United States
Environmental Protection
Agency

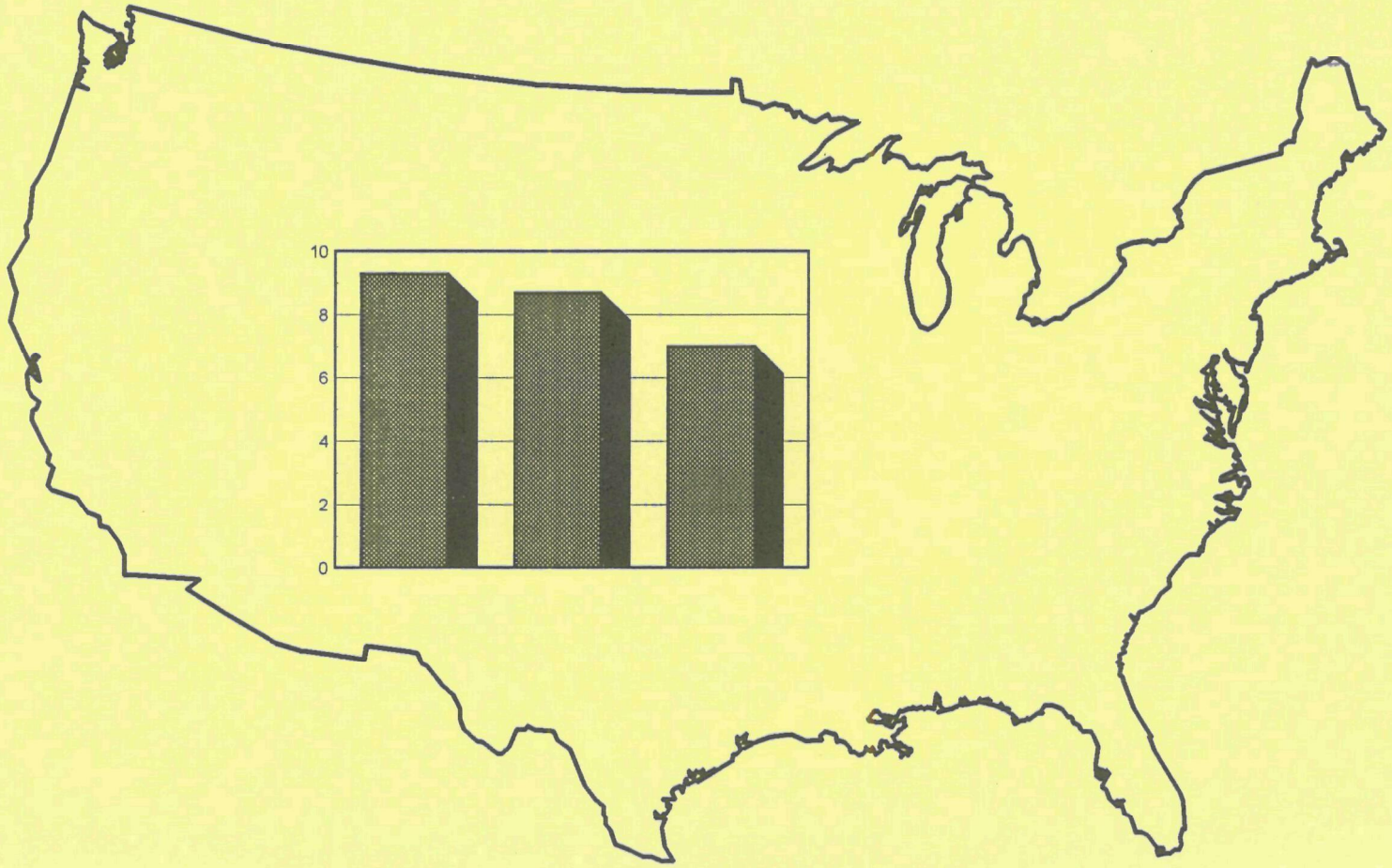
Air and Radiation
Acid Rain Division (6204J)
Washington, D.C. 20460

EPA 430/R-95-012
December 1995
Revised

EPA

Acid Rain Program Emissions Scorecard 1994

SO2 , NOx, Heat Input, and CO2 Emission Trends in the Electric Utility Industry



Acid Rain Program

Emissions Scorecard 1994

1994 was Spring training for the Acid Rain Program, the country's first nationwide program to use market-based incentives and a team approach to achieve environmental objectives. This "Emissions Scorecard" presents the emissions data collected in the start-up year of the program.

A New "Ball Game" in Emissions Monitoring

Established by Title IV of the Clean Air Act Amendments of 1990, the goal of the Acid Rain Program is to achieve significant environmental and public health benefits through reductions in electric utility emissions of sulfur dioxide (SO_2) and nitrogen oxides (NO_x). The Clean Air Act requires annual SO_2 emissions to be brought 10 million tons below their 1980 level by year 2010. The Act also calls for significant reductions of NO_x emissions by year 2000.

Among the innovative features of this program are its great flexibility and its heavy reliance on economic incentives, not government proscription. Units affected by the program are free to choose how they meet their emission limits. For example, compliance options might include switching to cleaner fuels, installing pollution controls, or reducing user demand for electricity.

In addition, under the Acid Rain Program, units that reduce their SO_2 emissions below their specified limit can sell their unused "allowances" on the open market. Each allowance represents an authorization to emit one ton of SO_2. Other units can buy these allowances and apply them to meeting their current or future emissions requirements.

For the market in allowances to work, buyers and sellers must be assured that each allowance represents exactly 1 ton

of SO_2, neither more nor less. This assurance can only be obtained from an accurate, 100% accounting of emissions. With this in mind, the Clean Air Act required units covered under the Acid Rain Program to perform emission measurements using Continuous Emission Monitoring Systems (CEMS), the proven industry standard for measuring SO_2, NO_x, and CO_2. In 1994, the first 263 utility units covered under the Acid Rain Program were required to install CEMS, pass a series of performance tests designed to demonstrate the accuracy of the instruments, and submit a year's worth of emissions data. However, unlike future years when the CEMS measurements will be tallied against allowances at the end of the year, 1994 represented a start-up year when problems could be diagnosed and corrected without impacting the operation of the allowance market.

In effect, the Clean Air Act gave the regulated community and EPA a year to get into shape before official "play" began in 1995.

Rules of the Game

In order to ensure uniformity in data submissions and facilitate efficient review, the Acid Rain Program relies on electronic reporting of emissions data. EPA set forth specifications for data submissions in the Acid Rain Regulations (40 CFR §75.62-64) and in a related guidance document *Electronic Data Reporting*, updated periodically. In essence, the specifications require data to be submitted in certain pre-defined record structures and electronic file formats. In 1994, emissions data were submitted by regulated utilities to EPA via floppy computer diskettes. In April 1995 selected utilities and EPA began testing direct electronic transmission of data via modem dial-up to EPA's computer. In the future, this is expected to become the common method of submission.

Data received by EPA was recorded in the Emission Tracking System (ETS), an electronic database designed specifically for managing data related to atmospheric emissions from utilities. ETS performs a series of quality control checks on the data. This is accomplished through error checking software which analyzes data records for internal inconsistencies, omissions, and other data errors. Once any defects in the data are identified, a report explaining the deficiencies is printed and sent to the designated

representative of the affected unit.

Before being incorporated into ETS, the error checking software was field tested on real data at several utilities. After completion of field testing, revised copies of the tested software were made available to the entire regulated community for use in debugging their own on-site data acquisition and handling systems. This approach was designed to prevent errors where possible and facilitate their correction when necessary.

The Lineups

Underlying the Acid Rain Program is the concept that environmental objectives can be achieved at least cost and least burden, if industry, EPA, and regional, state, and local environmental agencies work together as a team. In 1994 the industry "players" consisted of the companies that operate the 263 utility units in 21 states. These are known as Table 1 affected utilities. (The name derives from a table of affected units found in the Acid Rain Regulations.) In 1995, the operators of more than 2,000 additional units will join the Acid Rain Program team.

The government "players" on the team included Acid Rain Division staff at EPA Headquarters in Washington, regional EPA personnel, and representatives of state and local environmental agencies. Their goal was to provide maximum start-up assistance to industry to facilitate compliance and reduce the need for enforcement actions.

Team "warm-up" activities included

- conducting a series of technical conferences on monitoring requirements and the Emission Tracking System,
- actively participating in industry sponsored conferences to respond to questions and stay in touch with the realities faced by industry,
- developing and disseminating error checking software,
- establishing an electronic bulletin board for timely response to policy questions,
- working one-on-one with every affected unit to certify monitors and debug quarterly emission data submissions, and
- issuing certificates for every emissions monitor that passed its initial certification tests.

The Scorecard

Conscientious effort by industry and government team players is paying off.

Milestones Achieved: Nearly all Phase I units began monitoring emissions as required by November 15, 1993 and submitted CEM certification test results by the December 15, 1993 deadline. As required, EPA reached determinations on all complete CEM certification test submissions within 120 days and on all Table 1 units by November 1994. A combination of conscientious industry effort, support from EPA, and incentives for superior monitor performance produced unprecedented certification test results.

