69
35	Rush Island	Ameren-UE	MO	502	43	7,483,574	67
36	Chalk Point	Mirant	MD	428	56	6,426,844	67
37	Antelope Valley	Basin Electric	MO	420	61	6,317,269	66
38	Cardinal	AEP	OH	560	38	8,555,500	65
39	Will County	Midwest Gen	IL	353	80	5,419,706	65
40	Joliet 9 & 29	Midwest Gen	IL	431	55	6,704,220	64
41	E C Gaston	Southern/Alabama Power	AL	807	17	12,663,329	64
42	George Neal South	MidAmerican Energy	IA	290	106	4,586,420	63
43	Kincaid	Kincaid Generation	IL	369	75	5,847,617	63
44	Wyodak	PacifiCorp	WY	178	167	2,856,314	62
45	Cheswick	Orion	PA	186	160	3,021,295	62
46	John Sevier	TVA	TN	300	101	4,880,298	61
47	George Neal North	MidAmerican Energy	IA	350	82	5,703,855	61
48	Waukegan	Midwest Gen	IL	257	123	4,230,118	61
49	Hugo	Western Farmers	OK	183	163	3,030,995	60
50	O W Sommers, J T Deely & J K Spruce	San Antonio (City)	TX	636	30	10,607,164	60
Total				**27,184 lbs**		**316,787,348 MWh**	

Table 8. Top 50 Polluting Power Plants for Mercury (Hg)
By Pounds Hg (2002)

Rank	Facility	Owner	State	Hg (Pounds)	Emission Rate Rank
1	Limestone	Reliant	TX	1,800	3
2	Monticello	TXU	TX	1,324	14
3	Conesville	AEP; Cinergy; DP&L	OH	1,300	7
4	Keystone	Reliant	PA	1,235	13
5	Jeffrey	Westar; Aquila	KS	1,216	25
6	W A Parish	Reliant	TX	1,100	64
7	James H Miller Jr	Southern/Alabama Power	AL	1,077	54
8	Martin Lake	TXU	TX	1,027	32
9	Pirkey	AEP	TX	1,000	1
10	Scherer	Southern/Georgia Power	GA	943	106
11	Big Cajun	Entergy	LA	880	18
12	Sherburne County	Xcel	MN	876	57
13	J M Stuart	AEP; Cinergy; DP&L	OH	845	62
14	Pleasant Prairie	Wisconsin Electric Power	WI	838	9
15	Coal Creek	Great River Energy	ND	832	16
16	Sam Seymour (Fayette)	LCRA	TX	811	34
17	E C Gaston	Southern/Alabama Power	AL	807	41
18	Rockport	AEP	IN	800	93
19	Bruce Mansfield	FirstEnergy	PA	790	113
20	John E Amos	AEP	WV	790	87
21	Labadie	Ameren-UE	MO	763	75
22	Colstrip	PPL; Puget Sound Energy	MT	760	66
23	Belews Creek	Duke	NC	730	119
24	Brandon Shores & Wagner	Constellation	MD	709	29
25	Paradise	TVA	KY	700	86
26	Bowen	Southern/Georgia Power	GA	697	185
27	White Bluff	Arkansas Power & Light	AR	670	28
28	Roxboro	Progress Energy	NC	670	102
29	General James M Gavin	AEP	OH	660	125
30	O W Sommers, J T Deely & J K Spruce	San Antonio (City)	TX	636	50
31	Shawville	Reliant	PA	631	2
32	Marshall	Duke	NC	621	122
33	Monroe	Detroit Edison	MI	618	150
34	Gibson	Cinergy	IN	595	201
35	Springerville	Tucson Electric Power Company	AZ	592	11
36	San Juan	PSC of New Mexico	NM	590	108
37	Four Corners	Arizona PSC	NM	590	94
38	Cardinal	AEP	OH	560	38
39	Homer City	Midwest Gen	PA	545	109
40	W H Sammis	First Energy/Ohio Edison	OH	540	162
41	Powerton	Midwest Gen	IL	527	33
42	Milton R Young	Minnkota	ND	502	15
43	Rush Island	Ameren-UE	MO	502	35
44	Dave Johnston	PacifiCorp	WY	496	20
45	Conemaugh	Reliant	PA	495	143
46	Petersburg	AES	IN	493	124
47	Columbia	Wisc Power & Light	WI	491	27
48	Crystal River	Progress Energy	FL	490	218
49	Kingston	TVA	TN	480	90
50	Barry	Southern/Alabama Power	AL	476	205
Total				**38,120 lbs**	

Trends

Power plant emissions of CO_2, which remain unregulated, continue to creep upward. Emissions of SO_2 have settled around 10 million tons, while NOx emissions continue to decline.

In the decade after the 1990 Clean Air Act Amendments, power plant SO_2 and NOx emissions declined steadily. Driven primarily by EPA's Acid Rain Program, emissions of SO_2 are expected to decline slowly over the remainder of this decade, settling at about 9 million tons by 2010. Nitrogen oxides emissions will likely continue to decline due to the "NOx SIP call," a rule that requires power plants across the eastern United States to reduce their summertime NOx emissions.[16] Recent years' emissions data indicate that U.S. utilities have achieved most of the anticipated reductions from acid rain controls.

Power Plant Emissions (2002-2004)

	2002	2003	2004
SO_2 tons:	10.19 M	10.59 M	10.26 M
CO_2 tons:	2.425 B	2.472 B	2.488 B
NOx tons:	4.36 M	4.12 M	3.742 M

Source: EPA Emissions Tracking System (all plants)

Additional reductions are expected from EPA's recently adopted Clean Air Interstate Rule, which targets ozone and/or particulate pollution in 28 states in the eastern half of the U.S., although not until after 2015. The rule moves the Acid Rain (Phase 1) NOx cap forward a year, to 2009, and sets a 1.3 million ton cap in 2015. The rule also establishes a two-phase cap for SO_2, culminating in 1.3 million tons of SO_2 in eastern states in 2015. However, due to early reductions and banking of credits for use in later years, the SO_2 cap is unlikely to be met until well beyond 2015.

