Clean Air Interstate Rule
Emissions Inventory Technical Support Document

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Acronyms

BEA	Bureau of Economic Analysis
BEIS	Biogenic Emissions Inventory System
BLS	Bureau of Labor Statistics
BRAVO	Big Bend Regional Aerosol & Visibility Observational
CAIR	Clean Air Interstate Rule
CAM_X	Comprehensive Air Quality Model with Extensions
CHIEF	Clearinghouse for Inventories and Emissions Factors
CMAQ	Community Multiscale Air Quality model
CMU	Carnegie-Mellon University
CO	Carbon monoxide
EGAS	Economic Growth Analysis System
EGU	Electric generating units
EPA	Environmental Protection Agency
EMFAC	Emission Factor (California's on-road mobile model)
HDD	Heave duty diesel
GF	Growth factor
IPM	Integrated Planning Model
MOBILE	OTAQ's model for estimation of on-road mobile emissions factors
NEEDS	National Electric Energy Database System
NEI	National Emission Inventory
NESHAP	National Emission Standards for Hazardous Air Pollutants
NH3	Ammonia
NMIM	National Mobile Inventory Model
NODA	Notice of Data Availability
NONROAD	OTAQ's model for estimation of nonroad mobile emissions
NOX	Nitrogen oxides
OTAQ	EPA's Office of Transportation and Air Quality
PM2.5	Particulate matter less than or equal to 2.5 microns
PM10	Particulate matter less than or equal to 10 microns
POTW	Publicly-Owned Treatment Works
REMI	Regional Economic Model, Inc.
RIA	Regulatory Impact Analysis
RICE	Reciprocating Internal Combustion Engines
RPO	Regional Planning Organization
SCC	Source category code
SMOKE	Sparse Matrix Operator Kernel Emissions
SOCMI	Synthetic Organic Chemical Manufacturing Industry
SO2	Sulfur dioxide
TCEQ	Texas Commission on Environmental Quality
TSD	Technical support document
VOC	Volatile organic compounds
VISTAS	Visibility Improvement State and Tribal Association of the Southeast
VMT	Vehicle miles traveled

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1 Introduction

This document is the emission inventory Technical Support Document (TSD) for the Clean Air Interstate Rule (CAIR) rulemaking by the U.S. Environmental Protection Agency (EPA). It includes descriptions of the approach and data used for the emissions inventory and emissions processing for air quality modeling, as described in the CAIR Air Quality Modeling TSD.

The emissions modeling effort has involved preparation of emissions input data for the Community Multiscale Air Quality (CMAQ) model, for the purposes of modeling particulate matter (PM). The model required hourly emissions for the entire year of 2001 on a 36-km national grid of the following pollutants: carbon monoxide (CO), nitrogen oxides (NOX), volatile organic compounds (VOC), sulfur dioxide (SO2), ammonia (NH3), particulate matter less than or equal to 10 microns (PM10), and particulate matter less than or equal to 2.5 microns (PM2.5).

Emissions modeling for CAIR also included preparation of emissions input data for the Comprehensive Air Quality Model with Extensions (CAM_X), for the purposes of modeling ozone in three summertime episodes. This effort required hourly emissions for those episodes on an Eastern U.S. 12-km grid for CO, NOX, and VOCs. Details about the air quality modeling cases can be obtained from the CAIR Air Quality Modeling TSD.

The emissions effort has included development of emission inventories for 2001, updates to the emissions modeling input files (including inventory and ancillary files), updates to the growth and control approaches, and updates to the emissions modeling tools. This document provides a roadmap to the emissions information used for the CAIR air quality modeling. The emissions modeling described here created emissions files for every hour of the year using emission inventories for a 2001 base year, and 2010 base case, and a 2015 base case. Additionally, we computed 2020 emissions for comparison to the emissions from the other years, but the emissions were not used in air quality modeling. Section 2 describes the emissions modeling, Section 3 describes the 2001 inventories and ancillary file updates, Section 4 describes the growth and control approach that we used, and Section 5 includes some references. Appendices A through H provide additional details about the approaches and emissions values.

2 Emissions modeling summary

To support CMAQ and CAM_X models, the emissions modeling involved converting the emission inventory data into the hourly, grid-cell, and model species resolution needed by CMAQ and CAM_X. Our emission inventories were available as annual-total emissions (non-mobile sectors) and average-day per month emissions (mobile sectors) by county or facility; consequently, our emissions modeling involved transforming the emission inventories using emissions modeling steps known as temporal allocation, chemical speciation, and spatial allocation. This section provides some basic information about the tools and data files used for performing the emissions modeling.

Please note that the zipped data files and README files referenced in this document for the CAIR Notice of Data Availability (NODA) (see docket – OAR-2003-0053-1688) are also available via password-protected FTP access at:

ftp://airmodelingftp.com/cair_noda/cair_noda/emissions/. For simplicity, this website will be referenced through this document as the "airmodeling ftp site". For access information, please contact Warren Peters at peters.warren@epa.gov. Additionally, a website for most of the same items as are in the docket for the CAIR NODA is http://www.epa.gov/cleanairinterstaterule/technical.html#NODA. For simplicity in this document, this website will be referred to as the "CAIR website".

2.1 Emissions modeling tool and configuration

We used the Sparse Matrix Operator Kernel (SMOKE) emissions to perform the emissions modeling. The SMOKE source code and scripts used for CMAQ can be found in the CAIR docket (number OAR-2003-0053-1688) and at the airmodeling ftp site in the file CAIR_SMOKE_072104.zip. The file README_SMOKE.txt describes the contents of the zip file, the SMOKE scripts, and how to install and modify the zip file contents to be able to run SMOKE on a Linux computer platform containing the Portland Group Fortran compiler. The SMOKE run scripts described in the README_SMOKE.txt file contain all of the settings that we used to configure the emissions modeling.

Some revisions were made to the SMOKE model for this effort. These are:

- Updated biogenics modeling to use BEIS3.12 (SMOKE version 2 included BEIS3.09) for CMAQ modeling
- Updated the projection capability to allow same-year adjustments. Adjustment factors can now be applied to an inventory without changing the year of the inventory (e.g., application of transportable fractions for fugitive dust sources)
- Updated the projection capability to permit optional use of SCC over SIC in the hierarchy for applying growth factors.
- Correction to projection capability to properly output stack temperatures in future-year inventory files.
- Updated reporting capabilities to include reporting by standard industrial codes (SIC).
- Updated scripting capabilities to allow for easier configuration for annual simulations for the many emissions sectors processed separately (e.g., separating fires from area sources).

These revisions were incorporated into the SMOKE v2.1 release, which provides essentially the same version of SMOKE used for CAIR and is available online at http://www.cmascenter.org/html/models.html. The SMOKE manual is available online at http://cf.unc.edu/cep/empd/products/smoke/version2.1/index.cfm.

2.2 Emissions modeling ancillary files

In this section, we summarize the ancillary files that we used in the CAIR emissions modeling. During emissions modeling, the ancillary data are combined with the emission inventory data to convert the inventories into the gridded, hourly resolution, and chemical species needed by CMAQ. In the emission inventory sections to follow (Section 3), we will further describe

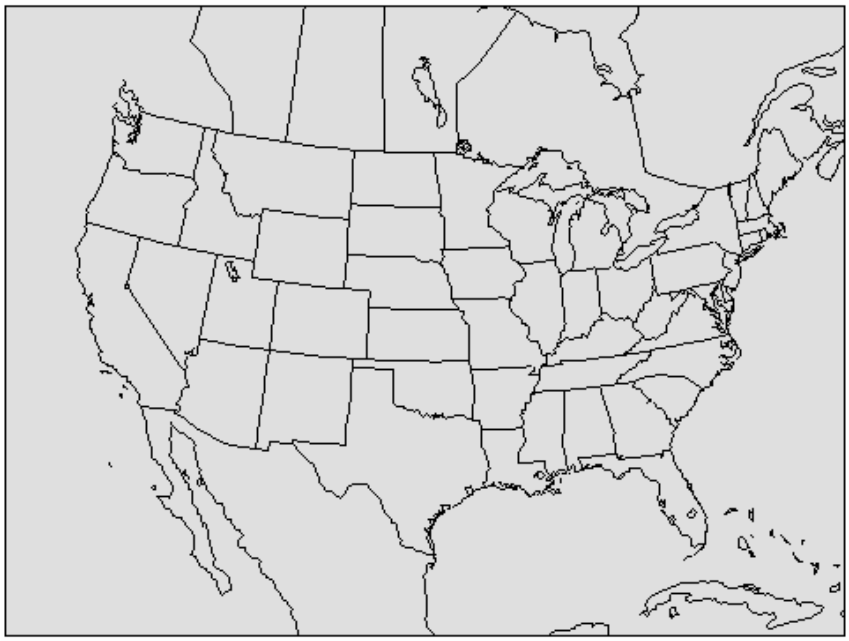
additions that we made to these ancillary files, as they apply to specific inventory sectors that are described in Section 3.

The SMOKE input ancillary files that we use in this effort are available in the CAIR docket (number OAR-2003-0053-1688) and at the airmodeling ftp site, in the zip file 2001CAIR_misc_072304.zip, in the "ge_dat" directory. A list of all of the ancillary files and their locations is available in the docket file README_2001.txt. Both the zip file and the README file are also available at the airmodeling ftp site.

2.2.1 Spatial allocation

For the CMAQ modeling, we used 36-km spatial surrogates for the contiguous U.S., Canada, and Mexico. Figure 1 shows the 36-km modeling domain. The U.S. surrogates were updated from proposal to have 65 different spatial surrogates for allocating county-level sources to the CMAQ model grid cells. Surrogates for Canadian emissions were also improved. The new approach is improved as compared to proposal because it (1) provides more up-to-date and detailed categories of spatial information to use as surrogates and (2) provides updated and reviewed surrogate assignments to the inventory by source category code (SCC). We took particular care in ensuring all significant emission sources were assigned a valid surrogate. Detailed documentation about the U.S. and Canadian spatial surrogates, their development, and the data itself is available online: http://www.epa.gov/ttn/chief/emch/spatial/newsurrogate.html.

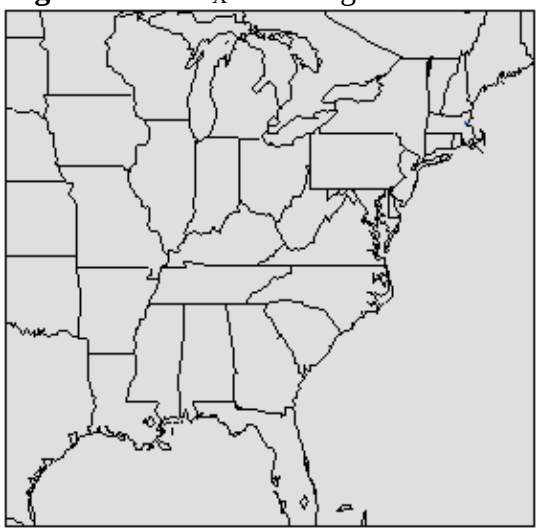
Figure 1: CMAQ modeling domain.