Data Quality: Having an opportunity to identify and correct data quality problems proved extremely valuable both for industry and EPA. Thus, while not completely free of errors, the 1994 emissions data were sufficiently robust to derive supportable end-of-year emission values for each reporting unit. In a few instances, data reporting problems necessitated using estimated values in place of fully monitored values. Most important, however, the 1994 emission data provides a credible basis for detecting and correcting errors before "official" play begins in 1995.

Emission Results: National and state-level trends in SO_2 and NO_x emissions and heat input are depicted in the graphics on the following pages. CO_2 emissions in 1994 are also presented.

For SO_2 the market approach appears to be resulting in significant early reductions in SO_2 emissions from Table 1 units. Nationally, for these units SO_2 emissions dropped from an estimated 9.4 million tons in the 1980 baseline year to 7.4 million tons in 1994. Interestingly, this is nearly down to the allowance target level for Table 1 units in 1995. Early reductions of SO_2 may be attributable to early implementation of emission controls and fuel switching that will be used to meet the 1995 SO_2 emission limits. The national trend appears to be repeated at the state level with practically every state seeing a proportionate reduction in 1994 SO_2 emissions from earlier baseline levels.

In contrast, the nationwide 1994 NO_x emissions for Table 1 units appear to be holding relatively steady at earlier baseline levels, ranging from 1.9 - 2.0 million tons between 1985 and 1994. A failure to see reductions in NO_x emissions may be attributable to the lag in promulgating final regulations governing NO_x emissions, the absence of an allowance market for NO_x reductions, and

the hesitancy of industry to invest in NO_x controls until regulatory uncertainties are resolved. In keeping with the relative steadiness of NO_x emissions at the national level, no consistent pattern of reductions or increases can be found in state-level NO_x emissions.

Heat input, an indicator of the magnitude in electric generation, suggests modest growth between 1990 and 1994.

In interpreting all of the trends data, it must be kept in mind that the 1994 results represent measured values derived from continuous emission monitoring systems, whereas the earlier results represent estimates derived from fuel analysis (SO_2) and emission factors (NO_x). Relatively modest changes in data values, like those shown for NO_x and heat input, may be attributable to the different basis of measurement not to actual changes in emissions. In contrast, changes like those shown in SO_2 emissions are too substantial to simply be attributable to the different basis of measurement.

There are no trends data for CO_2. The Clean Air Act Amendment's mandate to collect CO_2 data is designed to provide baseline data for future use. Nationally, CO_2 emissions from Table 1 units totaled approximately 465 million tons in 1994. The accompanying graphics depict the state distribution of CO_2 emissions.

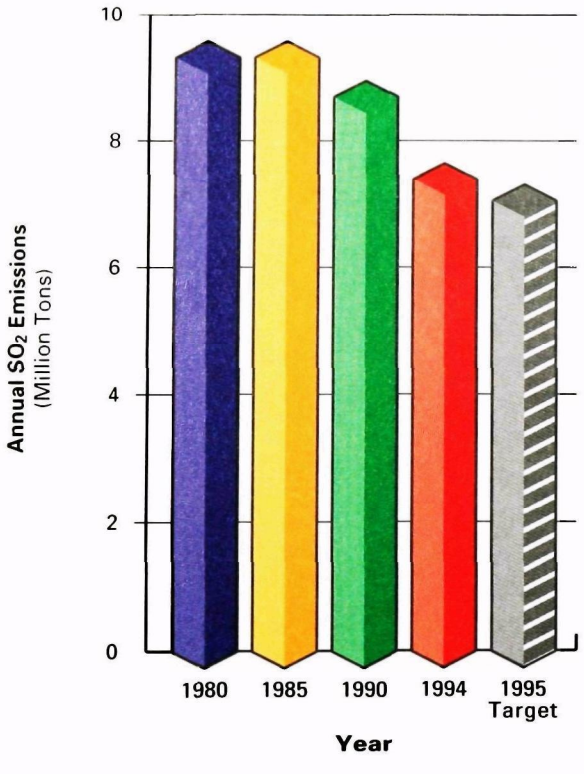
Individual "Stats"

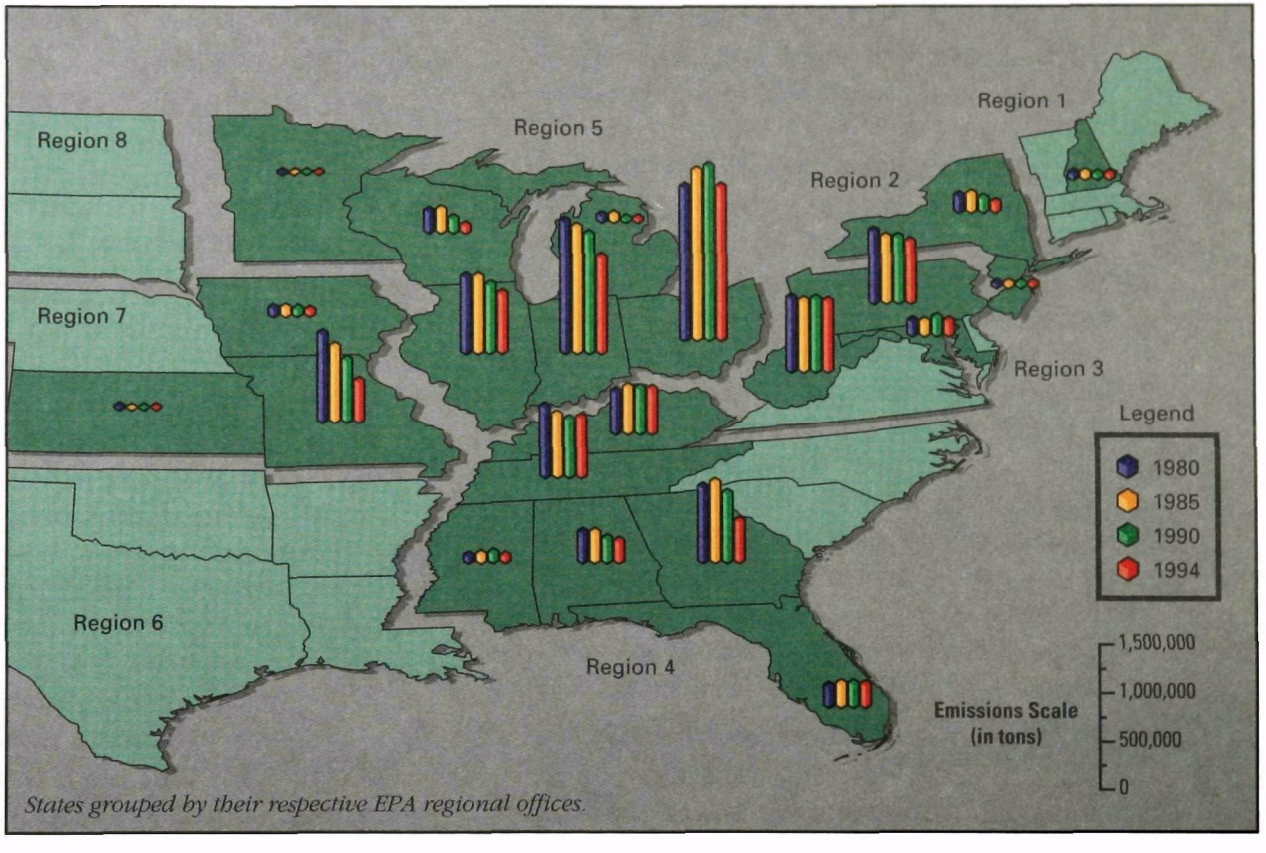
This "Emissions Scorecard" concludes with a table of SO_2, NO_x, CO_2, and heat input data for the complete roster of Table 1 industry "players." These data, along with the text and graphics in this report, are available electronically on the Internet at the Acid Rain Program's World Wide Web site:

http://www.epa.gov/docs/acidrain/ardhome.html.