Data Sources & Methodology

In May 2004, EIP and Public Citizen's Congress Watch published *America's Dirtiest Power Plants: Plugged into the Bush Administration*. That report listed the top 50 most polluting power plants based on total emissions of SO_2, CO_2, and mercury. Some large utilities responded that even though they emit large quantities of pollution, they are not necessarily the "dirtiest" — because large plants that generate a lot of electricity emit more pollution than smaller plants. In response to that complaint, this report adds an important new component: it ranks the dirtiest or least efficient electric utilities, taking into account their relative size (i.e. pounds of pollutant per unit of electricity generated, or megawatt-hours).

This report presents *plant-by-plant* rankings rather than electric utility *company* rankings. (For an excellent report on the top polluting power companies, see the Natural Resources Defense Council's *Benchmarking Air Emissions of the 100 Largest Electric Power Producers in the United States — 2002*.[17])

The rankings in this report are based on the most current publicly available data from two federal agencies. The vast majority of emissions data is derived from EPA's Emissions Tracking System (ETS), preliminary quarterly reports for fourth quarter 2004. ETS is a repository for SO_2, CO_2, and NOx data from the utility industry, and includes approximately 1,000 power plants regulated under the Acid Rain Program and the NOx SIP Call. Additional information on these programs and ETS can be found on EPA's Clean Air Markets web page at http://www.epa.gov/airmarkets/. Mercury data is derived from EPA's Toxics Release Inventory (TRI); the most current TRI data is for 2002. Net electric generation and plant ownership data is drawn from the Energy Information Administration (EIA) within the Department of Energy, and can be publicly accessed at http://www.eia.doe.gov/. All data is self-reported to these agencies by the utility industry.

Data Limitations

Industry-reported emissions and net generation data may contain errors and omissions. To assure the quality of the data used in this report, we checked prior year reports when a 2004 (2002, for mercury) emission or net generation entry appears to be an outlier. For example, Mirant's Chalk Point power plant (Maryland) reported only 2 million megawatt-hours in 2004, yet it reported three times that amount in 2003. Chalk Point's 2004 EIA data appears to omit coal-based generation, therefore we substituted 2003 generation and emissions data in order to fairly rank that plant. We also cross-referenced EIA and EPA databases using each plant's federal identification ("ORISPL") number, because plant names may differ slightly among various government databases. Finally, tracking company names and plant ownership within the utility industry is challenging. We have used our best efforts to update plant ownership information in each of the Top

50 ranking tables, based on company websites and other publicly available electric utility information.

Top 50 Rankings are for Large Plants — 2 million MWh or Greater

According to EIA, in 2004, 50 percent of all the electricity generated in the U.S. came from coal-fired generation; nuclear generation contributed 20 percent; natural gas generated almost 18 percent; hydro-power provided close to 7 percent; petroleum accounted for 3 percent; and the remainder came from renewables (biomass, geothermal, solar, and wind) and other miscellaneous energy sources.[18]

Approximately 1,000 power plants throughout the United States report emissions to EPA's Acid Rain Program. In 2004, these plants generated roughly 2.5 billion megawatt-hours of electricity, almost two-thirds of all the electricity generated in the United States.

EPA's Acid Rain Program tracks emissions from plants of varying size, from the largest facilities like the Scherer Plant in Georgia, which generated more than 23 million MWh, to small facilities that generated less than 1,000 megawatt-hours. The rankings in this report include only the 359 largest power plants listed in EPA's emission tracking system database for which 2004 emissions and net generation data is publicly available. For this report, we defined "large plants" as those that generated at least 2 million MWh in 2004 (year 2002 data is used for mercury). Taken together, even though these 359 plants represent about a third of all power plants tracked in EPA's inventory, they account for almost 90 percent of the electricity generated by the plants in EPA's inventory, and approximately 56 percent of total U.S. electric generation.

Of the 359 largest power plants, 262 plants reported coal as their primary fuel source; 81 facilities burned primarily natural gas; 12 facilities burned mainly petroleum products; and the remainder reported mixed fuel sources. Only two plants in EPA's emission inventory (Turkey Point and Crystal River, both in Florida) have significant nuclear capacity — in order to determine emission rates for these two facilities, we used only their fossil-fuel-based generation, as reported to EIA.

Appendix A lists the 359 plants by state, and also includes the primary fuel reported by each utility to EIA.

Endnotes

[1] According to EIA, in 2004, total U.S. electric generation for all sectors (utilities, independent power producers, commercial, and industrial) and all fuel sources (coal, petroleum products, natural gas, nuclear, hydropower, and renewables) was 3.95 billion megawatt-hours. The "electric power" sector (which sells electricity, or electricity and heat, to the public) generated 3.8 billion megawatt-hours, two-thirds of which was generated by electric utilities and the other one-third was generated by independent producers.

In 2004, all of the approximately 1,000 plants tracked in EPA's emissions inventory generated 2.5 billion megawatt-hours, and the 359 largest plants generated 2.2 billion megawatt-hours. Of these 359 largest power plants, 262 plants (73 percent) reported coal as their primary fuel source; 81 plants (23 percent) reported natural gas as their primary fuel source; the remaining plants reported petroleum products or other sources as their primary fuel.

[2] U.S. EPA, *Acid Rain Program 2002 Progress Report,* EPA-430-R-03-011, November 2003, available at http://www.epa.gov/airmarkets/cmprpt/arp02/2002report.pdf. *See also*, http://www.epa.gov/air/urbanair/so2/what1.html.

[3] *See*, http://www.epa.gov/pmdesignations/documents/Apr05/greenmap.pdf.

[4] "Circulating dry scrubber" can get more than 90% removal; "spray dryer" can get 70% - 90% removal; dry sorbent injection (limestone) can get 50% - 70% removal, according to the Institute of Clean Air Companies. *See,* http://www.icac.com/.

[5] *National Energy Policy Report of the National Energy Policy Development Group*, May, 2001, page 3-4.

[6] *See*, Informed Regulatory Decision – 2004 Draft Report to Congress on the Costs and Benefits of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities, available at: www.whitehouse.gov/omb/inforeg/draft_2004_cbreport.pdf).

[7] *See*, "Carbon Dioxide Emissions from the Generation of Electric Power in the United States," July 2000, Department of Energy, Environmental Protection Agency, available at: http://www.eia.doe.gov/cneaf/electricity/page/co2_report/co2report.html.

[8] *See*, "Controlling Power Plant CO2 Emissions: A Long Range View," by John Marion and Nsakala ya Nsakala, ALSTOM Power Plant Laboratories, Windsor, CT (U.S. offices), available at: http://www.netl.doe.gov/publications/proceedings/01/carbon_seq/1b2.pdf.