Mexican emissions were not included in the proposal modeling platform, but they are included in the final modeling; therefore, we required Mexican spatial surrogates. We used emissions and spatial surrogates developed for the 1999 Big Bend Regional Aerosol & Visibility Observational (BRAVO) study (http://www2.nature.nps.gov/air/studies/bravo/index.htm). Since the Mexican inventory used was allocated to Mexican states based on population, the only surrogate used for assigning the emissions was population.

For CAM_X modeling, we used 12-km lat-lon spatial surrogates for the 12-km modeling domain, as shown in Figure 2. No 12-km Mexican surrogates were available, therefore the 12-km surrogates file used only the new U.S. and Canadian surrogates. These are an older version of the spatial surrogates that were available for the lat-lon map projection used for CAM_X. These surrogates are described by the documentation available at http://www.epa.gov/ttn/chief/emch/spatial/oldsurrogate.html.

Figure 2: CAM_X modeling domain.



2.2.2 Chemical speciation

The VOC and PM2.5 speciation factors that are the basis of the chemical speciation approach are relatively unchanged from the CAIR proposal, with some notable exceptions. In the autumn of 2003, U.S. EPA completed an effort to review recent literature regarding speciation profiles for PM sources. The results, shown in Table 1, were that five new profiles were developed, for the five largest PM2.5 sectors in the inventory (as determined from the 1996 NEI): Coal Combustion; Wood Waste Boilers; Paved Road Dust; Agricultural Burning; and Wildfires. A memo describing that effort ("Recommendations for the Update and Improvement of Existing PM2.5 Split Factors") is posted on the U.S. EPA's Clearinghouse for Inventories and Emission Factors (CHIEF) web site at http://www.epa.gov/ttn/chief/emch/speciation/.

The five new profiles were assigned to be used for PM2.5 speciation for 344 SCCs. The five new profiles replaced four older profiles that had been previously assigned to these SCCs. Note that in the old assignments, one profile (named "Agricultural Burning") was used for speciating both agricultural burning and wildfires, because there was not a separate wildfire profile. Table 1 shows the five new profiles and the four old profiles that they replaced.

Table 1: New PM2.5 speciation profiles used for CAIR.

Profile Type	Old or New	Profile #	Split factors				
			Organic Carbon	Elemental Carbon	Primary Sulfate	Primary Nitrate	Crustal
Coal Combustion	Old	22001	0.0107	0.0183	0.1190	0.0000	0.8520
	New	NCOAL	0.20	0.01	0.16	0.005	0.625
Wood Waste Boiler	Old	22008	0.1177	0.2019	0.0282	0.0009	0.6513
	New	NWWAS	0.39	0.14	0.08	0	0.39
Paved Road Dust	Old	22058	0.1768	0.0112	0.0070	0.0022	0.8028
	New	NPAVE	0.12	0.0112	0.007	0.0004	0.8614
Agricultural Burning	Old	22060	0.6389	0.0750	0.0154	0.0063	0.2644
	New	NAGBN	0.67	0.04	0.01	0.003	0.277
Wildfires[1]	New	NWFIR	0.77	0.16	0.02	0.002	0.0480

[1] Partial replacement for old agricultural burning profile 22060

Appendix A lists the 344 SCCs that the five new profiles were assigned to for the 2001 inventories, along with their previous profile assignments. This file is also available electronically at the CAIR website.

2.2.3 Temporal allocation

The monthly, weekly, and diurnal temporal profiles were created based on the data available at http://www.epa.gov/ttn/chief/emch/temporal/. Several changes were made to these profiles: adding new monthly and diurnal state-specific profiles for fires (see Section 3.1.2 of this document), new livestock monthly profiles (see Section 3.1.5), and California-specific monthly profiles for on-road mobile sources (see Section 3.3.1). The resulting temporal allocation factors are available as part of the ancillary file zip file with access information listed at the head of Section 2.2.

3 2001 emission inventories and approaches

The basis for the 2001 emission inventory is the National Emission Inventory (NEI), which includes emissions of CO, NOX, VOC, SO2, NH3, PM10, and PM2.5. Ordinarily, the NEI is provided in four sectors: non-point (stationary area) sources, point sources, nonroad mobile sources, and on-road mobile sources. For purposes of this modeling, EPA has split the 2001 emissions inventory into several additional source sectors for use in emissions modeling, and we

have added biogenic emissions. The headings for this list include the sector abbreviations in parentheses; these abbreviations are used in the modeling scripts and directory names.

- **IPM sector (ptipm):** Point-source facilities that were matched to facilities in the 2003 National Electric Energy Database System (NEEDS)
- **Non-IPM sector(ptnonipm):** All point sources neither in the IPM sector nor in the "point fugitive dust" sector, and including Canadian, Mexican, and offshore point-source emissions
- **Point fugitive dust sector (pfdust):** Fugitive dust point sources
- **Fire sector (fire):** Wildfires, prescribed burning fires, agricultural fires, and open burning (area sources). Included in a 2001-year model simulation performed for the purpose of model performance evaluation only
- **Average-fire sector (avefire):** Average-year wildfire and prescribed burning calculated from 1996-2002 acres burned data, and 2001 agricultural burning and open burning data. Used for the 2001 base year and the 2010 and 2015 base model runs.
- **Agricultural sector (ag):** 2002 NH3 emissions from livestock and fertilizer application
- **Area fugitive dust sector (afdust):** Fugitive dust stationary area sources
- **Other-area sector (oarea):** Nonpoint (stationary area) sources not in the fire, ag, or afdust sectors and including Canadian and Mexican nonpoint (area) and mobile emissions (includes Mexican on-road vehicle refueling emissions; excludes Canadian and Mexican fire emissions).
- **Nonroad (nonroad):** Nonroad mobile sources from the NONROAD 2004 model via the National Mobile Inventory Model (NMIM) and from commercial marine, airports, and locomotives. Also includes Canadian data.
- **On-road (mobile):** On-road mobile sources from the MOBILE6 model via NMIM (not including refueling emissions). Also includes Canadian data.
- **Biogenic:** Hour-specific emissions from the BEIS3.12 model (includes emissions in Canada and Mexico)

Tables 2(a) through 2(c) provide summaries of 2001, 2010 base, 2015 base, and 2020 base emissions by sector and pollutant for (a) all the states in the continental U.S., (b) all states in the CAIR region (including NJ, DE, and AR), and (c) all states in the modified CAIR region (excluding NJ, DE, and AR). Note that CT and MA are included in all three tables, although they are included in the CAIR program for ozone/NOx only.

Table 2(a): Sector and pollutant emissions totals for 2001, 2010 base, 2015 base, and 2020 base for all states in the continental U.S.

Year	Sectors	[tons/yr] VOC	[tons/yr] NOX	[tons/yr] CO	[tons/yr] SO2	[tons/yr] PM10	[tons/yr] PM2.5	[tons/yr] NH3
2001	afdust	0	0	0	0	10,117,152	1,735,883	0
	Ag	0	0	0	0	0	0	3,140,563
	Ave fire	653,544	238,931	10,767,438	49,108	1,103,540	979,607	38,237
	EGU	52,737	4,937,398	452,092	10,901,127	721,415	598,937	7,918
	NonEGU	1,537,208	2,942,618	3,963,754	2,958,692	914,250	701,381	82,550
	Nonroad	2,584,513	4,050,655	22,789,871	433,249	320,999	307,520	1,753
	on-road	4,709,818	8,064,067	61,057,851	271,032	216,924	161,373	277,379
	Other area	7,326,991	1,462,276	3,712,654	1,295,146	875,944	764,395	141,193
	pfdust	0	0	0	0	12,752	3,915	0
2001 Total		16,864,812	21,695,944	102,743,660	15,908,354	14,282,977	5,253,010	3,689,593
2010	afdust	0	0	0	0	10,428,325	1,784,758	0
	Ag	0	0	0	0	0	0	3,220,011
	Ave fire	653,544	238,931	10,767,438	49,108	1,103,540	979,607	38,237
	EGU	41,391	3,672,929	578,358	9,903,882	796,300	668,487	928
	NonEGU	1,363,530	2,931,360	4,421,697	3,189,864	957,490	739,036	93,078
	Nonroad	1,903,516	3,282,339	26,195,189	219,032	262,247	250,607	2,069
	on-road	2,593,430	4,683,086	37,718,382	27,439	151,876	91,721	341,564
	Other area	6,777,802	1,630,411	2,959,763	1,408,990	833,547	710,557	153,569
	pfdust	0	0	0	0	14,727	4,405	0
2010 Total		13,333,212	16,439,057	82,640,827	14,798,314	14,548,053	5,229,178	3,849,455
2015	afdust	0	0	0	0	10,564,873	1,803,965	0
	Ag	0	0	0	0	0	0	3,299,775
	Ave fire	653,544	238,931	10,767,438	49,108	1,103,540	979,607	38,237
	EGU	43,534	3,708,658	648,344	9,079,214	817,839	687,112	777
	NonEGU	1,553,429	3,183,499	4,971,592	3,422,915	1,080,189	833,372	102,627
	Nonroad	1,648,402	2,912,387	27,364,911	232,628	228,217	217,762	2,264
	on-road	2,031,739	3,152,563	34,182,190	30,823	134,202	70,697	379,401
	Other area	7,132,086	1,702,154	2,810,041	1,480,348	839,500	709,230	166,326
	pfdust	0	0	0	0	16,517	4,959	0
2015 Total		13,062,734	14,898,191	80,744,517	14,295,035	14,784,877	5,306,704	3,989,407
2020	afdust	0	0	0	0	10,336,463	1,770,042	0
	Ag	0	0	0	0	0	0	3,379,491
	Ave fire	653,544	238,931	10,767,438	49,108	1,103,540	979,607	38,237
	EGU	46,632	3,746,120	717,571	8,871,886	888,048	752,292	626
	NonEGU	1,745,188	3,456,971	5,554,596	3,673,660	1,203,227	928,433	111,913
	Nonroad	1,529,509	2,671,828	29,040,715	280,518	203,583	193,213	2,456
	on-road	1,768,003	2,437,713	34,101,523	34,372	134,560	65,683	417,670
	Other area	7,309,208	1,801,541	2,669,482	1,516,207	847,816	710,554	178,695
	pfdust	0	0	0	0	18,415	5,546	0
2020 Total		13,052,084	14,353,105	82,851,324	14,425,751	14,735,651	5,405,370	4,129,088

Table 2(b): Sector and pollutant emissions totals for 2001, 2010 base, 2015 base, and 2020 base for all states in the CAIR region[1].