Sulfur Dioxide Emissions

National Trend





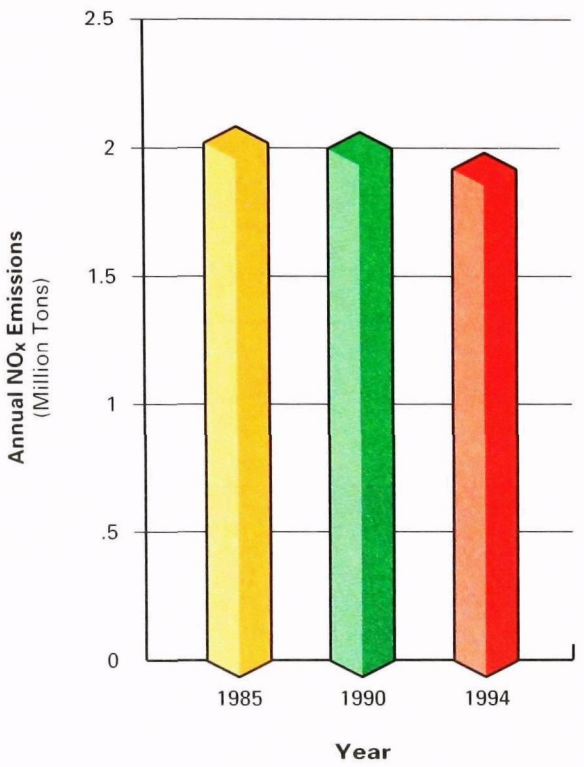
State Totals

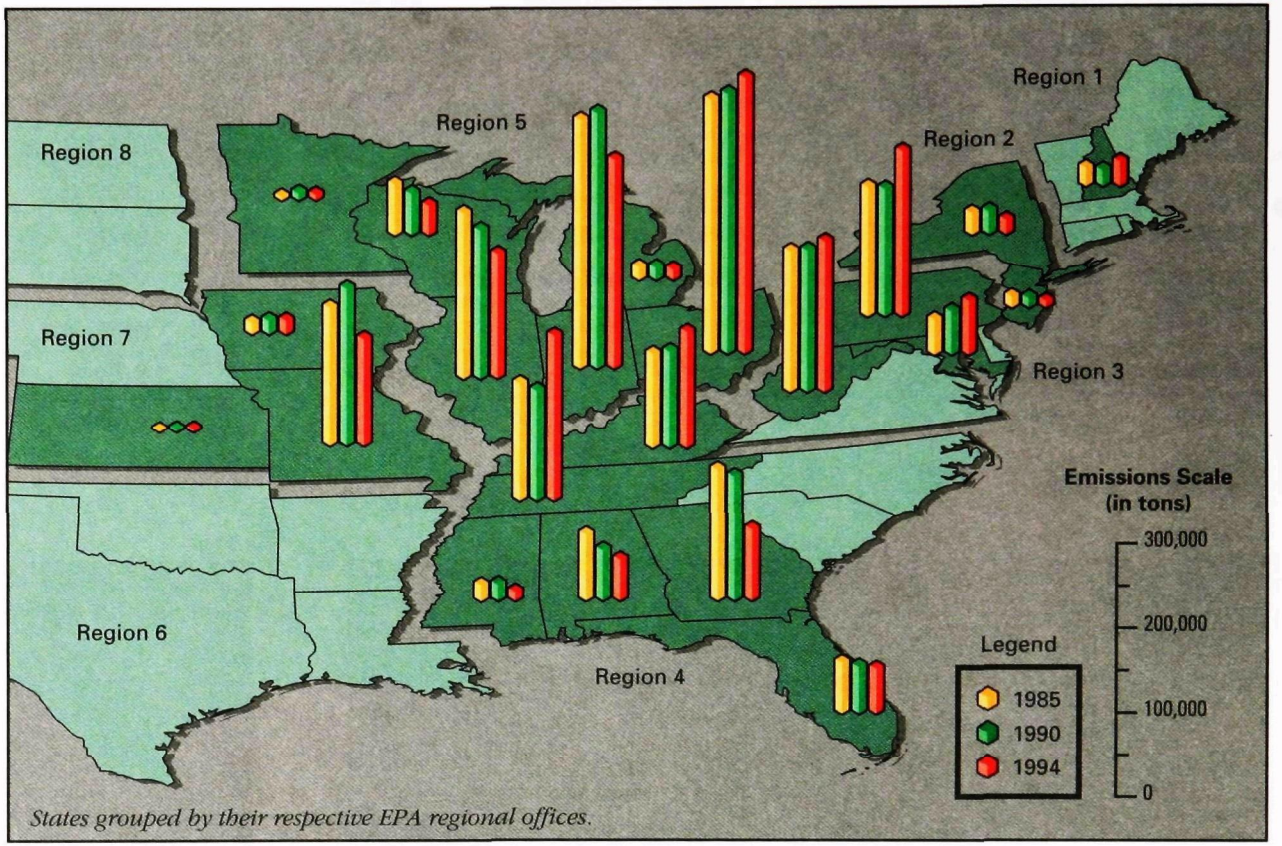
	SO_2 in tons			
	1980	1985	1990	1994
Alabama	301,150	300,428	236,699	209,243
Florida	200,652	226,292	226,480	217,624
Georgia	767,443	814,718	702,947	416,615
Illinois	782,948	782,373	697,897	603,864
Indiana	1,365,626	1,304,436	1,226,609	991,618
Iowa	72,117	75,183	60,303	46,838
Kansas	16,430	3,255	3,768	6,782
Kentucky	429,846	472,229	461,973	455,501
Maryland	142,060	134,495	176,901	143,144
Michigan	52,790	60,530	22,784	23,014
Minnesota	8,320	2,176	1,547	995
Mississippi	59,470	72,619	87,138	53,948
Missouri	904,920	772,673	632,926	411,438
New Hampshire	53,500	54,238	40,175	42,375
New Jersey	33,840	34,122	31,517	33,393
New York	159,098	174,061	129,733	89,004
Ohio	1,587,833	1,752,637	1,802,003	1,612,201
Pennsylvania	747,050	676,092	675,537	630,579
Tennessee	722,320	638,221	590,351	608,370
West Virginia	753,060	724,434	741,133	720,094
Wisconsin	210,160	226,773	134,809	62,664
National Totals	**9,370,633**	**9,301,985**	**8,683,230**	**7,379,304**

Note: 1994 emission values obtained from Continuous Emission Monitoring Systems (CEMS).

Nitrogen Oxides Emissions

National Trend



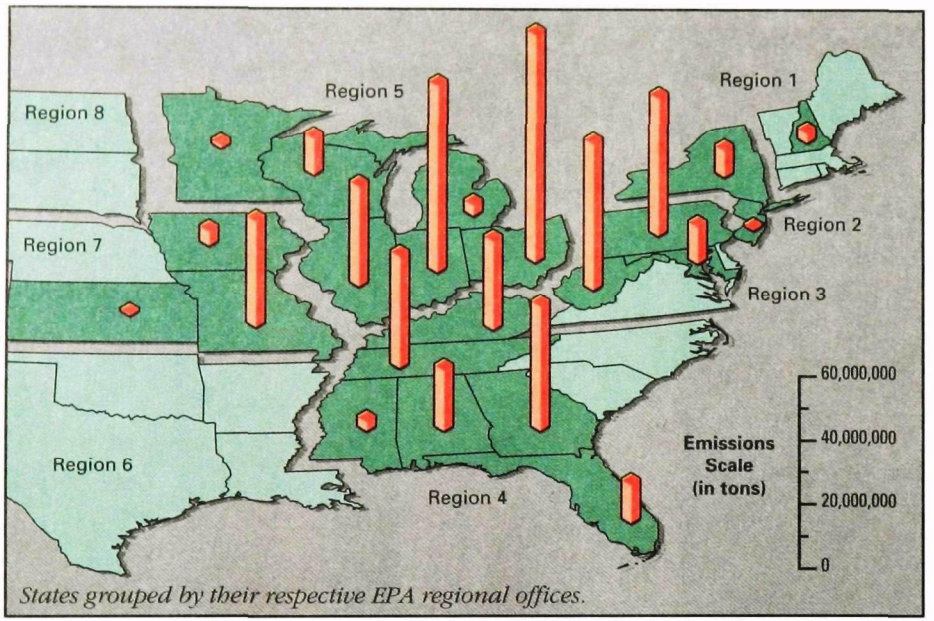


State Totals

	NO_x in tons		
	1985	1990	1994
Alabama	78,275	59,857	48,244
Florida	59,116	54,546	51,965
Georgia	154,008	146,055	84,238
Illinois	194,566	174,712	145,769
Indiana	291,613	300,077	245,043
Iowa	12,737	15,530	15,312
Kansas	690	1,754	1,802
Kentucky	110,442	113,666	136,280
Maryland	40,334	50,161	62,259
Michigan	14,144	14,027	11,539
Minnesota	3,300	7,778	5,788
Mississippi	18,469	19,000	9,942
Missouri	162,272	184,962	125,450
New Hampshire	20,848	18,427	28,298
New Jersey	12,356	10,901	7,240
New York	25,050	26,894	16,519
Ohio	299,231	306,287	324,863
Pennsylvania	151,630	149,588	193,794
Tennessee	138,230	129,903	194,328
West Virginia	165,122	166,208	176,725
Wisconsin	59,053	48,387	34,133
National Totals	**2,011,486**	**1,998,720**	**1,919,532**

Note: 1994 emission values obtained from Continuous Emission Monitoring Systems (CEMS).