[9] *See*, http://www.epa.gov/air/urbanair/nox/what.html.

[10] *See*, http://www.epa.gov/air/urbanair/nox/hlth.html.

[11] Plant upgrades and retrofits are ongoing. *Power* magazine, "W.A. Parish Electric Generation Station, Thompson, Texas," (July/August 2004) recently described modifications made to the W.A. Parish burners. Units 5 and 6, which have NOx emission rates below 0.10 lbs/MMBtu, appear to have duel-fuel (gas/coal) burners. Units 7 and 8, which have emissions rates of roughly 0.15 lbs/MMBtu, appear to be 100 percent coal-fired.

[12] *See,* http://www.epa.gov/airmarkets/fednox/126noda2/pegasus.pdf

[13] This number is slightly lower than EPA's often-cited 48 tons per year estimate, due to the Toxics Release Inventory's narrower definition of mercury sources included within the category "Electric Utilities."

[14] *See*, http://www.epa.gov/mercury/about.htm.

[15] *Second National Report on Human Exposure to Environmental Chemicals*, Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Environmental Health, Division of Laboratory Sciences, Atlanta, Georgia, NCEH Pub. No. 02-0716, January 2003; available at: http://www.cdc.gov/exposurereport/.

[16] The rule, which cuts NOx emissions in order to reduce summertime ground-level ozone pollution, has been aggressively opposed by many in the electric power industry. Legal challenges, decided in two D.C. Circuit Court decisions (in March and August of 2000) that largely upheld EPA's action, have already had the effect of delaying its implementation and exempting some areas.

[17] Available at: http://www.nrdc.org/air/pollution/benchmarking/default.asp.

[18] Energy Information Administration, *Electric Power Monthly for April 2005* (with 2004 year-end data), DOE/EIA-0226 (2005/04), available at: http://www.eia.doe.gov/cneaf/electricity/epm/epm_sum.html

Appendix A
All Plants ≥ 2 million MWh, by State (2004)
Source: Energy Information Administration Form 906/920

Plant Name	State	County Name	Operating Company	Primary Fuel Type[i]	Net Generation (megawatthours)
BARRY	AL	MOBILE	Southern/Alabama Power	BIT	14,435,331
CHARLES R LOWMAN	AL	WASHINGTON	Alabama Electric	BIT	3,919,833
COLBERT	AL	COLBERT	Tennessee Valley Authority	BIT	6,881,515
E C GASTON	AL	SHELBY	Southern/Alabama Power	SC	11,753,484
GORGAS	AL	WALKER	Southern/Alabama Power	BIT	7,902,681
GREENE COUNTY	AL	GREENE	Southern/Alabama Power	SC	3,716,867
HARRISON	AL	Autauga	Southern Power	NG	2,211,978
JAMES H MILLER JR	AL	JEFFERSON	Southern/Alabama Power	SUB	19,500,172
WIDOWS CREEK	AL	JACKSON	Tennessee Valley Authority	BIT	9,158,838
FLINT CREEK	AR	BENTON	Southwestern Electric Power	SUB	3,587,435
INDEPENDENCE	AR	INDEPENDENCE	Arkansas Power & Light	SUB	10,743,642
WHITE BLUFF	AR	JEFFERSON	Arkansas Power & Light	SUB	10,951,095
APACHE STATION	AZ	COCHISE	Arizona Electric Pwr Coop Inc	SUB	2,835,669
CHOLLA	AZ	NAVAJO	Arizona PSC	SUB	6,769,115
CORONADO	AZ	APACHE	Salt River Proj Ag I & P Dist	SUB	5,797,381
Desert Basin Generat	AZ	Pinal	Salt River Project	NG	2,462,092
Mesquite Generating	AZ	Maricopa	Sempra Energy Resources	NG	6,094,902
NAVAJO	AZ	COCONINO	Salt River Proj Ag I & P Dist	BIT	17,734,190
SPRINGERVILLE	AZ	APACHE	Tucson Electric Power Company	SUB	5,705,735
ALAMITOS	CA	LOS ANGELES	AES Southland LLC-Alamitos	NG	2,954,395
Elk Hills Power	CA	Kern	Elk Hills Power	NG	3,979,415
ENCINA	CA	SAN DIEGO	Dynegy Power	NG	3,099,059
HAYNES GEN STATION	CA	LOS ANGELES	Los Angeles (City of)	NG	2,046,335
High Desert Power Pr	CA	San Bernardino	High Desert Power Project	NG	3,785,083
La Paloma Generating	CA	Kern	La Paloma Generating	NG	5,630,210
Los Medanos Energy C	CA	Contra Costa	Calpine Corporation	NG	3,690,627
MOSS LANDING	CA	MONTEREY	Duke Energy Moss Landing	NG	6,440,119
ORMOND BEACH	CA	VENTURA	Reliant Energy Power Gen Inc - Coolwater	NG	2,248,643
Rocky Mountain Energ	CA	Weld	Rocky Mountain Energy Center	NG	2,095,895
South Point Energy C	CA	Mohave	Calpine South Point Power Plant	NG	2,909,039
Sunrise Power Compan	CA	Kern	Sunrise Power	NG	3,193,961
Sutter Energy Center	CA	Sutter	Calpine Corp-Sutter	NG	3,427,336
CHEROKEE	CO	ADAMS	Public Service Co of Colorado	BIT	4,966,908
COMANCHE	CO	PUEBLO	Public Service Co of Colorado	SUB	4,303,272
CRAIG	CO	MOFFAT	Tri-State G & T Assn Inc	SUB	9,381,931