Year	Sectors	[tons/yr] VOC	[tons/yr] NOX	[tons/yr] CO	[tons/yr] SO2	[tons/yr] PM10	[tons/yr] PM2.5	[tons/yr] NH3
2001	afdust	0	0	0	0	6,084,795	1,042,456	0
	Ag	0	0	0	0	0	0	2,028,075
	Ave fire	324,827	113,345	4,866,287	17,867	483,817	435,601	15,100
	EGU	39,419	4,039,722	329,746	9,858,418	623,266	521,855	6,077
	NonEGU	1,285,642	2,311,837	3,201,679	2,489,220	727,194	566,486	56,351
	Nonroad	1,906,545	2,913,255	16,397,298	347,577	231,046	221,225	1,242
	on-road	3,572,359	6,035,647	46,730,379	221,253	163,265	122,029	204,648
	Other area	5,467,115	960,754	2,935,973	1,081,216	662,880	579,426	119,295
	pfdust	0	0	0	0	6,802	2,820	0
2001 Total		12,595,907	16,374,560	74,461,362	14,015,551	8,983,064	3,491,898	2,430,788
2010	afdust	0	0	0	0	6,255,621	1,067,926	0
	Ag	0	0	0	0	0	0	2,053,336
	Ave fire	324,827	113,345	4,866,287	17,867	483,817	435,601	15,100
	EGU	32,493	2,864,722	415,446	9,073,431	702,378	592,045	850
	NonEGU	1,133,811	2,256,736	3,533,314	2,652,165	748,028	589,006	66,529
	Nonroad	1,405,137	2,409,759	18,623,369	193,521	191,569	183,021	1,463
	on-road	1,931,244	3,370,367	27,679,973	22,256	110,038	68,150	243,367
	Other area	4,939,213	1,061,151	2,366,253	1,195,855	624,831	534,347	129,680
	pfdust	0	0	0	0	7,607	3,102	0
2010 Total		9,766,726	12,076,080	57,484,642	13,155,095	9,123,889	3,473,197	2,510,325
2015	afdust	0	0	0	0	6,344,836	1,080,369	0
	Ag	0	0	0	0	0	0	2,100,562
	Ave fire	324,827	113,345	4,866,287	17,867	483,817	435,601	15,100
	EGU	34,214	2,891,349	468,502	8,267,134	722,815	609,513	696
	NonEGU	1,294,244	2,456,414	3,996,536	2,835,839	843,391	664,439	73,422
	Nonroad	1,214,085	2,151,994	19,400,654	208,772	168,774	161,037	1,601
	on-road	1,509,382	2,292,682	24,988,852	24,876	95,701	51,716	268,122
	Other area	5,174,352	1,098,248	2,233,863	1,259,470	621,703	526,870	140,712
	pfdust	0	0	0	0	8,529	3,493	0
2015 Total		9,551,104	11,004,032	55,954,693	12,613,959	9,289,567	3,533,039	2,600,215
2020	afdust	0	0	0	0	6,167,700	1,054,026	0
	Ag	0	0	0	0	0	0	2,137,747
	Ave fire	324,827	113,345	4,866,287	17,867	483,817	435,601	15,100
	EGU	36,586	2,919,929	514,747	8,089,865	783,065	665,059	548
	NonEGU	1,456,066	2,662,334	4,478,449	3,033,939	940,467	741,167	81,139
	Nonroad	1,125,461	1,999,893	20,573,267	251,992	153,350	145,670	1,736
	on-road	1,315,676	1,803,835	24,855,926	27,628	94,996	47,530	293,343
	Other area	5,259,316	1,144,551	2,107,949	1,293,656	620,839	521,811	151,404
	pfdust	0	0	0	0	9,505	3,912	0
2020 Total		9,517,932	10,643,887	57,396,625	12,714,946	9,253,740	3,614,775	2,681,017

[1] The CAIR region is defined here to include the following states: AL, AR, CT, DE, DC, FL, GA, IL, IN, IA, KY, LA, MD, MA, MI, MN, MS, MO, NJ, NY, NC, OH, PA, SC, TN, TX, VA, WV, WI

Table 2(c): Sector and pollutant emissions totals for 2001, 2010 base, 2015 base, and 2020 base for all states in the modified CAIR region[2].

Year	Sectors	[tons/yr] VOC	[tons/yr] NOX	[tons/yr] CO	[tons/yr] SO2	[tons/yr] PM10	[tons/yr] PM2.5	[tons/yr] NH3
2001	afdust	0	0	0	0	5,832,629	998,550	0
	Ag	0	0	0	0	0	0	1,883,944
	Ave fire	316,157	109,575	4,699,945	17,072	467,373	421,028	14,492
	EGU	37,991	3,945,054	321,282	9,691,802	611,689	512,818	5,937
	NonEGU	1,230,578	2,227,204	3,062,790	2,367,753	695,570	541,427	54,256
	Nonroad	1,799,049	2,780,127	15,473,708	333,065	219,357	210,063	1,174
	on-road	3,405,621	5,727,469	44,474,066	211,978	154,963	115,885	193,838
	Other area	5,172,548	882,892	2,786,703	1,002,709	626,154	547,174	113,853
	pfdust	0	0	0	0	6,748	2,785	0
2001 Total		11,961,943	15,672,320	70,818,495	13,624,379	8,614,482	3,349,730	2,267,493
2010	afdust	0	0	0	0	5,995,629	1,022,879	0
	Ag	0	0	0	0	0	0	1,902,883
	Ave fire	316,157	109,575	4,699,945	17,072	467,373	421,028	14,492
	EGU	31,566	2,794,617	403,396	8,906,060	685,499	579,188	840
	NonEGU	1,077,223	2,166,556	3,372,316	2,514,622	713,866	561,649	64,156
	Nonroad	1,330,055	2,302,234	17,565,478	186,733	182,027	173,931	1,383
	on-road	1,839,168	3,190,542	26,314,018	21,073	104,297	64,611	230,434
	Other area	4,693,796	974,629	2,255,482	1,099,999	590,419	505,287	123,710
	pfdust	0	0	0	0	7,554	3,067	0
2010 Total		9,287,965	11,538,153	54,610,635	12,745,558	8,746,663	3,331,639	2,337,899
2015	afdust	0	0	0	0	6,082,091	1,035,033	0
	Ag	0	0	0	0	0	0	1,940,506
	Ave fire	316,157	109,575	4,699,945	17,072	467,373	421,028	14,492
	EGU	33,164	2,818,098	452,173	8,106,065	704,770	595,952	686
	NonEGU	1,231,606	2,357,493	3,815,827	2,681,426	805,070	633,773	70,830
	Nonroad	1,149,011	2,058,235	18,292,060	201,683	160,489	153,160	1,513
	on-road	1,436,399	2,157,844	23,746,604	23,554	90,691	49,017	253,878
	Other area	4,919,191	1,008,625	2,132,493	1,159,940	587,578	498,448	134,149
	pfdust	0	0	0	0	8,465	3,451	0
2015 Total		9,085,529	10,509,870	53,139,101	12,189,740	8,906,528	3,389,863	2,416,055
2020	afdust	0	0	0	0	5,913,208	1,009,851	0
	Ag	0	0	0	0	0	0	1,970,577
	Ave fire	316,157	109,575	4,699,945	17,072	467,373	421,028	14,492
	EGU	35,503	2,845,734	497,461	7,926,962	764,485	650,987	538
	NonEGU	1,386,379	2,554,539	4,277,485	2,861,494	897,651	706,884	78,296
	Nonroad	1,064,254	1,914,690	19,391,664	243,432	145,962	138,696	1,641
	on-road	1,251,350	1,686,303	23,615,466	26,161	90,017	45,043	277,774
	Other area	5,000,219	1,051,735	2,015,590	1,192,849	587,045	494,023	144,283
	pfdust	0	0	0	0	9,429	3,862	0
2020 Total		9,053,862	10,162,576	54,497,611	12,267,969	8,875,170	3,470,374	2,487,601

[2] The modified CAIR region is defined here to include the following states: AL, CT, DC, FL, GA, IL, IN, IA, KY, LA, MD, MA, MI, MN, MS, MO, NY, NC, OH, PA, SC, TN, TX, VA, WV, WI (excludes AR, DE, and NJ from Table 2b).

Appendix B includes a more detailed summary that expands Tables 2(a) through 2(c) to include totals by state, sector and pollutant for 2001, 2010, and 2015. This information is also available electronically in the CAIR docket (item number OAR-2003-0053-1705) and the CAIR website, as a Microsoft® Excel® file, named Emissions_summary_state_sector_2001-2010-2015.xls.

Also available are annual total emissions by state and sector after application of chemical speciation factors for 2001, 2010, and 2015, which includes differences among the years. It can be found as a Microsoft® Excel® file Emissions_summary_state_sector_speciation_2001-2010-2015.xls in the CAIR docket (item number OAR-2003-0053-1706) and the CAIR website.

3.1 2001 Area sources

The 2001 area sources are based on the 2001 stationary area NEI. In this section, we summarize the references for the 2001 stationary area NEI, and then we describe in more detail each of the subsectors into which we separated this inventory.

The following data files are available in the CAIR docket (number OAR-2003-0053-1688) and on the airmodeling ftp site that help provide details of the 2001 area sources inventories:

- **2001CAIR_ar_072104.zip:**
  - Raw inventory data files (as described in the Readme file below).
  - Microsoft® Access ® reader for all of the 2001 SMOKE input files, which can be found in the zip file in directory inventory/2001/access_IDA.
- **README_2001.txt:** A list of the files included in the zip file.
- **2001CAIR_misc_072304.zip:**
  - Instructions for using the Access ® reader are available in the zip file in file: inventory/multi-year/README_ACCESS_convert_20XX.pdf.
  - Includes SMOKE-output ASCII SCC and state-SCC summaries for 2001 to allow others to check usage of the Access readers, in the folder inventory/summaries/2001/access_checks/.

3.1.1 2001 stationary area source NEI

The documentation for the 2001 stationary area sources is included in the documentation for the 1999 stationary area source NEI, available at:

ftp://ftp.epa.gov/EmisInventory/finalnei99ver3/criteria/documentation/area/area_99nei_finalv3_0204.pdf

To calculate the 2001 stationary area source NEI, we applied growth factors to the 1999 NEI for all SCCs except those listed in Tables 2 and 3. The growth factors that we used are available in the CAIR docket (number OAR-2003-0053-1688) and the airmodeling ftp site in a zipped Microsoft® Access® file called 1999to2001_StatAreaProjection.zip.