Carbon Dioxide Emissions

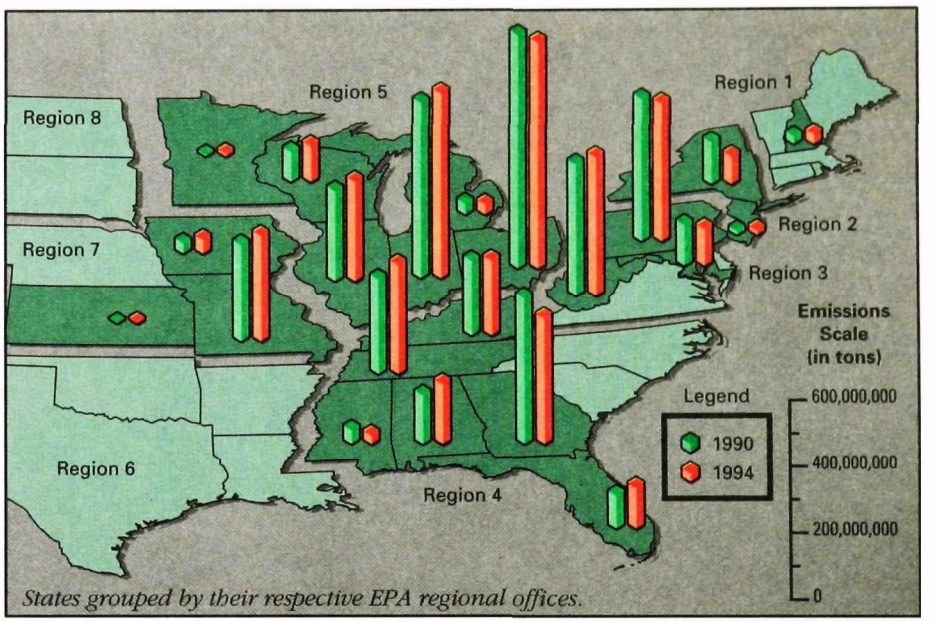


State Totals

	CO_2 in tons 1994
Alabama	19,006,148
Florida	12,027,236
Georgia	38,957,929
Illinois	31,213,953
Indiana	58,497,975
Iowa	4,616,328
Kansas	612,084
Kentucky	28,017,335
Maryland	11,687,273
Michigan	3,506,444
Minnesota	1,344,821

	1994
Mississippi	2,985,042
Missouri	33,293,886
New Hampshire	3,275,615
New Jersey	627,437
New York	8,476,931
Ohio	71,295,151
Pennsylvania	43,309,322
Tennessee	35,179,036
West Virginia	45,859,716
Wisconsin	11,589,546
National Totals	**465,397,208**

Heat Input



State Totals

	Heat Input in mmBtu 1990	1994
Alabama	149,592,710	184,301,440
Florida	101,891,046	125,214,800
Georgia	444,984,386	384,003,031
Illinois	274,521,947	303,530,942
Indiana	535,860,762	564,918,644
Iowa	33,247,345	44,354,269
Kansas	3,833,333	6,008,890
Kentucky	229,807,746	229,818,455
Maryland	127,237,731	114,963,384
Michigan	37,015,329	34,176,584
Minnesota	6,023,365	11,378,076

	1990	1994
Mississippi	44,645,381	29,094,040
Missouri	295,581,941	324,668,819
New Hampshire	26,398,228	31,862,075
New Jersey	14,847,944	15,206,692
New York	129,981,035	88,513,683
Ohio	708,860,873	687,531,647
Pennsylvania	433,809,463	419,618,730
Tennessee	290,866,026	335,910,195
West Virginia	400,530,464	422,039,132
Wisconsin	92,961,771	111,537,464
National Totals	**4,382,498,826**	**4,468,650,992**

Note: 1994 emission values obtained from Continuous Emission Monitoring Systems (CEMS).

Emissions Trends Through 1994 Under the Acid Rain Program

[SO2 , NOx, and CO2 Emissions and Heat Input for 263 units in Table 1 of §73.10 (a) of the Acid Rain Regulations]

STATE	PLANT NAME	STACK/UNIT ID	SO2 Emissions (tons)				NOx Emissions (tons)			CO2 (tons)	Heat Input (mmBtu)	
			1980	1985	1990	1994	1985	1990	1994	1994	1990	1994
ALABAMA	COLBERT	CSCO14 (1,2,3,4)	93,210	88,822	54,589	**40,085**	21,126	18,599	**13,250**	**5,175,340**	**42,021,862**	**50,340,618**
		5	36,410	52,318	21,511	**44,898**	12,515	5,612	**12,017**	**2,996,555**	**12,533,857**	**28,685,738**
	E C GASTON	CS0CAN (1,2)	47,710	44,082	47,495	**29,863**	14,165	12,135	**6,592**	**2,613,005**	**28,374,165**	**25,364,861**
		CS0CBN (3,4)	48,310	46,854	43,156	**31,353**	15,057	10,930	**6,441**	**2,756,121**	**25,549,008**	**26,852,727**
		5	75,510	68,352	69,948	**63,044**	15,412	12,581	**9,946**	**5,465,127**	**41,113,818**	**53,057,496**
FLORIDA	BIG BEND [5, 6]	CS001 (BB01,BB02)	110,001	110,001	89,200	**95,695**	34,592	27,940	**31,152**	**4,973,426**	**40,169,528**	**56,514,431**
		BB03	32,901	32,901	57,880	**63,368**	8,391	11,433	**10,118**	**3,127,863**	**27,351,449**	**30,435,762**
	CRIST	6	22,540	27,469	29,138	**21,455**	5,303	5,552	**4,403**	**1,343,121**	**12,562,397**	**13,090,843**
		7	35,210	55,921	50,262	**37,106**	10,830	9,621	**6,292**	**2,582,826**	**21,807,672**	**25,173,764**
GEORGIA	BOWEN	1BLR	71,428	71,428	48,793	**39,437**	13,175	11,766	**10,115**	**4,395,136**	**38,037,093**	**42,837,570**
		2BLR	63,727	63,727	58,068	**46,299**	14,768	14,060	**10,240**	**5,185,736**	**45,497,555**	**50,543,238**
		3BLR	82,488	82,488	71,224	**62,456**	17,052	16,925	**14,201**	**7,263,412**	**54,713,624**	**70,793,487**
		4BLR	87,659	87,659	77,321	**50,550**	18,123	18,485	**12,068**	**5,863,752**	**59,658,399**	**57,151,619**
	HAMMOND	CS001 (1,2,3)	22,660	28,895	26,322	**7,569**	9,662	8,504	**2,791**	**746,054**	**20,740,726**	**11,567,611**
		4	25,910	35,539	36,412	**7,268**	11,893	11,841	**1,663**	**742,140**	**28,855,929**	**7,233,351**
	JACK MCDONOUGH	CS001 (MB1,MB2)	66,487	66,487	56,077	**22,563**	10,395	10,611	**9,149**	**3,066,258**	**33,694,167**	**29,885,516**
	WANSLEY	1	120,370	128,505	111,980	**71,386**	19,088	17,045	**9,166**	**4,560,449**	**50,089,022**	**44,448,818**
		2	96,870	120,146	111,984	**72,659**	17,846	17,046	**8,942**	**4,451,469**	**50,104,671**	**43,386,662**
	YATES	Y1BR	11,673	11,673	9,892	**4,082**	1,979	1,859	**1,239**	**441,178**	**5,949,961**	**4,299,978**
		CS001 (Y2BR,Y3BR)	22,478	22,478	14,391	**5,220**	3,811	2,685	**850**	**332,885**	**8,596,900**	**3,244,479**
		CS002 (Y4BR,Y5BR)	29,512	29,512	21,059	**5,557**	5,002	3,918	**933**	**350,649**	**12,547,589**	**3,417,605**
		Y6BR	42,207	42,207	29,570	**11,048**	7,151	5,601	**1,144**	**707,215**	**18,062,672**	**6,892,964**
		Y7BR	23,974	23,974	29,854	**10,521**	4,063	5,709	**1,736**	**851,597**	**18,436,078**	**8,300,133**
ILLINOIS	BALDWIN	1	81,560	89,277	82,932	**89,050**	27,743	25,722	**31,238**	**3,599,938**	**30,208,270**	**35,099,112**
		2	96,330	78,477	92,830	**83,798**	33,453	28,689	**24,988**	**3,386,672**	**33,671,639**	**32,994,804**
		3	88,130	96,840	54,763	**64,719**	12,332	6,941	**5,059**	**2,737,174**	**20,101,746**	**26,667,504**
	COFFEEN	CS0001 (01,02)	140,629	140,629	114,315	**76,707**	36,326	30,921	**31,781**	**5,066,384**	**35,424,535**	**49,340,417**
	GRAND TOWER	9	9,754	9,754	7,894	**9,458**	1,912	1,424	**1,404**	**437,866**	**3,140,075**	**4,265,075**
	HENNEPIN	2	31,650	39,436	27,499	**24,624**	5,365	4,035	**3,228**	**1,126,759**	**11,249,224**	**10,970,654**
	JOPPA STEAM	CS1 (1,2)	33,970	34,939	38,105	**10,252**	6,788	7,601	**2,598**	**2,772,785**	**23,272,171**	**27,087,829**
		CS2 (3,4)	35,360	37,682	41,555	**7,993**	7,306	8,263	**2,658**	**2,813,041**	**25,324,781**	**27,478,561**
		CS3 (5,6)	32,830	35,763	42,543	**47,969**	6,939	8,471	**7,602**	**2,938,294**	**25,938,128**	**28,551,038**
	KINCAID	CS0102 (1,2)	189,280	173,961	166,399	**155,497**	50,037	48,339	**30,844**	**4,738,689**	**53,747,889**	**45,517,672**
	MEREDOSIA	5	27,015	27,015	15,013	**22,570**	3,938	2,268	**3,343**	**1,032,215**	**6,794,793**	**10,060,575**