FORT ST. VRAIN	CO	WELD	Public Service Co of Colorado	NG	3,703,887
Front Range Power Pl	CO	El Paso	Northern Star Generation	NG	2,558,196
HAYDEN	CO	ROUTT	Public Service Co of Colorado	BIT	3,495,078
PAWNEE	CO	MORGAN	Public Service Co of Colorado	SUB	3,519,284
RAWHIDE	CO	LARIMER	Platte River Power Authority	SUB	2,289,744
BRIDGEPORT ENERGY	CT	FAIRFIELD	Bridgeport Energy	NG	3,180,200
BRIDGEPORT HARBOR	CT	FAIRFIELD	Wisvest-Connecticut	SUB	2,727,698
Lake Road Generating	CT	Windam	Lake Road Generating Company	NG	2,203,616
Milford Power Projec	CT	New Haven	Milford Power	NG	2,119,423
INDIAN RIVER	DE	SUSSEX	Indian River Operations Inc.	BIT	3,227,891
ANCLOTE	FL	PASCO	Florida Power	RFO	4,487,885
Bay Side	FL	Hillsborough	Tampa Electric	NG	6,510,620
BIG BEND	FL	HILLSBOROUGH	Tampa Electric	BIT	9,092,935
C D MCINTOSH JR	FL	POLK	Lakeland (City of)	BIT/NG	3,583,390
CAPE CANAVERAL	FL	BREVARD	Florida Power & Light	RFO	2,618,365
CRIST	FL	ESCAMBIA	Gulf Power Company	BIT	5,458,242
CRYSTAL RIVER[ii]	FL	CITRUS	Florida Power & Light	BIT (*NUC*)	15,148,669
FORT MYERS	FL	LEE	Florida Power & Light	NG	9,921,994
Gila River Power Sta	FL	Maricopa	Panda Gila River	NG	6,889,823
HINES FACILITY	FL	POLK	Florida Power	NG	4,772,127
LANSING SMITH	FL	BAY	Gulf Power Company	BIT/NG	4,904,137
LAUDERDALE	FL	BROWARD	Florida Power & Light	NG	5,165,810
MANATEE	FL	MANATEE	Florida Power & Light	RFO	5,366,597
MARTIN	FL	MARTIN	Florida Power & Light	NG	13,122,508
NORTHSIDE	FL	DUVAL	JEA	PC/RFO	4,670,022
P L BARTOW	FL	PINELLAS	Florida Power & Light	RFO	2,182,710
Payne Creek Generati	FL	Hardee	Seminole Electric Coop Inc	NG	2,102,389
PORT EVERGLADES	FL	BROWARD	Florida Power & Light	RFO	4,360,440
RIVIERA	FL	PALM BEACH	Florida Power & Light	RFO	2,453,327
SANFORD	FL	VOLUSIA	Florida Power & Light	NG	13,697,430
SEMINOLE	FL	PUTNAM	Seminole Electric Coop Inc	PC	9,032,888
ST JOHNS RIVER POWER	FL	DUVAL	JEA	BIT/SC	9,159,324
STANTON ENERGY	FL	ORANGE	Orlando Utilities Commission	BIT	5,880,336
TURKEY POINT[iii]	FL	DADE	Florida Power & Light	RFO (*NUC*)	3,044,011
BOWEN	GA	BARTOW	Southern/Georgia Power	BIT	20,993,144
HAMMOND	GA	FLOYD	Southern/Georgia Power	BIT	3,854,404
HARLLEE BRANCH	GA	PUTNAM	Southern/Georgia Power	BIT	7,549,310
JACK MCDONOUGH	GA	COBB	Southern/Georgia Power	BIT	3,258,081
SCHERER	GA	MONROE	Southern/Georgia Power	SUB	23,261,025
Stanton A	GA	Orange	Southern Power	NG	2,771,212
WANSLEY	GA	HEARD	Southern/Georgia Power	BIT	12,332,814

YATES	GA	COWETA	Southern/Georgia Power	BIT	5,777,174
COUNCIL BLUFFS	IA	POTTAWATTAMIE	MidAmerican Energy Company	SUB	5,603,381
GEORGE NEAL NORTH	IA	WOODBURY	MidAmerican Energy Company	SUB	5,489,791
GEORGE NEAL SOUTH	IA	WOODBURY	MidAmerican Energy Company	SUB	4,608,267
LOUISA	IA	LOUISA	MidAmerican Energy Company	SUB	4,772,122
OTTUMWA	IA	WAPELLO	IES Utilities Inc	SUB	4,179,388
BALDWIN	IL	RANDOLPH	Dynegy Midwest Gen	SUB	13,168,092
COFFEEN	IL	MONTGOMERY	Ameren Energy Generating	BIT	5,808,515
CRAWFORD	IL	COOK	Midwest Gen	SUB	2,982,597
DUCK CREEK	IL	FULTON	Central Illinois Light	BIT	2,190,859
E D EDWARDS	IL	PEORIA	Central Illinois Light	BIT	4,253,921
HAVANA	IL	MASON	Dynegy Midwest Gen	BIT	2,046,401
HENNEPIN	IL	PUTNAM	Dynegy Midwest Gen	SUB	2,013,163
JOLIET 29	IL	WILL	Midwest Gen	SUB	5,973,880
JOPPA STEAM	IL	MASSAC	Electric Energy Inc	SUB	8,443,916
KINCAID	IL	CHRISTIAN	Kincaid Generation	SUB	7,508,665
NEWTON	IL	JASPER	Ameren Energy Generating	SUB	7,024,645
POWERTON	IL	TAZEWELL	Midwest Gen	SUB	8,898,231
WAUKEGAN	IL	LAKE	Midwest Gen	SUB	4,219,490
WILL COUNTY	IL	WILL	Midwest Gen	SUB	4,939,813
WOOD RIVER	IL	MADISON	Dynegy Midwest Gen	SUB	2,429,220
A B BROWN	IN	POSEY	Southern Indiana Gas & Elec Co	BIT	2,693,557
BAILLY	IN	PORTER	Northern Indiana PSC	SUB	3,099,025
CAYUGA	IN	VERMILLION	Cinergy/PSI	BIT	6,815,395
CLIFTY CREEK	IN	JEFFERSON	Indiana-Kentucky Electric Corp	SUB	8,285,533
ELMER W STOUT	IN	MARION	Indianapolis Power & Light	BIT	4,019,285
F B CULLEY	IN	WARRICK	Southern Indiana Gas & Elec Co	BIT	2,616,100
GIBSON	IN	GIBSON	Cinergy/PSI	BIT	21,340,496
MEROM	IN	SULLIVAN	Hoosier Energy R E C Inc	BIT	6,142,114
MICHIGAN CITY	IN	LA PORTE	Northern Indiana PSC	SUB	2,704,298
PETERSBURG	IN	PIKE	Indianapolis Power & Light	BIT	11,319,113
R GALLAGHER	IN	FLOYD	Cinergy/PSI	BIT	3,197,200
R M SCHAHFER	IN	JASPER	Northern Indiana PSC	BIT	9,350,916
ROCKPORT	IN	SPENCER	AEP/Indiana Michigan Power	SUB	17,034,011
STATE LINE	IN	LAKE	State Line Energy	SUB	2,933,561
TANNERS CREEK	IN	DEARBORN	AEP/Indiana Michigan Power	BIT	5,851,570
WABASH RIVER	IN	VIGO	Cinergy/PSI	BIT	4,964,237
WARRICK	IN	WARRICK	ALCOA	BIT	4,554,713
HOLCOMB	KS	FINNEY	Sunflower Elec Power	SUB	2,596,603
JEFFREY ENERGY CENTR	KS	POTTAWATOMIE	Westar Energy	SUB	13,807,267
LA CYGNE	KS	LINN	Kansas City Power & Light	SUB	10,263,435