For the SCCs listed in Tables 2 and 3, we either (1) computed the 2001 emissions using the same approaches as the 1999 inventory using the EPA estimation methods described for the 1999 inventory, or (2) carried the emissions forward unchanged from the 1999 inventory. The SCCs for which we computed the emissions, and the location in the documentation from the web-link above, are shown in Table 3. The SCCs for which we carried forward emissions are shown in Table 4**.** Both tables list the Appendices from the 1999 stationary area NEI documentation (ftp

address listed at the start of this section) that provide an explanation about how EPA calculated the inventory for 1999 or 2001.

Table 3: Source category codes recalculated for the 2001 NEI.

SCCs	Description	Appendix from 1999 EI documentation
2294000000 – Paved Roads 2296000000 – Unpaved Roads	Road dust	D
2311010000 – General 2311020000 – Heavy 2311030000 – Roadway	Construction	D
2610000500 – Land Clearing Debris Burning	Open Burning	D
2810001000 – Forest Wildfires 2810015000 – Prescribed burning	Fire combustion	E

Table 4: Source category codes carried forward from the 1999 NEI unchanged.

SCCs	Description	Appendix from 1999 EI documentation
2104008001 – Fireplaces: General 2104008002 – Fireplaces: Insert; non-EPA certified 2104008003 – Fireplaces: Insert; EPA certified; non-cataltyic 2104008004 – Fireplaces: Insert; EPA certified; catalytic 2104008010 – Woodstoves: General 2104008030 – Catatylic woodstoves: General 2104008050 – Non-catalytic Woodstoves: General	Residential Wood Combustion	B
2325000000	Mining & Quarrying; All Processes	D
2610000100 - Residential Leaf burning 2610000400 - Residential Brush burning 2610030000 - Residential MSW burning	Open Burning	D
2801000000	Cotton Ginning (PM only)	D
2801000003	Ag Tilling (PM only)	D
2801700001 – Anhydrous Ammonia 2801700002 – Aqeuous Ammonia 2801700003 – Nitrogen Solutions 2801700004 – Urea 2801700005 – Ammonium Nitrate 2801700006 – Ammonium Sulfate 2801700007 – Ammonium Thiosulfate 2801700008 – Other Straight Nitrogen 2801700009 – Ammonium Phosphates 2801700010 – N-P-K	Fertilizer application (NH3 only)	D
2805001000	Beef Cattle Feedlots (PM only)	D
2810030000	Structure Fires	D

Using these 2001 NEI emissions as a starting point, we then subdivided and made other changes to some sectors to create the final 2001 inventory used for CAIR[2].

3.1.2 Fires

The fire sector includes U.S.-only wildfires, prescribed burning, agricultural burning, and other open burning. This sector was included in a 2001-year model simulation performed for the purpose of CMAQ model performance evaluation only. No emissions modifications were made to this sector from the original 2001 NEI. This sector was not used for any CAM_X modeling.

We modified the monthly temporal profiles used for modeling all components of the fire sector and the diurnal profiles used for modeling wildfires and prescribed fires. EPA developed new monthly and diurnal temporal profiles by state for wildfires and prescribed burning, as described in Appendix C. This information is also available electronically in the CAIR docket (number OAR-2003-0053-1688) and the CAIR website in the file Fire_Temporal_Documentation.pdf. For AL, FL, GA, KY, MS, NC, SC, TN, VA, and WV, we used monthly temporal profile data provided by the Visibility Improvement State and Tribal Association of the Southeast (VISTAS) regional planning organization (RPO), which includes monthly profiles for wildfires, prescribed fires, agricultural burning, and other open burning sectors.

As discussed in Table 1 in Section 2.2.2, we also updated the PM2.5 speciation profile. The profile we are now using for the wildfires and prescribed burning sectors is “NWFIR,” and for agricultural burning and other open burning fires, we are using the “NAGBN” profile.

3.1.3 Average fires

The average fire sector was included in the 2001 base year, 2010 base case, and 2015 base case CMAQ and CAM_X modeling, though for CAM_X the wildfires component of this sector was not included. It was also used for the CAM_X model validation. This inventory has not been and will not be incorporated into the official 2001 NEI because it is intended only for modeling usage and does not represent actual 2001 emissions. We created it based on the 2001 fire emissions data just described. Since fires have very high emissions, the purpose of the average fire inventory is to prevent undue influence of the 2001-specific fire inventory to any single state’s overall base or future emission inventory. The average fire sector is comprised of a 1996-2002 average fire inventory for wildfires and prescribed burning, and 2001 fires for agricultural burning and other open burning; these latter two subsectors were maintained at 2001 levels even in the 2010 and 2015 modeling.

We calculated the average wildfire and prescribed burning inventories using the following formula for all pollutants:

$$average\ \ fire = 2001\, fire \times \frac{average\ acres\ burned}{2001\ acres\ burned}$$

[2] Unless otherwise noted, changes that affected emissions values have since been incorporated into the 2001 NEI, version 3 available on EPA’s internal “NEI On the Net” (NEON) system.

The average acres-burned was calculated base on 1996 through 2002 data; therefore, the average fire inventory represent average fires from 1996 through 2002, with the assumption of 2001 emissions rates and counties with fires from 2001.

Average-year temporal profiles were developed for wildfires and prescribed burning fires to prevent undue weighting of any particular month that had large fires in 2001. We calculated the average monthly profiles from monthly acres burned data from 1999 through 2002. The approach for calculating the average temporal profiles is described in Appendix C and is also available electronically in the CAIR docket (number OAR-2003-0053-1688) and the CAIR website in the file Fire_Temporal_Documentation.pdf.

The same revised PM2.5 speciation approach used for the fire sector and described in Table 1 in Section 2.2.2, was used for the average-year fire sector.

3.1.4 Fugitive dust

The area-source fugitive dust inventory was extracted from the 2001 NEI and the paved and unpaved road dust part of the emissions was replaced with emissions using improved emission factors and other assumptions. This inventory contains only PM emissions and was therefore used only for the CMAQ modeling. The SCCs extracted from the NEI as area-source fugitive dust are the 10-digit SCCs are provided in Appendix D and electronically online at http://www.epa.gov/ttn/chief/emch/invent/fugitive_dust_sccs.xls.

The paved and unpaved road dust emissions (SCCs 2294000000 and 2296000000) from the 2001 NEI were replaced with emissions calculated using the latest approach. This approach is described in pages A-46 through A-54 of the document:

ftp://ftp.epa.gov/pub/EmisInventory/prelim2002nei/nonpoint/documentation/2002prelimneinonpt_032004.pdf

As discussed in Table 1 in Section 2.2.2, we also updated the PM2.5 speciation profile for the paved road dust sector.

During emissions modeling with SMOKE, we applied a transportable fraction to the PM10 and PM2.5 emissions from these sources. The transportable fractions were applied by county. The approach used to calculate the county fractions and the fractions themselves are available electronically at http://www.epa.gov/ttn/chief/emch/invent/, at the bottom of the web page. The approach is in the document “statusfugdustemissions_082203.pdf” and the fractions are in the spreadsheet “transportfractions.xls”.

3.1.5 Agricultural Ammonia

The agricultural NH3 sector is comprised of livestock emissions and 2001 NEI emissions for agricultural fertilizer application. This inventory was used only for the CMAQ modeling, since the CAM_X modeling did not include NH3. We replaced the NEI livestock NH3 emissions with emissions and different SCCs from the improved approach emissions of the 2002 preliminary NEI. The documentation for the new approach for these emissions is available at:

ftp://ftp.epa.gov/EmisInventory/prelim2002nei/nonpoint/documentation/nh3inventorydraft_jan2004.pdf

The SCCs replaced from the 2001 NEI and the new SCCs are provided in Table 5 below:

Table 5: Livestock SCCs in the original 2001 NEI and their replacements.

2001 SCC & Description*	2002 SCC	2002 SCC Description*
2805020000 Cattle and Calves Waste Emissions;Total	2805001100	Beef cattle - finishing operations on feedlots (drylots);Confinement
	2805001200	Beef cattle - finishing operations on feedlots (drylots);Manure handling and storage
	2805001300	Beef cattle - finishing operations on feedlots (drylots);Land application of manure
	2805002000	Beef cattle production composite;Not Elsewhere Classified
	2805003100	Beef cattle - finishing operations on pasture/range;Confinement
	2805018000	Dairy cattle composite;Not Elsewhere Classified
	2805019100	Dairy cattle - flush dairy;Confinement
	2805019200	Dairy cattle - flush dairy;Manure handling and storage
	2805019300	Dairy cattle - flush dairy;Land application of manure
	2805021100	Dairy cattle - scrape dairy;Confinement
	2805021200	Dairy cattle - scrape dairy;Manure handling and storage
	2805021300	Dairy cattle - scrape dairy;Land application of manure
	2805022100	Dairy cattle - deep pit dairy;Confinement
	2805022200	Dairy cattle - deep pit dairy;Manure handling and storage
	2805022300	Dairy cattle - deep pit dairy;Land application of manure
	2805023100	Dairy cattle - drylot/pasture dairy;Confinement
	2805023200	Dairy cattle - drylot/pasture dairy;Manure handling and storage
	2805023300	Dairy cattle - drylot/pasture dairy;Land application of manure
2805025000 Hogs and Pigs Waste Emissions;Total	2805025000	Hogs and Pigs Waste Emissions;Total
	2805039100	Swine production - operations with lagoons (unspecified animal age);Confinement
	2805039200	Swine production - operations with lagoons (unspecified animal age);Manure handling and storage
	2805039300	Swine production - operations with lagoons (unspecified animal age);Land application of manure
	2805047100	Swine production - deep-pit house operations (unspecified animal age);Confinement
	2805047300	Swine production - deep-pit house operations (unspecified animal age);Land application of manure
	2805053100	Swine production - outdoor operations (unspecified animal age);Confinement
2805030000 Poultry Waste Emissions;Total	2805007100	Poultry production - layers with dry manure management systems;Confinement
	2805007300	Poultry production - layers with dry manure management systems;Land application of manure
	2805008100	Poultry production - layers with wet manure management systems;Confinement
	2805008200	Poultry production - layers with wet manure management systems;Manure handling and storage
	2805008300	Poultry production - layers with wet manure management systems;Land application of manure
	2805009100	Poultry production - broilers;Confinement
	2805009200	Poultry production - broilers;Manure handling and storage
	2805009300	Poultry production - broilers;Land application of manure
	2805010100	Poultry production - turkeys;Confinement
	2805010200	Poultry production - turkeys;Manure handling and storage
	2805010300	Poultry production - turkeys;Land application of manure
	2805030000	Poultry Waste Emissions;Total
2805035000	2805035000	Horses and Ponies Waste Emissions;Total
2805040000	2805040000	Sheep and Lambs Waste Emissions;Total
2805045001	2805045000	Goats Waste Emissions;Total

* All SCC Descriptions begin "Miscellaneous Area Sources;Agriculture Production – Livestock"

If these SCCs had PM10 or PM2.5 emissions, those emissions were included in the area-source fugitive dust sector. The fertilizer emissions for this sector were extracted from the 2001 NEI based on SCCs shown in Table 6.