Emissions Trends Through 1994 Under the Acid Rain Program

[SO2 , NOx, and CO2 Emissions and Heat Input for 263 units in Table 1 of §73.10 (a) of the Acid Rain Regulations]

STATE	PLANT NAME	STACK/UNIT ID	SO2 Emissions (tons)				NOx Emissions (tons)			CO2 (tons)	Heat Input (mmBtu)	
			1980	1985	1990	1994	1985	1990	1994	1994	1990	1994
	VERMILION	2	16,440	18,600	14,049	**11,227**	2,427	2,038	**1,027**	**564,135**	**5,648,696**	**5,497,701**
INDIANA	BAILLY	CS001/CS002 (7,8)	50,160	39,186	67,022	**7,939**	12,314	21,718	**27,820**	**3,619,290**	**26,361,579**	**35,333,583**
	BREED	1	72,890	70,365	32,895	**0**	16,270	8,271	**0**		**0**	**0**
	CAYUGA	1	54,720	56,848	64,250	**62,802**	9,003	10,950	**5,511**	**3,559,409**	**31,543,436**	**34,692,068**
		2	63,620	69,254	53,063	**52,380**	10,967	9,051	**4,885**	**3,001,878**	**26,083,997**	**29,258,104**
	CLIFTY CREEK	CS001 (1,2,3)	149,630	136,454	133,175	**120,628**	36,920	34,173	**34,658**	**4,115,599**	**45,733,268**	**40,095,330**
		CS002 (4,5,6)	146,110	132,408	142,719	**133,428**	35,827	36,519	**39,719**	**4,750,657**	**48,821,048**	**46,273,807**
	ELMER W STOUT	50	5,665	5,665	4,122	**9,384**	1,141	1,012	**1,080**	**558,093**	**3,031,837**	**5,439,507**
		60	7,743	7,743	3,419	**6,597**	1,560	838	**1,428**	**401,716**	**2,506,964**	**3,915,356**
		70	35,007	35,007	25,185	**36,789**	7,052	6,182	**4,605**	**2,237,986**	**18,387,115**	**21,812,728**
	F B CULLEY	2	16,860	16,361	16,623	**5,952**	2,885	3,227	**1,119**	**429,863**	**6,878,039**	**4,187,851**
		3	41,630	38,456	27,327	**37,849**	6,772	5,337	**7,154**	**1,465,540**	**11,226,701**	**14,284,754**
	FRANK E RATTS	1SG1	19,069	19,069	17,186	**22,200**	3,550	3,038	**2,677**	**985,692**	**6,445,631**	**9,438,287**
		2SG1	18,436	18,436	20,546	**18,884**	3,433	3,665	**2,774**	**847,482**	**7,780,252**	**8,143,380**
	GIBSON	CS0003 (1,2)	148,170	149,331	133,241	**90,332**	33,228	32,523	**14,362**	**7,291,784**	**66,970,227**	**70,724,860**
		CS0004 (3,4)	163,020	145,338	126,907	**81,449**	32,325	30,974	**17,413**	**6,339,581**	**63,760,412**	**57,918,848**
	H T PRITCHARD [1]	6 (CS596-5)	10,270	7,586	9,155	**3,327**	1,929	2,329	**1,395**	**439,431**	**5,847,456**	**3,077,905**
	MICHIGAN CITY	12	63,100	45,434	46,770	**14,296**	15,142	21,122	**19,592**	**2,969,593**	**25,769,619**	**28,979,339**
	PETERSBURG	CS292 (1,2)	96,440	74,875	88,438	**83,796**	13,100	13,231	**9,279**	**4,011,308**	**39,322,120**	**39,096,566**
	R GALLAGHER	CS0001 (1,2)	30,540	20,948	15,395	**24,882**	3,517	3,513	**3,231**	**1,530,167**	**7,416,643**	**14,903,160**
		CS0002 (3,4)	30,490	42,863	31,063	**38,098**	6,974	6,994	**5,088**	**2,550,366**	**14,719,184**	**24,702,405**
	TANNERS CREEK	U4	59,646	59,646	72,283	**46,705**	16,360	25,628	**21,406**	**2,267,676**	**30,733,206**	**21,435,650**
	WABASH RIVER	CS0005 (1,2,3,5,6)	58,510	54,350	59,698	**40,178**	11,787	12,847	**7,630**	**2,774,423**	**31,774,532**	**26,899,337**
	WARRICK [6]	4	23,900	58,813	36,127	**53,723**	9,557	6,935	**12,216**	**2,350,445**	**14,747,496**	**24,305,819**
IOWA	BURLINGTON [6]	1	22,440	23,093	18,448	**9,228**	3,418	2,656	**1,732**	**1,084,041**	**7,582,757**	**10,259,115**
	DES MOINES	11	2,490	2,490	0	**0**	753	0	**0**	**0**	**0**	**0**
	GEORGE NEAL NORTH	1	2,480	1,048	1,755	**3,608**	565	5,019	**4,544**	**966,725**	**5,321,528**	**9,586,634**
	MILTON L KAPP	2	30,950	31,379	19,151	**16,126**	4,039	3,666	**2,479**	**1,016,272**	**10,907,092**	**9,905,188**
	PRAIRIE CREEK	4	9,050	12,466	12,497	**4,313**	2,933	2,972	**3,944**	**740,366**	**5,932,569**	**6,918,848**
	RIVERSIDE	9	4,707	4,707	8,452	**13,563**	1,029	1,217	**2,613**	**808,924**	**3,503,399**	**7,684,484**

Emissions Trends Through 1994 Under the Acid Rain Program

[SO2 , NOx, and CO2 Emissions and Heat Input for 263 units in Table 1 of §73.10 (a) of the Acid Rain Regulations]

STATE	PLANT NAME	STACK/UNIT ID	SO2 Emissions (tons) 1980	SO2 Emissions (tons) 1985	SO2 Emissions (tons) 1990	SO2 Emissions (tons) 1994	NOx Emissions (tons) 1985	NOx Emissions (tons) 1990	NOx Emissions (tons) 1994	CO2 (tons) 1994	Heat Input (mmBtu) 1990	Heat Input (mmBtu) 1994
KANSAS	QUINDARO	2	16,430	3,255	3,768	**6,782**	690	1,754	**1,802**	**612,084**	**3,833,333**	**6,008,890**
KENTUCKY	COLEMAN	C1	18,537	18,537	24,480	**16,881**	4,616	5,092	**2,044**	**915,739**	**10,837,340**	**8,925,330**
		C2	19,862	19,862	21,286	**21,585**	4,959	4,435	**2,570**	**1,113,230**	**9,439,599**	**10,850,193**
		C3	19,007	19,007	24,864	**17,119**	4,743	5,179	**5,036**	**877,778**	**11,004,877**	**8,555,343**
	COOPER [5, 6]	CS1 (1,2)	19,260	23,475	18,616	**21,135**	7,515	6,595	**6,326**	**1,714,758**	**15,193,121**	**17,184,684**
	E W BROWN	1	6,000	6,242	8,700	**8,116**	1,707	2,126	**1,506**	**489,018**	**4,953,654**	**4,766,258**
		CS003 (2,3)	49,340	48,606	46,404	**45,155**	9,494	9,199	**9,837**	**3,501,675**	**29,822,194**	**33,903,114**
	ELMER SMITH [6]	CS001/CS002 (1,2)	45,350	36,931	50,416	**59,275**	6,940	10,765	**17,923**	**2,748,467**	**18,671,401**	**18,671,401**
	GHENT	CS001	52,240	71,102	70,203	**54,269**	8,913	10,216	**18,343**	**5,893,481**	**30,484,325**	**22,470,294**
	GREEN RIVER	5	12,939	12,939	10,466	**13,251**	3,302	2,453	**3,149**	**730,834**	**5,376,242**	**7,123,140**
	H L SPURLOCK [5, 6]	1	14,650	29,745	26,553	**26,019**	7,927	8,717	**3,830**	**1,626,327**	**19,797,088**	**16,017,457**
	HMP&L STATION 2	CSH00 (H1,H2)	44,871	44,871	43,690	**37,376**	10,080	8,844	**10,012**	**1,788,954**	**20,192,741**	**17,433,645**
	PARADISE	3	113,810	106,835	115,186	**132,051**	35,025	39,015	**54,475**	**5,527,489**	**50,494,444**	**53,297,864**
	SHAWNEE	10	13,980	34,077	1,109	**3,269**	5,221	1,030	**1,230**	**1,089,584**	**3,540,720**	**10,619,732**
MARYLAND	C P CRANE	1	3,700	9,722	13,878	**14,658**	6,265	6,182	**6,985**	**1,068,530**	**8,941,526**	**10,407,011**
		2	6,710	9,657	15,501	**14,406**	3,312	6,888	**7,749**	**1,042,827**	**9,982,868**	**10,155,438**
	CHALK POINT [7]	CSE12 (1,2)	37,760	47,740	62,232	**45,366**	15,560	17,971	**24,735**	**3,308,262**	**43,323,242**	**33,099,009**
	MORGANTOWN	1	42,350	29,388	47,102	**42,410**	6,587	10,515	**15,728**	**3,744,380**	**35,739,299**	**36,688,840**
		2	51,540	37,988	38,188	**26,304**	8,610	8,605	**7,063**	**2,523,275**	**29,250,796**	**24,613,086**
MICHIGAN	J H CAMPBELL	CS0009 (1, 2)	52,790	60,530	22,784	**23,014**				**3,506,444**		
		1					5,203	4,739	**2,782**		**15,398,430**	**11,741,911**
		2					8,941	9,288	**8,757**		**21,616,899**	**22,434,673**
MINNESOTA	HIGH BRIDGE [1]	6 (CS0001-3-4-5)	8,320	2,176	1,547	**995**	3,300	7,778	**5,788**	**1,344,821**	**6,023,365**	**11,378,076**
MISSISSIPPI	JACK WATSON	MS4A/MS4B (4)	19,980	26,218	32,855	**21,954**	6,444	7,112	**4,644**	**1,256,460**	**16,720,644**	**12,246,207**
		MS5A/MS5B (5)	39,490	46,401	54,283	**31,994**	12,025	11,888	**5,298**	**1,728,582**	**27,924,737**	**16,847,833**
MISSOURI	ASBURY	1	67,300	68,769	24,938	**7,595**	11,847	13,156	**7,771**	**1,622,685**	**14,231,334**	**13,112,255**
	JAMES RIVER	5	10,250	9,096	6,738	**4,350**	1,356	1,888	**1,078**	**370,908**	**4,281,609**	**4,039,847**
	LABADIE	1	57,660	72,811	75,182	**38,964**	11,205	11,717	**4,653**	**3,667,874**	**34,763,543**	**35,742,485**
		2	52,520	63,653	56,627	**27,173**	9,796	8,523	**4,495**	**2,458,435**	**25,508,387**	**23,949,156**
		3	59,330	67,587	68,624	**46,005**	10,401	10,691	**4,768**	**4,265,955**	**31,749,308**	**41,571,149**
		4	71,730	65,591	49,437	**37,950**	10,098	7,843	**4,239**	**3,237,033**	**23,229,306**	**31,541,860**