LAWRENCE	KS	DOUGLAS	Westar Energy	SUB	3,650,489
BIG SANDY	KY	LAWRENCE	Kentucky Power	BIT	6,550,509
CANE RUN	KY	JEFFERSON	Louisville Gas & Electric	BIT	3,225,027
COLEMAN	KY	HANCOCK	Western Farmers Electric	SC	2,889,676
COOPER	KY	PULASKI	East Kentucky Power	BIT	2,275,198
D B WILSON	KY	OHIO	Western Farmers Electric	PC/SC	3,174,119
E W BROWN	KY	MERCER	Kentucky Power	BIT	3,819,783
EAST BEND	KY	BOONE	Cincinnati Gas & Electric	BIT	4,126,138
ELMER SMITH	KY	DAVIESS	Owensboro Municipal Utilities	BIT	2,482,038
GHENT	KY	CARROLL	Kentucky Power	BIT	12,066,794
H L SPURLOCK	KY	MASON	East Kentucky Power	BIT	4,920,101
MILL CREEK	KY	JEFFERSON	Louisville Gas & Electric	BIT	9,587,102
PARADISE	KY	MUHLENBERG	Tennessee Valley Authority	BIT	14,119,719
R D GREEN	KY	WEBSTER	Western Farmers Electric	SC/PC	3,496,573
SHAWNEE	KY	MCCRACKEN	Tennessee Valley Authority	BIT	9,132,574
TRIMBLE COUNTY	KY	TRIMBLE	Louisville Gas & Electric	BIT	4,357,777
Acadia Power Station	LA	Acadia	Acadia Power Partners	NG	2,357,574
BIG CAJUN 2	LA	POINTE COUPEE	Louisiana Generating	SUB	12,303,810
DOLET HILLS	LA	DE SOTO	Central Louisiana Electric	LIG	4,719,309
MICHOUD	LA	ORLEANS	New Orleans Public Service Inc	NG	2,137,958
NINEMILE POINT	LA	JEFFERSON	Louisiana Power & Light	NG	5,029,749
R S NELSON	LA	CALCASIEU	Gulf States Utilities	SUB/PC/NG	6,753,922
RODEMACHER	LA	RAPIDES	Central Louisiana Electric	SUB	3,591,575
Taft Cogeneration Fa	LA	St Charles	Occidental Chemical	NG	4,302,094
BRAYTON POINT	MA	BRISTOL	U S Gen New England	BIT	7,135,263
CANAL	MA	BARNSTABLE	Mirant Canal	RFO	5,449,628
Cottonwood Energy Pr	MA	Newton	Cottonwood Energy	NG	2,346,513
MYSTIC	MA	MIDDLESEX	Boston Generating	NG	9,014,336
SALEM HARBOR	MA	ESSEX	U S Gen New England	BIT	2,118,786
BRANDON SHORES	MD	ANNE ARUNDEL	Constellation Power Source Generation	BIT	8,445,693
CHALK POINT[iv]	MD	PRINCE GEORGES	Mirant	BIT	6,164,395
DICKERSON	MD	MONTGOMERY	Mirant	BIT	3,260,199
HERBERT A WAGNER	MD	ANNE ARUNDEL	Constellation Power Source Generation	BIT/RFO	3,378,878
MORGANTOWN	MD	CHARLES	Mirant	SC	6,629,205
MAINE INDEPENDENCE S	ME	CUMBERLAND	Casco Bay Energy Company	NG	2,740,089
Westbrook Energy Cen	ME	Cumberland	Westbrook Energy Center	NG	3,430,642
B C COBB	MI	MUSKEGON	Consumers Energy	SUB	2,092,084
BELLE RIVER	MI	ST CLAIR	Detroit Edison	SUB	9,197,163
DAN E KARN	MI	BAY	Consumers Energy	SUB	3,596,058
J H CAMPBELL	MI	OTTAWA	Consumers Energy	SUB/BIT	9,379,614