Table 6: Fertilizer SCCs in the 2001 NEI.

SCC	Description*
2801700001	Anhydrous Ammonia
2801700002	Aqueous Ammonia
2801700003	Nitrogen Solutions
2801700004	Urea
2801700005	Ammonium Nitrate
2801700006	Ammonium Sulfate
2801700007	Ammonium Thiosulfate
2801700008	Other Straight Nitrogen
2801700009	Ammonium Phosphates (see also subsets (-13, -14, -15)
2801700010	N-P-K (multi-grade nutrient fertilizers)

* All descriptions include "Miscellaneous Area Sources; Agriculture Production – Crops; Fertilizer Application

We improved the monthly temporal profiles for this sector using the following approaches:

- For fertilizer emissions, we used state-specific monthly profiles from the Carnegie-Mellon University (CMU) ammonia model available at the time of our modeling. These are profiles 950 through 998 available in file amptpro.m3.2001.us+can.txt in the zip file 2001CAIR_misc_072304.zip in the CAIR docket (number OAR-2003-0053-1688) and on the airmodeling ftp site.
- For dairy cow emissions, we used state-specific monthly profiles developed by calculating a weighted-average state-specific monthly profile from the county-specific monthly profiles available in the CMU ammonia model. The weighting factors used to average from the county-level to the state-level were the dairy-cow emissions from the 2002 livestock inventory referenced above. These are profiles 1501 through 1556 in the.
- For all other livestock sectors, we used a temporal profile based on inverse modeling using the modeling approach taken in the CAIR proposal. The original inverse-modeling-based profile is described by Gilliland, et al. [2003], and it has an overall reduction of emissions of about 30%. Because of the new approach that we used to develop the livestock emissions, this artificial reduction was no longer necessary; therefore, we renormalized the original profile to keep the monthly variation, but to exclude the 30% reduction. This is profile number 1500 in the same file as just listed for the fertilizer profiles.

3.1.6 Other-area sources

The other-area sources sector includes all 2001 NEI stationary area source emissions not included in the fire/avefire, ag, and afdust sectors. The main documentation for this sector is the documentation described previously (Section 3.1.1) for the 2001 stationary area NEI.

Additionally, we replaced the limited commercial cooking data with a national commercial cooking inventory that was also available in the 2002 preliminary NEI, which was based on 2001 activity data. The approaches used to create the commercial cooking inventory are described at:

ftp://ftp.epa.gov/EmisInventory/prelim2002nei/nonpoint/documentation/2002neicharbroilingtechmemo_122303.pdf

We used this inventory to replace SCCs 2302000000, 2302002000, and 2302003000 from the original 2001 NEI with the SCCs as shown in Table 7 below. Because the assignments for speciation, spatial allocation, and temporal allocation were not available at the levels for the original SCCs, we summed the five original SCCs into 2 "summed SCCs" for use in modeling. These summed SCCs are also shown in Table 7.

Table 7: Summary of commercial cooking SCCs and pollutants.

Original SCC	Summed SCC	CO	VOC	PM10	PM2.5	SCC Description
2302002100	2302002000	√	√	√	√	Industrial Processes, Food and Kindred Products: SIC 20, Commercial Cooking, Conveyorized Charbroiling
2302002200	2302002000	√	√	√	√	Industrial Processes, Food and Kindred Products: SIC 20, Commercial Cooking, Under-fired Charbroiling
2302003100	2302003000	√	√	√	√	Industrial Processes, Food and Kindred Products: SIC 20, Commercial Cooking, Flat Griddle Frying
2302003200	2302003000		√	√	√	Industrial Processes, Food and Kindred Products: SIC 20, Commercial Cooking, Clamshell Griddle Frying
2302003000	2302003000		√			Industrial Processes, Food and Kindred Products: SIC 20, Commercial Cooking, Deep Fat Frying, Total

One limitation of our use of this commercial cooking inventory was that SCC 2302002100 was accidentally dropped from the SMOKE input file, resulting in a reduction of 8200.64 tons/year of primary PM2.5 emissions. The largest impact on a county-specific basis was dropping 151 tons/year of PM2.5 emissions in Cook County, IL; however, this source of emissions is a very small part of the PM2.5 inventory. So, we do not anticipate any adverse affects on our modeling from this omission.

As discussed in Table 1 in Section 2.2.2, we improved the PM2.5 speciation approach by updating the speciation profiles for wood-waste boilers and coal combustion. The profiles for these sectors were updated because they comprised a large proportion of the PM2.5 emissions in the NEI.

Additionally, the other-area sector contains stationary area emissions from Canada and stationary area and mobile emissions from Mexico. For Canada, the emission inventory used is the same 1995 inventory that was used in the CAIR proposal, since that inventory was the most current available during the time that this modeling was undertaken. We removed all records in the Canadian inventory for wildfires, prescribed fires, windblown dust, and biogenic emissions, because these emissions are very dependent on the modeling year (and we were not modeling

1995) and the data were deemed too unreliable for this modeling effort. The Mexican inventory is the 1999 BRAVO Emissions Inventory. More information on this inventory is available at http://www.epa.gov/ttn/chief/net/mexico.html.

3.2 Biogenic sources

For CMAQ, the biogenic emissions were computed based on 2001 meteorology data using the BEIS3.12 model from SMOKE, which is an improvement over the modeling done for proposal, which used BEIS3.09. For CAM_X, the BEIS3.09 modeling used for proposal was also used in the final modeling.

The BEIS3.12 model computes gridded, hourly, model-species emissions for combination with the anthropogenic emissions to put into CMAQ. Emissions are calculated for the U.S., Mexico, and Canada and accounts for CO, VOC, and NOX emissions from vegetation and soils. The BEIS3.12 model is described further in Appendix E. The meteorology data on which the biogenic emissions depend is the same as the meteorology data input to the CMAQ model.

The following data files are available in the CAIR docket (number OAR-2003-0053-1688) and at the airmodeling ftp site that help provide details of the 2001 biogenic inventories. All emissions files are outputs from SMOKE/BEIS3.12.

- **2001CAIR_bg_1_072104.zip:** Contains land use, and emissions for the year-2000 10-day spin-up period and for January through March of 2001.
- **2001CAIR_bg_2_072104.zip:** Contains emissions for April through June of 2001
- **2001CAIR_bg_3_072104.zip:** Contains emissions for July through September of 2001
- **2001CAIR_bg_4_072104.zip:** Contains emissions for October through December of 2001.
- **2001CAIR_misc_072304.zip:**
    - Microsoft® Excel® file entitled inventory/summaries/multi-year/2002 biogenic CERR default.xls that contains county/monthly summaries of the BEIS3.12-based biogenic emissions data.

As part of the biogenic modeling, we added the speciation profiles for BEIS3.12 to the default SMOKE speciation profiles for CMAQ. The profile is named B3V10. However, one correction to the ETHO profile was needed that differed from the officially released version of BEIS3.12 at the time. The PAR mass fraction was corrected to 0.3883 and an NR entry was added with mole fraction 1.6, average molecular weight of 24, and mass fraction of 1.5333.

3.3 2001 Mobile sources

For this effort, the EPA Office of Transportation and Air Quality (OTAQ) generated most of the on-road and nonroad mobile emissions using NMIM; the only exceptions were for on-road mobile emissions from California and nonroad mobile emissions from commercial marine, aircraft, and locomotive sources. The NMIM model relies on calculations from the MOBILE6 and NONROAD 2004 models. OTAQ used version 6.2.03 of MOBILE6 and the version of the NONROAD 2004 that was the same as the version used to develop the final Nonroad Rule. A

conference paper on the NMIM model is available on the CAIR website (as listed at the top of Section 2) in the file Mobile_NMIM_Documentation.pdf (also in the CAIR docket as item number OAR-2003-0053-1701).

3.3.1 On-road mobile sources

With the exception of California, we obtained our on-road mobile emissions from the NMIM model, using the MOBILE6 model, version 6.2.03. These emissions were created and used on a month-specific basis that accounted for temperature, fuel types, and other variables on a month-by-month basis. None of the on-road emissions from the annual 2001 NEI were used in our modeling. The 2001 VMT on which the CAIR inventory is based differs from the official 2001 NEI, and this difference was not resolved when updates to 2001 were made because of changes made for CAIR.

The following data files are available in the CAIR docket (number OAR-2003-0053-1688) and on the airmodeling ftp site that help provide details of the 2001 on-road mobile sources inventory:

- **2001CAIR_or_072104.zip:**
  - Raw inventory data files (as described in the Readme file below).
  - Vehicle miles traveled (VMT) for all states but California in the Microsoft® Access® database inventory/multi-year/VMT4yrs.mdb. The VMT data in this database are provided in units of millions of miles per year.
  - Microsoft® Access ® reader for all of the 2001 SMOKE input files, which can be found in the zip file in directory inventory/2001/access_IDA.
- **README_2001.txt:** A list of the files included in the zip file.
- **2001CAIR_misc_072304.zip:**
  - Instructions for using the Access ® reader are available in the zip file in file: inventory/multi-year/README_ACCESS_convert_20XX.pdf.
  - Includes SMOKE-output ASCII SCC and state-SCC summaries for 2001 to allow others to check usage of the Access readers, in the folder inventory/summaries/2001/access_checks/.

Because California has their own on-road mobile source estimation model (EMFAC2002), California provided EPA with annual-total on-road mobile emissions that match their most recent publicly available emission estimates. We used these in lieu of the NMIM California results. To obtain the monthly variation that was available for the other states, we developed state/pollutant-specific temporal profiles based on the NMIM monthly results for California. To do this, we summed the emissions from each month from NMIM and calculated a monthly temporal profile by dividing each month's NMIM total for California by the annual total. This approach resulted in seven California-specific temporal profiles for VOC, NOX, CO, SO2, NH3, PM coarse (PM10 minus PM2.5), and PM2.5.