Emissions Trends Through 1994 Under the Acid Rain Program

[SO2 , NOx, and CO2 Emissions and Heat Input for 263 units in Table 1 of §73.10 (a) of the Acid Rain Regulations]

STATE	PLANT NAME	STACK/UNIT ID	SO2 Emissions (tons)				NOx Emissions (tons)			CO2 (tons)	Heat Input (mmBtu)	
			1980	1985	1990	1994	1985	1990	1994	1994	1990	1994
	MONTROSE	1	62,150	28,740	3,010	**4,552**	2,492	3,565	**2,606**	**1,220,984**	**7,955,611**	**11,442,252**
		CS023 (2,3)	103,780	67,357	5,584	**8,018**	5,959	6,630	**4,823**	**2,197,282**	**14,791,074**	**20,635,036**
	NEW MADRID	1	91,070	74,430	86,810	**75,219**	22,072	27,606	**25,791**	**3,394,004**	**32,464,734**	**38,293,812**
		2	113,710	77,895	82,207	**64,526**	22,812	29,156	**22,663**	**3,378,416**	**33,364,278**	**36,504,520**
	SIBLEY [1]	3 (CS0001-1-2)	27,060	26,812	39,546	**14,038**	10,648	14,667	**15,862**	**2,700,589**	**15,017,658**	**21,560,740**
	SIOUX	1	37,180	42,688	37,663	**20,901**	16,199	16,250	**8,244**	**1,357,873**	**19,563,242**	**13,225,030**
		2	58,440	14,504	46,959	**35,666**	5,733	21,220	**11,621**	**1,906,233**	**25,089,797**	**18,578,789**
	THOMAS HILL [5, 6]	MB1	35,874	35,874	22,596	**10,669**	8,362	5,321	**2,571**	**572,208**	**6,011,328**	**5,521,298**
		MB2	56,866	56,866	27,005	**15,812**	13,292	6,729	**4,265**	**943,407**	**7,560,732**	**8,950,590**
NEW HAMPSHIRE	MERRIMACK	1	14,560	15,258	13,128	**16,200**	5,876	6,083	**6,086**	**1,017,320**	**8,718,106**	**9,912,691**
		2	38,940	38,980	27,047	**26,175**	14,972	12,344	**22,213**	**2,258,295**	**17,680,122**	**21,949,384**
NEW JERSEY	B L ENGLAND [5]	1	17,260	16,300	14,367	**16,788**	5,951	4,962	**3,468**	**275,571**	**6,753,329**	**7,639,911**
		2	16,580	17,822	17,150	**16,605**	6,405	5,939	**3,772**	**351,867**	**8,094,615**	**7,566,781**
NEW YORK	DUNKIRK [5, 6]	CS0003 (3,4)	32,230	35,060	44,929	**30,925**	6,860	7,644	**4,493**	**1,924,388**	**26,685,270**	**19,168,081**
	GREENIDGE	**6	11,548	11,548	12,448	**10,368**	2,169	2,287	**2,023**	**748,914**	**7,472,408**	**7,299,326**
	MILLIKEN	**1	13,990	9,400	16,588	**16,074**	1,992	3,346	**2,564**	**1,245,222**	**10,934,170**	**12,136,666**
		**2	15,630	15,398	16,662	**8,094**	3,270	3,308	**1,704**	**664,644**	**10,821,880**	**5,999,067**
	NORTHPORT	1	20,870	27,360	9,555	**3,146**	2,863	2,519	**654**	**483,517**	**18,108,559**	**5,427,785**
		2	19,330	26,583	9,749	**7,226**	2,792	2,570	**1,896**	**1,193,407**	**18,464,417**	**13,509,761**
		3	21,710	25,915	9,896	**4,958**	2,718	2,609	**1,204**	**842,858**	**18,752,898**	**9,528,286**
	PORT JEFFERSON [2, 5,	3	10,420	10,602	5,387	**3,982**	1,113	1,420	**904**	**665,658**	**10,192,390**	**7,481,621**
		4	13,370	12,195	4,519	**4,231**	1,273	1,191	**1,077**	**708,323**	**8,549,043**	**7,963,090**
OHIO	ASHTABULA	7	7,260	37,621	36,310	**45,789**	4,933	3,477	**4,855**	**1,366,284**	**11,452,060**	**13,314,018**
	AVON LAKE	11	16,952	16,952	0	**0**	2,631	0	**0**		**0**	**0**
		12	41,322	41,322	69,097	**17,874**	8,883	15,142	**9,357**	**1,953,989**	**35,406,997**	**19,044,710**
	CARDINAL	CS001 (1)	31,200	69,012	60,630	**74,625**	11,768	11,312	**16,452**	**3,389,077**	**25,914,545**	**30,811,442**
		2	32,900	71,532	86,993	**64,369**	12,351	15,768	**13,840**	**2,708,960**	**36,206,761**	**26,402,388**
	CONESVILLE	CS012 (1,2)	54,710	13,476	17,206	**22,318**	2,998	5,459	**5,059**	**999,775**	**7,177,460**	**9,359,696**
		3	32,880	9,646	7,618	**10,637**	1,788	1,378	**2,034**	**487,463**	**3,204,027**	**4,676,631**
		4	71,660	98,256	78,374	**74,232**	12,602	9,926	**9,287**	**3,356,210**	**32,276,399**	**32,554,380**
	EASTLAKE [5]	1	18,280	16,550	15,468	**16,648**	2,156	1,854	**2,228**	**823,332**	**6,211,667**	**8,651,530**
		2	17,080	17,267	13,212	**17,330**	2,255	1,596	**1,719**	**931,776**	**5,349,270**	**9,188,122**
		3	15,380	19,545	18,486	**21,623**	2,554	2,216	**2,275**	**821,462**	**7,420,918**	**7,801,265**
		4	27,910	24,997	25,819	**9,752**	3,285	3,078	**1,198**	**474,008**	**10,356,064**	**4,614,801**

Emissions Trends Through 1994 Under the Acid Rain Program

[SO2 , NOx, and CO2 Emissions and Heat Input for 263 units in Table 1 of §73.10 (a) of the Acid Rain Regulations]