J R WHITING	MI	MONROE	Consumers Energy	SUB	2,458,089
MONROE	MI	MONROE	Detroit Edison	BIT	16,620,027
PRESQUE ISLE	MI	MARQUETTE	Wisconsin Electric Power	BIT/SUB	3,256,808
RIVER ROUGE	MI	WAYNE	Detroit Edison	BIT	3,346,520
ST CLAIR	MI	ST CLAIR	Detroit Edison	BIT	7,387,062
TRENTON CHANNEL	MI	WAYNE	Detroit Edison	BIT	4,324,351
ALLEN S KING	MN	WASHINGTON	Northern States Power	SUB	3,085,969
BLACK DOG	MN	DAKOTA	Northern States Power	SUB	2,077,342
CLAY BOSWELL	MN	ITASCA	ALLETE	SUB	6,334,400
RIVERSIDE	MN	HENNEPIN	Northern States Power	SUB	2,137,092
SHERBURNE COUNTY	MN	SHERBURNE	Northern States Power	SUB	15,555,955
HAWTHORN	MO	JACKSON	Kansas City Power & Light	SUB	4,093,407
IATAN	MO	PLATTE	Kansas City Power & Light	SUB	5,063,503
LABADIE	MO	FRANKLIN	Ameren-UE	SUB	17,932,911
MERAMEC	MO	ST LOUIS	Ameren-UE	SUB	5,536,197
MONTROSE	MO	HENRY	Kansas City Power & Light	SUB	3,099,781
NEW MADRID	MO	NEW MADRID	Associated Electric Coop	SUB	7,668,430
RUSH ISLAND	MO	JEFFERSON	Ameren-UE	SUB	7,492,021
SIBLEY	MO	JACKSON	Aquila, Inc	SUB	2,905,849
SIOUX	MO	ST CHARLES	Ameren-UE	SUB	6,226,046
THOMAS HILL	MO	RANDOLPH	Associated Electric Coop	SUB	7,558,609
GERALD ANDRUS	MS	WASHINGTON	Mississippi Power & Light	RFO	2,193,343
JACK WATSON	MS	HARRISON	Mississippi Power	BIT	4,701,525
R D MORROW	MS	LAMAR	South Mississippi El Pwr Assn	BIT	2,538,048
RED HILLS GENERATION	MS	CHOCTAW	Choctaw Generating	LIG	3,204,601
VICTOR J DANIEL JR	MS	JACKSON	Mississippi Power	BIT/NG	10,446,569
COLSTRIP	MT	ROSEBUD	PP&L Montana LLC	SUB	15,571,332
ASHEVILLE	NC	BUNCOMBE	Progress Energy Carolinas	BIT	2,217,694
BELEWS CREEK	NC	STOKES	Duke Power	BIT	14,920,991
CLIFFSIDE	NC	CLEVELAND	Duke Power	BIT	3,464,342
G G ALLEN	NC	GASTON	Duke Power	BIT	6,268,120
Green Country Energy	NC	Tulsa	Green Country Op Services	NG	2,323,460
L V SUTTON	NC	NEW HANOVER	Progress Energy Carolinas	BIT	2,679,282
MARSHALL	NC	CATAWBA	Duke Power	BIT	14,988,823
MAYO	NC	PERSON	Progress Energy Carolinas, Inc.	BIT	4,837,998
ROXBORO	NC	PERSON	Progress Energy Carolinas	BIT	14,924,017
ANTELOPE VALLEY	ND	MERCER	Basin Electric Power Coop	LIG	6,486,681
COAL CREEK	ND	MCLEAN	Coop Power Assn	LIG	8,475,101
COYOTE	ND	MERCER	Otter Tail Power Co	LIG	3,180,023
LELAND OLDS	ND	MERCER	Basin Electric Power	LIG	4,430,459
MILTON R YOUNG	ND	OLIVER	Minnkota Power	LIG	4,782,502

GERALD GENTLEMAN STA	NE	LINCOLN	Nebraska Public Power District	SUB	9,324,650
NEBRASKA CITY	NE	OTOE	Omaha Public Power District	SUB	4,486,887
NORTH OMAHA	NE	DOUGLAS	Omaha Public Power District	SUB	3,562,902
Granite Ridge Energy	NH	Rockingham	AES Granite Ridge	NG	2,750,187
MERRIMACK	NH	MERRIMACK	Public Serv Co of New Hamp	BIT	3,127,790
Newington Power Faci	NH	Lincoln	Con Edison Energy	NG	2,541,900
BERGEN	NJ	BERGEN	PSEG Fossil LLC	NG	4,472,027
HUDSON	NJ	HUDSON	PSEG Fossil LLC	BIT	3,071,765
Linden Cogeneration	NJ	Union	Cogen Technologies	NG	5,262,331
MERCER	NJ	MERCER	PSEG Fossil LLC	BIT	2,486,960
FOUR CORNERS	NM	SAN JUAN	Arizona PSC	SUB	14,987,221
SAN JUAN	NM	SAN JUAN	Public Serv Co Of New Mexico	SUB	12,524,018
CLARK	NV	CLARK	Nevada Power	NG	2,411,024
MOHAVE	NV	CLARK	Southern California Edison Co	SUB	10,194,382
NORTH VALMY	NV	HUMBOLDT	Sierra Pacific Power Company	BIT	4,021,890
REID GARDNER	NV	CLARK	Nevada Power	BIT	4,071,644
ASTORIA	NY	QUEENS	Orion Power New York - NY	NG/RFO	3,633,684
Athens Generating Co	NY	Greene	Athens Generating Company	NG	2,198,536
C R HUNTLEY	NY	ERIE	NRG Huntley Operations	BIT	3,140,723
CHARLES POLETTI	NY	QUEENS	Power Authority of State of NY	NG/RFO	2,084,054
DANSKAMMER	NY	ORANGE	Dynegy Northeast Gen	BIT	2,185,177
DUNKIRK	NY	CHAUTAUQUA	NRG Dunkirk Power	BIT	3,577,856
KINTIGH	NY	NIAGARA	AES Somerset	BIT	5,642,606
MILLIKEN	NY	TOMPKINS	AES Cayuga	BIT	2,039,485
NORTHPORT	NY	SUFFOLK	Keyspan Energy	RFO	6,684,594
RAVENSWOOD	NY	QUEENS	KeySpan-Ravenswood	RFO	4,790,744
ROSETON	NY	ORANGE	Dynegy Northeast Gen	RFO	3,771,000
AVON LAKE	OH	LORAIN	Orion Power Holdings, Inc	BIT	2,739,217
BAY SHORE	OH	LUCAS	Toledo Edison Co	SUB	3,434,187
CARDINAL	OH	JEFFERSON	AEP/Buckeye	BIT	10,794,107
CONESVILLE	OH	COSHOCTON	AEP; Cinergy; DP&L	BIT	9,022,674
EASTLAKE	OH	LAKE	FirstEnergy	SUB	6,302,019
GEN J M GAVIN	OH	GALLIA	Ohio Power	BIT	18,624,600
J M STUART	OH	ADAMS	Dayton Power & Light	BIT/SC	14,685,596
KILLEN STATION	OH	ADAMS	Dayton Power & Light	BIT	4,320,410
KYGER CREEK	OH	GALLIA	Ohio Valley Electric Corp	BIT	7,525,067
MIAMI FORT	OH	HAMILTON	Cinergy/CG&E	BIT	7,614,546
MUSKINGUM RIVER	OH	MORGAN	AEP/Ohio Power	BIT	7,959,231
W H SAMMIS	OH	JEFFERSON	FirstEnergy/Ohio Edison	BIT	13,663,811
W H ZIMMER	OH	CLERMONT	Cincinnati Gas & Electric	BIT	9,229,447
WALTER C BECKJORD	OH	CLERMONT	Cinergy/CG&E	BIT	6,073,757