Additional Canadian emissions from on-road mobile sources were included in this sector. This 1995 inventory is the same inventory that was used in the CAIR proposal, since that was the most currently available inventory at the time that this work was performed.

3.3.2 Nonroad mobile sources

With the exception of commercial marine, aircraft, and locomotives, the nonroad mobile emissions were calculated by the NMIM model using the version of NONROAD 2004 used for the final Nonroad Rule. The emissions were created and used on a monthly basis, so no monthly temporal profiles were needed or used for the NMIM-based emissions. Please see Section 3.3 for the reference to the NMIM documentation.

The following data files are available in the CAIR docket (number OAR-2003-0053-1688) and on the airmodeling ftp site that help provide details of the 2001 nonroad mobile sources inventory:

- **2001CAIR_nr_072104.zip:**
  - Raw inventory data files (as described in the Readme file below).
  - Microsoft® Access ® reader for all of the 2001 SMOKE input files, which can be found in the zip file in directory inventory/2001/access_IDA.
- **README_2001.txt:** A list of the files included in the zip file.
- **2001CAIR_misc_072304.zip:**
  - Instructions for using the Access ® reader are available in the zip file in file: inventory/multi-year/README_ACCESS_convert_20XX.pdf.
  - Includes SMOKE-output ASCII SCC and state-SCC summaries for 2001 to allow others to check usage of the Access readers, in the folder inventory/summaries/2001/access_checks/.

The nonroad sector also contained 1995 Canadian nonroad mobile emissions, which are the same as the emissions used in the CAIR proposal.

For commercial marine, aircraft emissions at airports, and locomotives, we started with the SCCs, counties, and emissions in the 2001 NEI. The approach taken for this subsector in the original 2001 NEI is available in several PDF files at:

ftp://ftp.epa.gov/pub/EmisInventory/prelim2002nei/mobile/nonroad/documentation/airrailcmv/

For aircraft emissions at airports, a modification was required to add county-level PM10 and PM2.5 commercial aircraft estimates (SCC = 2275020000) to the 2001 inventory because the original inventory had zero emissions and OTAQ had better information. We started with the 1996 national PM10, 48-state estimate of 2535 tons/year from the Nonroad Rule Analysis for commerical aircraft. These emissions were grown to 2001 using national-level landing and takeoff growth from the Federal Aviation Administration Terminal Area Forecast system. Using this 2001 national estimate, we allocated the PM10 emissions to counties in the 48 States based on the county/national ratio of VOC emissions for 2001 in the 48 States.

In addition to the PM10 revision for aircraft, OTAQ indicated that PM2.5 from diesel engines was found to be 97% of PM10 (memo to the docket from Bruce Cantrell, sent to OAQPS on 2/19/04). While aircraft are not characterized as having diesel engines, the fuel used is closer to diesel than to gasoline. Thus, OTAQ recommended that PM2.5 from aircraft (military aircraft, commercial aircraft, general aviation, and air taxiing) be computed as 97% of the PM10. We

applied this calculation to these sectors, which affected SCCs 2275001000, 2275020000, 2275050000, and 275060000.

In addition to the aircraft emissions changes, we made changes to the locomotives and commercial marine parts of the original inventory. For locomotives, we recalculated PM2.5 emissions as 97% of PM10 emissions based on the same information as described above for diesel exhaust. For commercial marine vehicles, we matched the national commercial marine total inventory with the most recent data from OTAQ that was assumed in the final Nonroad Rule. OTAQ determined that the CAIR inventory should be adjusted based on OTAQ's national-level (50-state) CMV diesel and residual fuel emissions. OTAQ's national estimates are more up-to-date since they come from the category 3 rule estimates whereas the OAQPS 2001 baseline estimates are from the category 2 rule. There are no state-submitted data in the OAQPS 2001 NEI, so no adjustments needed to be made to preserve state-submitted estimates. Because the OTAQ national estimates did not distinguish between port emissions (2280002100) and underway emissions (2280002200), we applied the same national-level adjustment ratio for each of these categories within the specific fuel type (residual or diesel). Two separate ratios, per pollutant, were developed to take advantage of the distinct national-level emission values for residual and diesel fuels.

The ratio that was applied to each county-total commercial marine residual SCC (port, underway) in the 2001 NEI was:

$$New\ emissions = Old\ emissions \times \frac{OTAQ\ national\ residual\ CMV\ emissions}{OAQPS\ national\ residual\ emissions}$$

where the national totals are both 50-state totals.

Note that the OAQPS national residual emissions are computed by summing port residual and underway residual emissions across the 50 states. We used a similar formula for diesel emissions, in which diesel is used in place of residual in the above formula. In addition, PM2.5 and PM10 were adjusted such that PM2.5 is 97% of PM10.

The total OTAQ CMV emissions that we used as starting point are shown in Table 8.

Table 8: 2001 CMV emissions in tons/year.

SCC	Description	VOC	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2
2280002000	Diesel	23,862	103,860	703,656	20,318	19,708	29,454
2280003000	Residual	9,403	19,300	223,076	20,336	19,725	165,928
All		**33,265**	**123,160**	**926,731**	**40,653**	**39,433**	**195,382**

Applying these numbers in ratios as described above resulted in the new CMV inventory by state shown in Table 9. The U.S. totals are slightly off (1% or less) from the Table 8 totals because of round-off error in the adjustment calculation.

Table 9: New commercial marine vehicle inventory by state.

State	VOC	NOX	CO	SO2	PM10	PM2.5
Alabama	631	17,271	2,296	3,499	755	723
Alaska	567	15,767	2,094	3,055	668	644
Arkansas	382	10,624	1,410	2,754	512	487
California	1,567	43,440	5,784	8,400	1,847	1,783
Connecticut	156	4,233	565	818	184	179
Delaware	183	4,808	641	1,104	219	219
District of Columbia	0	4	0	1	0	0
7Florida	1,107	30,882	4,112	6,010	1,306	1,275
Georgia	210	5,963	794	1,155	253	245
Hawaii	303	8,255	1,098	1,595	353	332
Idaho	1	19	4	6	1	1
Illinois	1,030	27,957	3,705	6,868	1,322	1,296
Indiana	816	22,604	3,005	5,197	1,047	1,013
Iowa	127	3,311	442	874	156	146
Kansas	7	205	27	56	14	12
Kentucky	1,309	36,209	4,817	9,370	1,747	1,715
Louisiana	5,997	167,282	22,238	34,908	7,311	7,096
Maine	17	406	54	81	17	16
Maryland	401	11,169	1,492	2,203	477	460
Massachusetts	248	6,848	912	1,338	286	282
Michigan	1,154	31,668	4,198	6,798	1,474	1,428
Minnesota	946	25,796	3,440	5,387	1,105	1,097
Mississippi	1,127	31,466	4,191	7,500	1,472	1,396
Missouri	827	22,875	3,037	5,284	1,049	1,008
Nebraska	3	80	11	22	4	3
New Hampshire	42	1,186	160	231	49	49
New Jersey	345	9,532	1,287	1,893	407	394
New York	1,526	42,349	5,638	8,372	1,813	1,759
North Carolina	162	4,553	610	907	194	191
Ohio	1,444	40,310	5,360	8,921	1,822	1,774
Oklahoma	19	512	68	98	19	20
Oregon	665	18,553	2,479	3,659	802	765
Pennsylvania	1,290	35,913	4,779	7,079	1,540	1,492
Rhode Island	86	2,365	314	459	96	97
South Carolina	221	6,159	819	1,199	254	251
South Dakota	0	2	0	1	0	0
Tennessee	849	23,971	3,174	5,824	1,121	1,109
Texas	4,921	136,680	18,184	26,693	5,815	5,635
Virginia	553	15,414	2,048	3,016	656	630
Washington	896	24,747	3,292	4,850	1,060	1,024
West Virginia	1,146	31,618	4,197	6,899	1,402	1,369
Wisconsin	299	7,881	1,031	1,976	429	412
Grand Total	33,577	930,886	123,806	196,360	41,059	39,829

3.4 2001 Point sources

The 2001 point-source emissions are based on the 2001 NEI with some exceptions as described next. The following data files are available in the CAIR docket (number OAR-2003-0053-1688) and on the airmodeling ftp site that help provide details of the 2001 point source inventories:

- **2001CAIR_pt_072104.zip:**
  - Raw inventory data files (as described in the Readme file below).
  - Microsoft® Access ® reader for all of the 2001 SMOKE input files, which can be found in the zip file in directory inventory/2001/access_IDA.
- **README_2001.txt:** A list of the files included in the zip file.
- **2001CAIR_misc_072304.zip:**
  - Instructions for using the Access ® reader are available in the zip file in file: inventory/multi-year/README_ACCESS_convert_20XX.pdf.
  - Includes SMOKE-output ASCII SCC and state-SCC summaries for 2001 to allow others to check usage of the Access readers, in the folder inventory/summaries/2001/access_checks/.

3.4.1 IPM sector

The emissions in this sector are from facilities in the 2001 NEI that we were able match to the 2003 NEEDS database (http://www.epa.gov/airmarkt/epa-ipm/needs_2003.xls), which is used by the Integrated Planning Model (IPM). The 2001 NEI point source inventory contains emissions estimates for both electric generating units (EGU) and Non-EGU sources, along with their geographic locations and stack parameters. IPM is used to predict the future year emissions for the EGU sources. The remaining Non-EGU portion of the 2001 base year point source file is projected to future years by applying growth and control factors to the base year Non-EGU records. It is therefore necessary to identify and remove all sources that will be projected via the IPM from the 2001 base-year file to create a file of Non-EGU records to be used as the base for the application of the growth and control factors. This allows future year emission estimates from IPM to be used without double-counting emissions from EGUs in the future year modeling files.

The 2003 NEEDS database for IPM 2003 was used as the set of electric generating units to be identified in the 2001 NEI Point Source file and removed for the Non-EGU projections. This version of the NEEDS dataset was slightly revised as part of the final set-up of IPM Version 2.1.9, which was used for the final CAIR air quality modeling runs. However, the identification of IPM sources in the 2001 NEI had to be completed before the final IPM set-up, and all significant EGUs existing as of 2001 are expected to be represented in the NEEDS 2003 database.

The 2001 NEI point source file had been previously populated with ORIS Plant IDs, and in many instances Boiler IDs. The NEEDS 2003 dataset was compared to the 2001 NEI using the ORIS Plant IDs. The assignment of several ORIS Plant IDs in the 2001 NEI was revised based on this comparison, and additional review and identification was performed for all significant emitters in the NEEDS 2003 dataset that had not already been assigned in the 2001 NEI.