STATE	PLANT NAME	STACK/UNIT ID	SO2 Emissions (tons)				NOx Emissions (tons)			CO2 (tons)	Heat Input (mmBtu)	
			1980	1985	1990	1994	1985	1990	1994	1994	1990	1994
		5	79,780	79,918	71,595	**69,779**	14,441	12,209	**10,446**	**3,335,859**	29,347,836	**32,441,306**
	EDGEWATER	13	6,149	6,149	7,393	**0**	2,101	2,004	**0**	**0**	4,523,862	**0**
	GEN J M GAVIN	CS012 (1,2)	368,380	363,249	374,920	**382,947**	28,092	26,439	**81,939**	**13,980,425**	128,558,209	**136,707,473**
	KYGER CREEK	CS001 (1,2,3,4,5)	207,620	222,543	249,418	**234,171**	54,394	57,472	**56,214**	**7,883,208**	80,594,734	**76,834,386**
	MIAMI FORT [5]	CS056 (6, 5-1, 5-2)	14,292	21,373	23,001	**6,533**				**716,262**		
		5					256	162	**67**		412,832	**578,856**
		6					3,872	3,640	**2,145**		11,121,330	**6,299,419**
		7	38,530	62,456	64,029	**46,702**	14,499	14,346	**13,509**	**2,614,715**	31,310,606	**25,384,733**
	MUSKINGUM RIVER	CS014 (1,2,3,4)	168,250	154,528	144,597	**108,723**	33,066	31,267	**16,969**	**3,204,287**	40,494,779	**30,999,441**
		5	82,580	98,907	96,272	**95,318**	12,170	12,482	**11,812**	**2,841,616**	27,307,057	**27,696,066**
	NILES	1	13,600	14,054	16,082	**13,361**	4,372	5,252	**2,804**	**574,644**	6,748,351	**5,600,821**
		2	11,510	16,264	13,999	**15,584**	5,045	4,546	**3,115**	**672,755**	5,805,523	**6,557,064**
	PICWAY	9	13,671	13,671	15,207	**25,276**	2,067	2,804	**3,358**	**916,592**	6,120,970	**8,617,169**
	R E BURGER [1, 4, 6]	CS0001-1234 (5, 6, 7, 8)	81,467	60,894	62,597	**66,897**				**2,974,282**		
		5					1,153	866	**1,242**		1,937,572	**1,859,339**
		6					1,121	902	**1,242**		2,017,716	**1,936,246**
		7					3,638	4,876	**564**		10,937,084	**10,495,478**
		8					4,555	4,693	**324**		10,530,541	**10,105,350**
	W H SAMMIS [5, 6]	5	19,320	34,632	27,869	**26,687**	8,676	7,139	**5,464**	**2,245,193**	16,637,923	**21,875,417**
		MS6A/MS6B (6)	34,000	61,391	55,151	**47,888**	15,378	14,272	**8,024**	**4,038,089**	33,227,968	**39,352,940**
		7	32,160	54,557	57,748	**58,205**	13,119	14,960	**23,726**	**4,506,967**	34,972,971	**43,911,550**
	WALTER C BECKJORD	MS51/MS52 (5)	18,680	12,735	40,071	**9,507**	2,496	5,459	**7,244**	**1,313,171**	16,673,747	**12,777,991**
		6	30,310	39,140	52,841	**29,426**	6,516	9,291	**6,350**	**2,164,751**	28,603,094	**21,081,619**
PENNSYLVANIA	ARMSTRONG	1	16,880	16,434	16,961	**19,155**	4,883	5,120	**6,346**	**1,350,681**	11,992,808	**13,164,550**
		2	16,360	15,423	14,780	**6,688**	4,651	4,477	**2,215**	**464,293**	10,473,815	**4,525,284**
	BRUNNER ISLAND	CS102 (1,2)	71,830	66,181	71,362	**52,738**	14,377	14,125	**8,275**	**4,067,805**	46,533,995	**38,875,764**
		3	70,590	58,775	56,798	**49,047**	12,752	11,174	**14,903**	**3,708,230**	36,762,623	**35,110,760**
	CHESWICK	1	41,460	41,927	41,279	**51,010**	9,905	9,984	**8,571**	**4,195,847**	32,899,426	**40,644,776**
	CONEMAUGH [5, 6]	1	106,280	92,088	79,232	**76,893**	16,107	15,087	**47,768**	**4,970,246**	49,756,638	**48,879,879**
		2	104,110	89,804	100,056	**102,931**	15,633	18,141	**41,615**	**6,639,118**	59,762,954	**64,897,455**
	HATFIELD'S FERRY	CS001/CS002 (1, 2, 3)	175,630	161,081	163,432	**168,526**	39,434	39,640	**40,179**	**10,249,571**		
		1									34,304,196	**31,827,188**
		2									36,257,651	**31,842,813**
		3									27,563,857	**36,208,556**
	MARTINS CREEK	CS102 (1,2)	32,640	28,758	25,637	**12,812**	8,672	7,040	**3,429**	**1,036,966**	17,091,694	**9,918,872**

Emissions Trends Through 1994 Under the Acid Rain Program

[SO2 , NOx, and CO2 Emissions and Heat Input for 263 units in Table 1 of §73.10 (a) of the Acid Rain Regulations]

STATE	PLANT NAME	STACK/UNIT ID	SO2 Emissions (tons)				NOx Emissions (tons)			CO2 (tons)	Heat Input (mmBtu)	
			1980	1985	1990	1994	1985	1990	1994	1994	1990	1994
	PORTLAND	1	14,050	6,436	9,798	**8,762**	1,245	2,023	**1,102**	**665,535**	7,215,528	**6,146,167**
		2	18,870	10,892	15,627	**14,552**	2,146	3,187	**1,841**	**1,142,443**	11,249,322	**11,126,070**
	SHAWVILLE [5, 6]	1	14,920	13,485	11,631	**11,883**	3,598	3,464	**1,952**	**791,898**	8,047,484	**7,718,315**
		2	13,040	14,310	11,894	**12,251**	3,834	3,358	**4,357**	**859,462**	7,790,223	**8,376,823**
		CS1 (3,4)	38,280	36,375	33,724	**24,078**	6,969	6,695	**5,736**	**1,767,982**	21,812,422	**17,231,742**
	SUNBURY	3	4,560	10,046	10,898	**7,524**	3,092	2,829	**1,162**	**543,386**	6,606,457	**4,941,904**
		4	7,550	14,077	12,428	**11,729**	4,332	3,244	**4,343**	**855,862**	7,688,370	**8,181,812**
TENNESSEE	ALLEN	1	22,500	21,866	27,967	**25,655**	9,581	12,956	**15,737**	**1,568,265**	16,341,809	**14,002,150**
		2	25,130	25,986	19,623	**24,681**	11,073	9,203	**18,589**	**1,796,023**	11,648,900	**17,292,406**
		3	27,840	19,696	11,728	**27,313**	8,526	5,355	**16,149**	**1,716,656**	6,833,948	**16,534,236**
	CUMBERLAND [5, 6]	1	212,000	148,104	187,582	**121,400**	28,647	36,893	**52,037**	**6,836,203**	81,356,163	**66,445,322**
		2	155,970	196,049	115,767	**154,811**	37,786	22,753	**45,950**	**7,333,725**	49,962,551	**67,998,977**
	GALLATIN	CSGA12 (1,2)	61,260	59,256	71,196	**52,167**	8,319	9,822	**7,037**	**2,745,242**	31,650,982	**26,756,978**
		CSGA34 (3,4)	79,350	71,140	69,801	**70,698**	9,961	9,617	**9,403**	**3,705,861**	31,070,413	**36,135,212**
	JOHNSONVILLE	CSJO10 (1,2,3,4,5,6,7,8,9,10)	138,270	96,124	86,687	**131,645**	24,337	23,304	**29,427**	**9,495,062**	62,001,260	**90,744,914**
WEST VIRGINIA	ALBRIGHT	3	12,380	11,938	9,779	**10,469**	2,414	2,304	**3,472**	**899,435**	7,682,667	**8,766,413**
	FORT MARTIN	1	48,500	44,309	36,064	**42,990**	9,463	7,809	**10,791**	**3,422,958**	26,207,504	**33,362,209**
		2	49,520	44,824	47,470	**43,726**	13,384	14,480	**17,662**	**3,260,751**	34,646,420	**31,781,220**
	HARRISON	CS001/CS002 (1, 2, 3)	221,390	234,693	289,733	**261,018**	40,976	51,051	**41,660**	**12,354,426**		
		1									44,520,158	**37,195,261**
		2									40,034,198	**43,813,757**
		3									43,113,736	**40,837,335**
	KAMMER	CS013 (1,2,3)	153,020	157,034	155,373	**143,555**	35,135	34,616	**28,792**	**4,519,293**	45,191,087	**42,498,721**
	MITCHELL	CS012 (1,2)	174,910	103,326	60,875	**81,635**	36,138	25,228	**23,139**	**8,628,998**	57,649,254	**82,298,776**
	MT STORM [3, 6]	CS0 (1,2)	60,480	84,404	96,386	**107,165**	18,158	20,911	**30,475**	**8,818,097**	68,831,474	**68,831,474**
		3	32,860	43,906	45,453	**29,536**	9,454	9,809	**20,735**	**3,955,758**	32,653,966	**32,653,966**
WISCONSIN	EDGEWATER	4	50,680	39,722	33,528	**21,145**	16,389	16,577	**12,359**	**2,167,193**	18,981,488	**20,614,720**
	GENOA	1	18,400	35,035	29,286	**15,024**	6,843	5,101	**2,868**	**1,620,667**	13,996,932	**15,504,668**
	NELSON DEWEY	CS1 (1,2)	29,930	25,562	5,798	**3,718**	10,016	9,202	**4,626**	**1,339,423**	9,883,777	**13,054,049**
	NORTH OAK CREEK	1	9,180	6,810	0	**0**	1,594	0	**0**	**0**	0	**0**
		2	12,640	7,916	0	**0**	1,802	0	**0**	**0**	0	**0**
		3	12,240	7,184	0	**0**	1,640	0	**0**	**0**	0	**0**
		4	12,340	9,323	0	**0**	2,133	0	**0**	**0**	0	**0**