GRDA	OK	MAYES	Grand River Dam Authority	SUB	6,445,146
HUGO	OK	CHOCTAW	Western Farmers Electric	SUB	2,942,014
McClain Energy Facil	OK	McClain	Oklahoma Gas & Electric	NG	2,444,840
MUSKOGEE	OK	MUSKOGEE	Oklahoma Gas & Electric	SUB	9,368,966
NORTHEASTERN	OK	ROGERS	Public Service Co of Oklahoma	SUB	8,143,694
SEMINOLE	OK	SEMINOLE	Oklahoma Gas & Electric	NG	3,554,689
SOONER	OK	NOBLE	Oklahoma Gas & Electric	SUB	6,509,452
Tenaska Kiamichi Gen	OK	Pittsburg	Kiowa Power Partners	NG	3,506,544
BOARDMAN	OR	MORROW	Portland General Electric Co	SUB	3,542,361
HERMISTON	OR	UMATILLA	Hermiston Generating Co	NG	3,686,280
Hermiston Power Plan	OR	Umatilla	Hermiston Power Partnership	NG	3,986,389
Klamath Cogeneration	OR	Klamath	Pacific Klamath Energy	NG	2,112,446
ARMSTRONG	PA	ARMSTRONG	Allegheny Energy Supply	BIT	2,063,114
BRUCE MANSFIELD	PA	BEAVER	Pennsylvania Power Co	BIT	18,424,413
BRUNNER ISLAND	PA	YORK	PPL Corporation	BIT/SC	10,421,732
CHESWICK	PA	ALLEGHENY	Orion Power Holdings, Inc	BIT	3,174,840
CONEMAUGH	PA	INDIANA	Reliant Energy Mid-Atlantic Power Holdin	BIT	13,024,337
EDDYSTONE	PA	DELAWARE	Exelon Generation	BIT	3,205,701
HATFIELD'S FERRY	PA	GREENE	Allegheny Energy Supply	BIT	8,434,098
HOMER CITY	PA	INDIANA	Midwest Gen	BIT	13,250,014
KEYSTONE	PA	ARMSTRONG	Reliant Energy Mid-Atlantic Power Holdin	BIT	12,287,691
MARTINS CREEK	PA	NORTHAMPTON	PPL Corporation	RFO/BIT	2,982,565
MONTOUR	PA	MONTOUR	PPL Corporation	BIT/SC	9,843,261
PORTLAND	PA	NORTHAMPTON	Reliant Energy Mid-Atlantic Power Holdin	BUT	2,180,767
R S Cogen	PA	Calcaslew	RS Cogen	NG	3,039,435
SHAWVILLE	PA	CLEARFIELD	Reliant Energy Mid-Atlantic Power Holdin	BIT	3,105,814
CANADYS STEAM	SC	COLLETON	South Carolina Elec & Gas Co	BIT	2,746,314
COPE STATION	SC	ORANGEBURG	South Carolina Elec & Gas	BIT	3,339,272
CROSS	SC	BERKELEY	South Carolina Pub Serv Auth	BIT/SC	8,618,033
WATEREE	SC	RICHLAND	South Carolina Elec & Gas Co	BIT	5,084,386
WILLIAMS	SC	BERKELEY	South Carolina Elec & Gas Co	BIT	3,597,057
WINYAH	SC	GEORGETOWN	South Carolina Pub Serv Auth	BIT	7,690,056
BIG STONE	SD	GRANT	Otter Tail Power Co	SUB	3,477,704
ALLEN	TN	SHELBY	Tennessee Valley Authority	SUB	4,834,503
BULL RUN	TN	ANDERSON	Tennessee Valley Authority	BIT	4,877,075
CUMBERLAND	TN	STEWART	Tennessee Valley Authority	BIT	18,417,062
GALLATIN	TN	SUMNER	Tennessee Valley Authority	SUB	7,174,985
JOHN SEVIER	TN	HAWKINS	Tennessee Valley Authority	BIT	4,969,293
JOHNSONVILLE	TN	HUMPHREYS	Tennessee Valley Authority	BIT	7,473,011
KINGSTON	TN	ROANE	Tennessee Valley Authority	BIT	9,049,917

BIG BROWN	TX	FREESTONE	TXU Generation	LIG/SUB	8,301,841
Brazos Valley Energy	TX	Fort Bend	Brazos Valley Energy	NG	2,408,457
CEDAR BAYOU	TX	CHAMBERS	Texas Genco II	NG	3,287,639
Channel Energy Cente	TX	Harris	Calpine Channel Energy	NG	3,212,099
Cogen Lyondell, Inc.	TX	Harris	CoGen Funding	NG	3,025,394
COLETO CREEK	TX	GOLIAD	AEP/Texas Central Company	SUB	2,225,245
Corpus Christi Energ	TX	Nueces	Calpine/Corpus Christi Cogeneration	NG	2,223,813
Deer Park Energy Cen	TX	Harris	Deer Park Energy Center	NG	4,635,408
Eastman Cogeneration	TX	Harrison	Eastman Cogeneration	NG	2,032,846
El Dorado Energy	TX	Clark	El Dorado Energy	NG	3,002,201
Forney Power Plant	TX	Kaufman	FPLE Forney	NG	6,680,436
Freestone Power Gene	TX	Freestone	Freestone Power Generator	NG	4,420,559
GIBBONS CREEK	TX	GRIMES	Texas Municipal Power Agency	SUB	3,186,786
Gregory Power Facili	TX	San Patricio	Gregory Power Partners	NG	2,793,070
Guadalupe Generating	TX	Guadalupe	Guadalupe Power Partners	NG	4,321,405
HARRINGTON STATION	TX	POTTER	Southwestern Public Service	SUB	8,272,225
J K SPRUCE	TX	BEXAR	San Antonio (City of)	SUB	4,866,283
J T DEELY	TX	BEXAR	San Antonio (City of)	SUB	5,921,615
JONES STATION	TX	LUBBOCK	Southwestern Public Service	NG	2,216,131
Lamar Power (Paris)	TX	Lamar	Lamar Power Partners	NG	3,632,823
LIMESTONE	TX	LIMESTONE	Reliant/Texas Genco II	LIG/SUB	13,016,528
Lost Pines 1	TX	Bastrop	Lower Colorado River Authority	NG	3,256,672
Magic Valley Generat	TX	Hidalgo	Calpine Magic Valley	NG	2,713,222
MARTIN LAKE	TX	RUSK	TXU Generation	LIG	17,238,652
Midlothian Energy	TX	Ellis	ANP Oper	NG	3,611,379
MONTICELLO	TX	TITUS	TXU Generation	LIG	14,048,345
MUSTANG STATION	TX	YOAKUM	Denver City Energy Assoc LP	NG	3,116,836
Odessa-Ector Generat	TX	Ector	Texas Independent Energy	NG	4,842,629
OKLAUNION	TX	WILBARGER	Public Service Co of Oklahoma	BIT/PC	4,681,563
PASADENA POWER PLANT	TX	HARRIS	Pasadena Cogeneration LP	NG	3,714,064
PIRKEY	TX	HARRISON	Southwestern Electric Power	LIG	5,117,188
REI Bighorn	TX	Clark	Reliant Energy Bighorn	NG	2,337,158
Reliant Energy Chann	TX	Harris	Reliant Energy Power Gen	NG	5,280,905
SABINE	TX	ORANGE	Gulf States Utilities	NG	5,026,161
SAM SEYMOUR	TX	FAYETTE	Lower Colorado River Authority	SUB	11,397,177
SAN MIGUEL	TX	ATASCOSA	San Miguel Electric Coop Inc	LIG	2,648,725
SANDOW	TX	MILAM	TXU Generation	LIG	4,527,603
South Houston Green	TX	Galveston	South Houston Green Power	NG	3,246,398
SRW Cogen Limited Pa	TX	Orange	SRW Cogeneration	NG	2,847,904
SWEENY COGENERATION	TX	BRAZORIA	Sweeny Cogeneration	NG	3,287,195
Tenaska Frontier Gen	TX	Grimes	Tenaska Frontier Partners	NG	4,165,225