Many of the additional identifications were for NEEDS records where the entire facility (and therefore the entire facility's NEI emissions) was not all due to the generation of electricity for sale to the electrical grid (i.e., industrial sites with cogeneration emission units). To the extent practicable, individual emission units within these industrial sites that appeared to be the cogeneration units were identified with ORIS Plant IDs and removed from the base year Non-EGU file before applying growth and control factors. We performed seventy such partial facility removals. In some cases a NEEDS cogeneration-type site was identified in the 2001 NEI but it was not possible to identify a specific emission record which should be removed as the IPM-projected source. These cases were confined to those where the NEEDS-indicated emitting capacity was a minor fraction of the industrial source's NEI emissions. Appendix F is a listing of the 2001 NEI facilities which were either partially or fully identified as IPM sources, which were therefore removed from the 2001 base year Non-EGU file before projecting the future year Non-EGU files. This same information is available electronically in a Microsoft® Excel® file named NEI_2001_to_IPM-NEEDS_matches.xls in the CAIR docket (item number OAR-2003-0053-1702) and on the CAIR website. The NEI IDs and ORIS Plant IDs are provided in this list, along with an indicator of whether only a portion of the complete facility emission records were removed. Emission totals (SO2, NOx, and PM2.5) of both the removed (IPM-projected) portion and the retained (Non-EGU) portion are also included.

In addition, we modified the stack parameters for some sources in this sector to correct problems in the 2001 NEI stack heights, stack diameters, stack gas exit temperatures, and stack gas exit velocities. We also made changes in stack parameters to ensure that the stack parameters would be the same in 2001, 2010, 2015, and 2020 emission inventories, even though the future-year emissions come from the Integrated Planning Model (IPM). The stack parameters that we used are in the SMOKE input files that can be accessed as described at the start of Section 3.4.

3.4.2 Point source fugitive dust

The point-source fugitive dust inventory was extracted from the 2001 NEI. The SCCs extracted from the NEI as point-source fugitive dust are the 8-digit SCCs in Appendix D.

During emissions modeling with SMOKE, we applied a transportable fraction to the PM10 and PM2.5 emissions from these sources in a consistent way as was done for the area-source fugitive dust sector. The transportable fractions were applied by county. The approach used to calculate the county fractions and the fractions themselves are available in electronically at http://www.epa.gov/ttn/chief/emch/invent/, at the bottom of the web page. The approach is in the document "statusfugdustemissions_082203.pdf" and the fractions are in the spreadsheet "transportfractions.xls".

3.4.3 Non-IPM sector

The remaining emissions sources in the 2001 NEI that were not put into the IPM or point fugitive dust sectors were included in the non-IPM sector. The stack parameters in this part of the Non-IPM sector were also updated to correct problems in the stack heights, stack diameters, stack gas exit temperatures, and stack gas exit velocities. The stack parameters that we used are available in the SMOKE input files, which can be accessed as described at the start of Section 3.4.

Additionally, this sector includes 1995 Canadian point sources for Eastern Canada that were used as part of the Ozone Transport Assessment Group (OTAQ) modeling. Canadian data privacy regulations prevented us from obtaining a more current point source inventory for Canada. These privacy regulations have been changed so that inventories developed for 2002 and beyond will not be subject to privacy limitations; however, the 2002 inventories were not available in time for our use in this effort.

This sector also includes offshore sources provided by the Texas Commission on Environmental Quality (TCEQ). The inventory provided included emissions for 1992, which we grew to 2002 based on instructions from TCEQ. The resulting offshore inventory is available in the inventory/2001/ptnonipm/ directory of the 2001 point-source zip file mentioned at the start of Section 3.4.

This sector also includes major Mexican point sources from the 1999 BRAVO Mexican emission inventory, previously referenced with the other-area sector.

As discussed in Table 1 in Section 2.2.2, we improved the PM2.5 speciation approach by updating speciation profiles for wood waste boilers and coal combustion. The profiles for these sectors were updated because they comprised a large proportion of the PM2.5 emissions in the 1996 NEI.

4 2010, 2015, and 2020 emission inventories and approaches

4.1 Growth approach summary

We used different approaches to grow different sectors of the emission inventory from the 2001 inventory. The same approaches were used for both 2010, 2015, and 2020, though the growth factor values to calculate emissions for each year were different.

- **IPM sector:** The Integrated Planning Model (IPM)
- **Non-IPM sector:** Canadian, Mexican, and offshore emissions were held constant at the values used in the 2001 modeling. For U.S. emissions, we used three sources of data as follows. For more information on the first two sources of data, please refer to additional documentation on the CAIR docket (item number OAR-2003-0053-1691) and the CAIR website in the file “nonEGUnonpoint_GrowthDevelopment.pdf.”
    - Regional and national fuel-use forecast data from the U.S. Department of Energy for SCCs that map to fuel use sectors (e.g., commercial coal, industrial natural gas). Assigned to sources by state/SCC.
    - Otherwise, used state-specific growth rates from the Regional Economic Model, Inc. (REMI) Policy Insight® model, version 5.5 (being used in the development of the Economic Growth Analysis System (EGAS), version 5.0). Assigned to sources by state and standard industrial code (SIC), unless the inventory SIC was invalid or missing, in which case state and SCC were used.

- A review of REMI-based rates led to changes to the growth rates for some sectors where they were unrealistic or highly uncertain. More information on these changes is provided in Section 4.1.1

- **Point fugitive dust sector (pfdust):** State-specific REMI growth rates as described for non-IPM sector
- **Average fires sector (avefire):** No growth or control
- **Agricultural sector (ag):** 2010, 2015, and 2020 livestock estimates included with 2002 inventory database as part of new livestock NH_3 approach (See ftp://ftp.epa.gov/EmisInventory/prelim2002nei/nonpoint/documentation/nh3inventorydraft_jan2004.pdf). Fertilizer NH_3 had no growth or control.
- **Area fugitive dust sector (afdust):** State-specific REMI growth rates as described in Section 4.1.2
- **Other-area sector (oarea):** Same approach as for non-IPM sector (combination of REMI and fuel-use growth).
- **Nonroad:** Differences approaches for different subsectors:
  - Nonroad mobile sources from the NONROAD 2004 model via NMIM (please see Section 3.3 for the reference to the NMIM documentation).
  - Commercial marine, aircraft, and locomotives consistent with the CAIR base 2001 inventory and the Nonroad rule. More details of this approach can be found in the CAIR docket (item number OAR-2003-0053-1692) and at the CAIR website in file "CommercialMarine_Airports_Trains_Approach.pdf".
- **On-road (mobile):** On-road mobile sources from the MOBILE6 model (not including refueling emissions) via NMIM (please see Section 3.3 for the reference to the NMIM documentation).
- **Biogenic:** No growth or control; held constant at values used in 2001 base.

4.1.1 Changes to non-IPM sector REMI-based growth factors

We analyzed the 2010, 2015, and 2020 REMI-based growth rates for the non-IPM sector and made some modifications. We identified about 50 entries (state-SCC or state-SIC entries) in the original projection factors in which the factor values were 0, and we changed these to values of 1, because these 0s did not appear to be realistic in that they would remove emissions from the base-year inventory when projecting to the future years. In addition, we made specific changes to industries with significant emissions and unexplainably large growth rates based on industry group forecasts, Bureau of Labor Statistics (BLS) projections and Bureau of Economic Analysis (BEA) historical growth from 1987-2002. Table 10 provides a list of SICs, their descriptions, the final 2010, 2015, and 2020 growth factors (GFs), and the basis for our revisions.

Table 10: SICs with improved growth rates as compared to REMI 5.5 rates.

SIC	SIC description	2010 GF	2015 GF	2020 GF	Basis of revision
1311	Crude Petroleum and Natural Gas	0.96	0.95	0.93	BEA production from 1988-2001 declined by ~0.4% annually.
1321	Natural Gas Liquids	0.96	0.95	0.93	
2821	Plastics Material and Synthetic Resins, and Nonvulcanizable Elastomers	1.19	1.31	1.45	1.96% annual based on BEA for SIC=32xx.
2822	Synthetic Rubber	1.19	1.31	1.45	
2823	Cellulosic Manmade Fibers	1.19	1.31	1.45	
2851	Paints, Varnishes, Lacquers, Enamels, and Allied Products	1.19	1.31	1.45	
2873	Nitrogenous Fertilizers	1.18	1.30	1.43	BLS "employment outlook" projected a 1.90%/yr average increase in output from 2002-2012 for the 4-digit NAICS 3253 (Pesticide, fertilizer, and other agricultural chemical manufacturing).
2874	Phosphatic Fertilizers	1.18	1.30	1.43	
2895	Carbon Black	1.22	1.37	1.53	2.25% annually is average based on May 2000 HAP EIA.
3011	Tires and Inner Tubes	1.20	1.32	1.46	2% annual based on tire industry growth of 28% from 1985->1997 from Rubber Tire Manufacturing MACT.
3211	Flat Glass	1.19	1.31	1.45	1.96% annual based on BEA for SIC=32xx.
3221	Glass Containers	1.19	1.31	1.45	
3229	Pressed and Blown Glass and Glassware, NEC	1.19	1.31	1.45	
3241	Cement, Hydraulic	1.19	1.35	1.53	1%/year for 2002&2003, 0.8%/year 2004, 2.5% through 2010and beyond.
3321	Gray and Ductile Iron Foundries	1.17	1.27	1.39	BEA industry code 33 (Primary Metal Industries) experienced 1.75% average annual growth from 1987-2002.
3325	Steel Foundries, NEC	1.17	1.27	1.39	
3331	Primary Smelting and Refining of Copper	1.17	1.27	1.39	
3334	Primary Production of Aluminum	1.17	1.27	1.39	
3339	Primary Smelting and Refining of Nonferrous Metals, Except Copper and Aluminum	1.17	1.27	1.39	
3411	Metal Cans	1.13	1.21	1.30	BEA industry code 34 (Fabricated Metal Products) experienced 1.4% average annual growth from 1987-2002.
3441	Fabricated Structural Metal	1.13	1.21	1.30	
3471	Electroplating, Plating, Polishing, Anodizing, and Coloring	1.13	1.21	1.30	
3479	Coating, Engraving, and Allied Services, NEC	1.13	1.21	1.30	
3497	Metal Foil and Leaf	1.13	1.21	1.30	
3499	Fabricated Metal Products, NEC	1.13	1.21	1.30	

SIC	SIC description	2010 GF	2015 GF	2020 GF	Basis of revision
3711	Motor Vehicles and Passenger Car Bodies	1.24	1.39	1.57	BEA industry code 371 experienced 2.4% average annual growth from 1987-2002.
3713	Truck and Bus Bodies	1.24	1.39	1.57	
3714	Motor Vehicle Parts and Accessories	1.24	1.39	1.57	
3715	Truck Trailers	1.24	1.39	1.57	

4.1.2 Changes to other-area sector REMI-based growth factors

We analyzed the 2010, 2015, and 2020 REMI-based growth rates for the other-area sector and made some modifications. The change described above for non-IPM sources to reset 0 values with values of 1 also affected other-area sources. We also reset area-source assignments for SCCs 24618500xx, where xx = 00, 01, 05, 06, 09, 51, 52, 53, 54, 55, 56, 99 to the state-specific growth rates for SCC=2461800000. The REMI data for this SCC had been already put through a post-processing to apply a regression to better fit the growth rate to known emissions trends. We determined that it was reasonable to assume that these related SCCs also followed a similar trend. For similar reasons, SCC 2401002000 was set to the growth rates for SCC 2401001000. Additionally, we changed all state-specific-SCC combinations for SCCs listed in Table 11 to a value of 1. These SCCs are for categories with some degree of generalness (e.g., “all solvent types”, “miscellaneous”, “NEC” = “Not elsewhere classified”) and their unusually high growth rates from REMI did not seem warranted given the uncertain nature of emissions from a “miscellaneous” SCC. Lastly, a growth factor was added for SCC 2275900000 (aircraft refueling) based on the growth factor used for growing aircraft emissions for general aviation, based on the assumption that the growth of aircraft refueling is closely associated with growth in general aviation activity.