Emissions Trends Through 1994 Under the Acid Rain Program

[SO2 , NOx, and CO2 Emissions and Heat Input for 263 units in Table 1 of §73.10 (a) of the Acid Rain Regulations]

STATE	PLANT NAME	STACK/UNIT ID	SO2 Emissions (tons) 1980	SO2 Emissions (tons) 1985	SO2 Emissions (tons) 1990	SO2 Emissions (tons) 1994	NOx Emissions (tons) 1985	NOx Emissions (tons) 1990	NOx Emissions (tons) 1994	CO2 (tons) 1994	Heat Input (mmBtu) 1990	Heat Input (mmBtu) 1994
	PULLIAM	8	14,670	10,446	11,151	**2,723**	2,534	3,190	**1,671**	**904,050**	6,786,218	**8,540,759**
	SOUTH OAK CREEK	CS3 (5,6)	23,990	34,334	19,412	**8,348**	7,916	6,326	**2,878**	**2,362,809**	15,737,015	**22,679,084**
		CS4 (7,8)	26,090	50,441	35,634	**11,706**	8,186	7,991	**9,731**	**3,195,404**	27,576,341	**31,144,184**
NATIONAL TOTALS (Phase I, Table 1 units.)			9,370,633	9,301,985	8,683,230	**7,379,304**	2,011,486	1,998,720	**1,919,532**	**465,397,208**	4,382,498,826	**4,468,650,992**

General Notes:

1. Known as Table 1 units, the 263 units appearing here are those listed in Table 1 of 40 CFR 73.10 (a) of the Acid Rain Regulations.
2. In the Stack/Unit ID column, the designation "CS" indicates that the emission values are for a "common stack" combining the emissions from multiple units. For example, "CS1 (3,4)" designates emission values for common stack CS1, which includes the emissions from units #3 and #4.
3. Occasionally, there are differences between the monitoring configuration used for NOx and that used for SO2 and CO2. In particular, SO2 may be monitored at the common stack level while NOx is monitored at the unit level. In such cases, separate lines will be shown in the table for the monitored common stack and each of the monitored separate units. For example, at J. H. Campbell, SO2 and CO2 emission values appear on a line designated CS0009 (1, 2) while NOx emissions and heat input values appear on separate lines labeled "1" and "2" for each of the constituent units.
4. In the Stack/Unit ID column, the designation "MS" indicates that the emission values are for "multiple stacks" which exhaust the emissions from a single unit. For example, "MS4A/MS4B (4)" designates emissions from unit 4 which exhaust through MS4A and MS4B.
5. Asterisks appearing in the Stack/Unit ID column are part of the ID, not references to footnotes.
6. Zeroes appearing in the 1990 and 1994 columns indicate that the unit was retired from operation or non-operational in that year.
7. 1980 SO2 emissions are based on 1980 National Acid Precipitation Assessment Program (NAPAP) data and EPA's AP42 emission factors. NAPAP data is reported in "The NAPAP Utility Reference File for 1980" (EPA-600/7-86-056a), December 1986, prepared for U.S. EPA Air and Energy Research Laboratory by E.H. Pechan & Associates, Inc.
8. 1985 SO2 emissions are from the National Allowance Data Base (NADB, referenced in the March 23, 1993 Federal Register Volume 58 No. 54) and EPA's AP42 emission factors. NADB data is reported in "The National Allowances Data Base, Version 3.11, Technical Support Document," June 1995, prepared for U.S. EPA Office of Atmospheric Programs by E.H. Pechan & Associates, Inc.
9. 1990 SO2, 1985 NOx, and 1990 NOx emissions are based on U.S. Department of Energy, Energy Information Administration's Form EIA-767 data and EPA's AP42 emission factors as described in "National Air Pollution Emission Trends, 1900-1993" (EPA-454/R-94-027), October 1994, prepared for EPA's Office of Air Quality Planning and Standards by E.H. Pechan & Associates.
10. 1990 heat input are the values reported by utilities on Form EIA-767 to the U.S. Department of Energy, Energy Information Administration.
11. 1994 emissions and heat input values were derived from long-term hourly data collected using Continuous Emission Monitoring Systems (CEMS). The data were obtained from the Quarterly Data Files submitted by utilities in compliance with Phase I of the Acid Rain Program. Except as noted in the footnotes below, the following procedures were used in computing the indicated 1994 values:
    SO2 ---- The values shown in the 1994 SO2 emissions column are the higher of a) the reported cumulative annual SO2 tons emitted (as reported by the utility in RT 301/26), and b) the EPA calculated sum of the hourly SO2 emissions (as reported by the utility in RT310/25) weighted by the operating time (as reported by the utility in RT 300/18). The designation (RTxxx/yy) refers to Record Type xxx and Start Column yy as found in EPA's "Electronic Data Reporting," version 1.1.
    NOx ---- The values shown in the 1994 NOx emissions column represent the product of the heat input (RT300/36) and the NOx emission rate (RT 320/42) for each hour summed over the entire year.

Emissions Trends Through 1994 Under the Acid Rain Program

[SO2 , NOx, and CO2 Emissions and Heat Input for 263 units in Table 1 of §73.10 (a) of the Acid Rain Regulations]

CO2 —— The values shown in the 1994 CO2 emissions column are the reported cumulative annual CO2 tons emitted that appears in RT 301/72.
Heat Input —— The values shown in the 1994 heat input column are the reported cumulative annual heat inputs (RT301/92).

12. Statutory NOx emission limits have been established for 168 of the 263 units shown in this table. These units are known as Phase I, Group 1 boilers. Those with tangentially fired boilers have an emission limit of 0.45 lb/mmBtu, whereas wall-fired units have an emission limit of 0.50 lb/mmBtu.

Footnotes:

[1] For Table 1 units sharing a common stack with reporting substitution units, the values appearing in the 1994 SO2 emissions column represent an apportionment of reported emissions between the Table 1 and substitution units. The apportionment was performed to allow publishing baseline emissions data for Table 1 sources only. The common stacks falling in this category include H T Pritchard CS596, High Bridge CS0001, Sibley CS0001, and R E Burger CS0001. The apportionment is denoted in the "STACK/UNIT ID" column by a subtraction of the appropriate unit ID's from the common stack ID. For example, the designation "6 (CS596-5)" indicates that the emissions value for H.T. Pritchard unit 6 was obtained by subtracting the emissions of unit 5 from the emissions reported for common stack CS596.

[2] For Port Jefferson units 3 and 4, the values appearing in the 1994 SO2 emissions column are based on the EPA calculated sum of the reported hourly SO2 emissions (RT310/25) weighted by the reported operating time (RT300/18), since an error caused an incorrectly high value for the reported cumulative annual SO2 emitted (RT301/26).

[3] For Mt. Storm common stack CS0 and unit 3, all 1994 values are not the ones reported but are estimates. Technical problems with the plant's monitoring instrumentation in the first three quarters of 1994, produced severely incorrect annual heat input and emissions values. Therefore, SO2 and CO2 annual emissions were estimated from fourth quarter data. For SO2 the sum of the hourly SO2 emissions adjusted for bias (RT310/25) weighted by the reported operating time (RT300/18) was multiplied by four. For CO2 the reported fourth quarter emissions value (RT301/62) were multiplied by four. 1994 NOx mass emissions were estimated by calculating the product of the 1990 heat input times the pre-control emission rate. Heat input for 1990 was used as an estimate for the 1994 heat input.

[4] For R.E. Burger units 5 and 6 no hourly heat input (RT300/36) data were reported. This prevented calculation of annual NOx mass emissions. An estimate of annual NOx emissions was derived by multiplying the reported annual heat input (RT301/92) by the annual average NOx emission rate (RT301/49).

[5] When the value reported as the 1994 cumulative annual CO2 emissions (RT301/72) differed by more than 5% from the year's sum of the quarterly CO2 values (RT301/62) reported for the year, then a case-by-case examination was made of the reported data to determine if the reported cumulative annual value was most reasonable. Based on such an evaluation, the sum of reported quarterly CO2 values was used, rather than the reported cumulative annual CO2 value, for Big Bend, Cooper, H. L. Spurlock, Thomas Hill, B. L. England, Dunkirk, Port Jefferson, Eastlake, Miami Fort, W. H. Sammis, Conemaugh, Shawville, and Cumberland.

[6] When the value reported as the 1994 cumulative annual heat input (RT301/92) differed by more than 10% from the year's sum of the quarterly heat input values (RT301/82) reported for the year, then a case-by-case examination was made of the reported data to determine if the reported cumulative annual value was most reasonable. Based on such an evaluation, the sum of reported quarterly heat input values was used, rather than the reported cumulative annual heat input value, for Big Bend, Burlington, H. L. Spurlock, Thomas Hill, Port Jefferson, W. H. Sammis, Conemaugh, Shawville, and Cumberland. For Warrick, Cooper, and Dunkirk the 1994 heat input was calculated from the year's sum of hourly reported heat input (RT 300/36). For Elmer Smith, R. E. Burger, and Mt. Storm the 1990 heat input value was substituted for the 1994 heat input.

[7] Due to a problem in the fourth quarter heat input data, the 1994 heat input for Chalk Point was estimated from the quarterly values reported in the first three quarters.