Tenaska Gateway Gene	TX	Rusk	ka Gateway Partners	NG	3,822,987
TNP ONE	TX	ROBERTSON	Twin Oaks Power	LIG	2,342,321
TOLK STATION	TX	LAMB	Southwestern Public Service	SUB	7,485,269
W A PARISH	TX	FORT BEND	Reliant/Texas Genco II	SUB	19,144,166
WELSH	TX	TITUS	Southwestern Electric Power	SUB	10,394,591
BONANZA	UT	UINTAH	Deseret Gen & Trans	BIT	3,737,546
HUNTER (EMERY)	UT	EMERY	PacifiCorp	BIT	9,967,970
HUNTINGTON	UT	EMERY	PacifiCorp	BIT	6,388,640
INTERMOUNTAIN	UT	MILLARD	Los Angeles (City of)	BIT	14,435,278
CHESAPEAKE	VA	CHESAPEAKE	Virginia Electric & Power	BIT	4,116,289
CHESTERFIELD	VA	CHESTERFIELD	Virginia Electric & Power	BIT	8,283,292
CLINCH RIVER	VA	RUSSELL	AEP/Appalachian Power	BIT	3,935,584
CLOVER	VA	HALIFAX	Virginia Electric & Power	BIT	6,685,138
POSSUM POINT	VA	PRINCE WILLIAM	Virginia Electric & Power	NG	3,455,293
POTOMAC RIVER	VA	ALEXANDRIA	Mirant Energy Potomac River	BIT	2,088,321
YORKTOWN	VA	YORK	Virginia Electric & Power	RFO/BIT	5,363,454
CENTRALIA	WA	LEWIS	Transalta Centralia Generation	NG	10,642,806
Chehalis Generation	WA	Lincoln	Chehalis Power Generating	NG	2,688,614
COLUMBIA	WI	COLUMBIA	Alliant Energy Corporation	SUB	7,110,046
EDGEWATER	WI	SHEBOYGAN	Alliant Energy Corporation	SUB	4,759,708
JOHN P MADGETT	WI	BUFFALO	Dairyland Power Coop	SUB	2,075,613
PLEASANT PRAIRIE	WI	KENOSHA	Wisconsin Electric Power	SUB	8,250,715
PULLIAM	WI	BROWN	Wisconsin Public Service	SUB	2,473,405
SOUTH OAK CREEK	WI	MILWAUKEE	Wisconsin Electric Power	SUB	6,726,990
WESTON	WI	MARATHON	Wisconsin Public Service	SUB	3,461,247
FORT MARTIN	WV	MONONGALIA	Allegheny Energy Supply	BIT	7,669,503
HARRISON	WV	HARRISON	Allegheny Energy Supply	BIT	13,584,254
JOHN E AMOS	WV	PUTNAM	AEP/Appalachian Power	BIT	16,379,771
KAMMER	WV	MARSHALL	AEP/Ohio Power	BIT	3,510,512
MITCHELL	WV	MARSHALL	AEP/Ohio Power	BIT	9,100,750
MOUNTAINEER (1301)	WV	MASON	AEP/Appalachian Power	BIT	8,267,917
MT STORM	WV	GRANT	Virginia Electric & Power	BIT	11,631,825
PHIL SPORN	WV	MASON	Central Operating Company	BIT	5,660,799
PLEASANTS	WV	PLEASANTS	Allegheny Energy Supply	BIT	6,042,881
DAVE JOHNSTON	WY	CONVERSE	PacifiCorp	SUB	5,824,643
JIM BRIDGER	WY	SWEETWATER	PacifiCorp	SUB	14,771,166
LARAMIE RIVER	WY	PLATTE	Basin Electric Power Coop	SUB	12,830,340
NAUGHTON	WY	LINCOLN	PacifiCorp	SUB	5,245,831
WYODAK	WY	CAMPBELL	PacifiCorp	SUB	2,685,120
Total					**2,199,040,940 MWh**

[i] Coal and coal-based fuels include bituminous (BIT), lignite (LIG), Subbituminous (SUB), waste and other (WC), coal-based synthetic fuel (SC); Petroleum products include distillate fuel oil (DFO), petroleum coke (PC), and residual fuel oil (RFO); Natural gas = NG; nuclear = NUC.

[ii] Includes net generation from coal only; does not include nuclear electric generation.

[iii] Includes net generation from coal only; does not include nuclear electric generation.

[iv] 2003 data used for Chalk Point because 2004 data omits coal-based generation.