Table 11: Area-source SCCs with “miscellaneous” notations with replaced growth rates.

SCC	SCC Description
2401045000	Solvent Utilization;Surface Coating;Metal Coils: SIC 3498;Total: All Solvent Types
2302080000	Industrial Processes;Food and Kindred Products: SIC 20;Miscellaneous Food and Kindred Products;Total
2401090000	Solvent Utilization;Surface Coating;Miscellaneous Manufacturing;Total: All Solvent Types
2415045000	Solvent Utilization;Degreasing;Miscellaneous Manufacturing (SIC 39): All Processes;Total: All Solvent Types
2415045999	Solvent Utilization;Degreasing;Miscellaneous Manufacturing (SIC 39): All Processes;Solvents: NEC
2415145000	Solvent Utilization;Degreasing;Miscellaneous Manufacturing (SIC 39): Open Top Degreasing;Total: All Solvent Types
2415145999	Solvent Utilization;Degreasing;Miscellaneous Manufacturing (SIC 39): Open Top Degreasing;Solvents: NEC
2415245000	Solvent Utilization;Degreasing;Miscellaneous Manufacturing (SIC 39): Conveyerized Degreasing;Total: All Solvent Types
2415345000	Solvent Utilization;Degreasing;Miscellaneous Manufacturing (SIC 39): Cold Cleaning;Total: All Solvent Types
2415345999	Solvent Utilization;Degreasing;Miscellaneous Manufacturing (SIC 39): Cold Cleaning;Solvents: NEC
2306010000	Industrial Processes;Petroleum Refining: SIC 29;Asphalt Paving/Roofing Materials;Total
2401035000	Solvent Utilization;Surface Coating;Plastic Products: SIC 308;Total: All Solvent Types

SCC	SCC Description
2401035999	Solvent Utilization;Surface Coating;Plastic Products: SIC 308;Solvents: NEC
2308000000	Industrial Processes;Rubber/Plastics: SIC 30;All Processes;Total
2430000000	Solvent Utilization;Rubber/Plastics;All Processes;Total: All Solvent Types
2399000000	Industrial Processes;Industrial Processes: NEC;Industrial Processes: NEC;Total
2601010000	Waste Disposal, Treatment, and Recovery;On-site Incineration; Industrial; Total
2401100000	Solvent Utilization;Surface Coating;Industrial Maintenance Coatings; Total: All Solvent Types
2440000000	Solvent Utilization;Miscellaneous Industrial;All Processes;Total: All Solvent Types
2440000060	Solvent Utilization;Miscellaneous Industrial;All Processes;Butyl Alcohols: All Types
2440020000	Solvent Utilization;Miscellaneous Industrial;Adhesive (Industrial) Application;Total: All Solvent Types
2630010000	Waste Disposal, Treatment, and Recovery; Wastewater Treatment; Industrial; Total Processed
2830001000	Miscellaneous Area Sources;Catastrophic/Accidental Releases;Industrial Accidents;Total

4.2 Regional Economic Model, Inc. Policy Insight® model

REMI Policy Insight® includes cause and effect relationships for economic forecasts. The model shares two key underlying assumptions with mainstream economic theory: households maximize utility and producers maximize profits. In the modeled world of Policy Insight®, businesses produce goods to sell to other firms, consumers, investors, governments and purchasers outside of the region.

The model forecasts economic activity by region and for individual sectors of the economy. By making assumptions about which economic indicators can represent emissions growth, growth factors can be developed for projecting emission inventories.

A full listing of articles about the Policy Insight® model can be found at the website http://www.remi.com.

4.3 Control approach

The only sectors with controls included in our 2010, 2015, and 2020 base-year inventories were IPM, non-IPM, other-area sources, on-road mobile, and nonroad mobile. The IPM-sector base-year emissions are computed by the IPM model. For the mobile sectors, the growth and controls are calculated together by the MOBILE6 and NONROAD models. The non-IPM and other-area sectors were therefore the only sectors that required special development and processing for controls, which we describe in this section. No controls were applied to the Canadian, Mexican, or offshore emission inventories in these two sectors.

We included the same control programs for the 2010, 2015, and 2020 non-IPM sector, since we anticipated that all control programs considered would be fully implemented by 2010. Table 12 summarizes the control programs that were included in applying controls to the 2010, 2015, and 2020 non-IPM base emissions. For the other-area sector, additional reductions (for the same programs) were included in 2015 than were included in 2010. The 2020 emissions also had a few additional controls from the 2015 levels. Table 13 summarizes the control programs included in

developing the 2010, 2015, and 2020 base emissions for the other-area sector. The only programs that continue to add additional control after 2010 are those for Residential Wood Combustion, Onboard Vapor Recovery Systems, and Stage II for Gasoline Service Stations.

For more information on how the control programs were developed and the actual control factors applied, please refer to the CAIR docket (item number OAR-2003-0053-1690) and at the CAIR website in the technical report "nonEGUnonpoint_ControlDevelopment.pdf".

Table 12: Non-EGU point source strategies included in base-case modeling.

Control Strategies (Grouped by Affected Pollutants or Standard)	**Pollutants Affected**	**Reference**
NOx SIP Call (Phase II)	NOx	EPA, 2000 EPA, 2004b
Solid waste rules (Sections 129/111(d)) Hospital/Medical/Infectious Waste Incinerator Regulations Municipal Waste Combustors	 NOx, PM, SO2 PM, SO2	 EPA, 2000 EPA, 2004a
DOJ Settlements	NOx, SO2	EPA, 2004b
1-hr ozone non-attainment SIPs	NOx, VOC	Pechan, 2002
Reciprocating Internal Combustion Engines (RICE) MACT (10-year)	NOx, VOC	EPA, 2004b
Rules affecting PM Portland Cement Manufacturing MACT (7-year) Secondary Aluminum Production MACT (7-year) Hazardous Waste Combustion MACT (4-year)	PM	EPA, 2000
Rules affecting PM and SO2 Industrial, Commercial, & Institutional Boilers & Process Heaters MACT Lime Manufacturing MACT Taconite Ore Processing MACT	 PM, SO2	 EPA, 2004a EPA, 2004b
2-year rules affecting VOCs **Synthetic Organic Chemical Manufacturing Industry (SOCMI) Hazardous Organic NESHAP (HON)** Acrylonitrile manufacture Ethylene manufacture Ethylene oxide manufacture Phenol manufacture Polyethylene manufacture Polypropylene manufacture SOCMI fugitives (equipment leak detection and repair) SOCMI processes SOCMI wastewater Volatile organic liquid storage **Dry Cleaning** Perchloroethylene Other	 VOC	 EPA, 2000
Benzene National Emission Standards for Hazardous Air Pollutants (NESHAP) By-product coke - excess-NH3 liquor tank By-product coke - flushing-liquor circulation tank By-product coke manufacture - other By-product coke manufacture - oven charging	VOC	EPA, 2000

Control Strategies (Grouped by Affected Pollutants or Standard)	Pollutants Affected	Reference
By-product coke mfg By-product coke mfg. - equipment leaks By-product coke mfg. - light oil dec/cond vents By-product coke mfg. - light oil sump By-product coke mfg. - naphthalene processing By-product coke mfg. - tar bottom final cooler By-product coke mfg. - tar storage Coke oven by-product plants Coke ovens - door and topside leaks		
4-year MACTs affecting VOCs (national) Aircraft surface coating (aerospace) Polymers and resins II Polymers and resins IV Shipbuilding and repair Styrene-butadiene rubber manufacture (polymers & resins group I) TSDFs (offsite waste operations) Wood furniture surface coating **Petroleum Refineries: other sources** Fixed roof petroleum product tanks Fixed roof gasoline tanks External floating roof petroleum product tanks External floating roof gasoline tanks Petroleum refinery wastewater treatment Petroleum refinery fugitives – Petroleum refineries - Blowdown w/o control – Vacuum distillation **Degreasing Organic Cleaners (Halogenated Solvent Cleaners)** Open top degreasing - halogenated In-line (conveyorized) degreasing - halogenated **Printing and Publishing** Flexographic Gravure **Gasoline Distribution (Stage 1)** Balanced loading Leaks Splash loading Storage Submerged loading Transit	VOC	EPA, 2000
7/10-year MACTs affecting VOCs (national) Pesticide Active Ingredient Production Alkyd resins Chelating agents Explosives Fabric Printing, Coating, and Dyeing Flatwood surface coating Green tire spray Large Appliances Nylon 6 production	VOC	EPA, 2000

Control Strategies (Grouped by Affected Pollutants or Standard)	Pollutants Affected	Reference
Oil and natural gas production Paint and varnish manufacture Paper surface coating Petroleum refineries - fluid catalytic cracking Pharmaceutical production Phthalate plasticizers Plywood/particle board Polyester resins Polyesters Polymers and resins III Polyvinyl chloride Publicly-Owned Treatment Works (POTWs) Pulp and paper production Rayon production Reinforced plastics Rubber tire manufacture Spandex production		
Post-2002 MACT Asphalt Processing and Roofing MACT Auto and Light-Duty Truck Manufacturing MACT Coke Ovens MACT Combustion Sources at Kraft, Soda and Sulfite Paper Mills MACT Fabric Printing, Coating and Dyeing MACT Iron & Steel Foundries MACT Metal Can MACT Metal Coil MACT Metal Furniture MACT Misc. Metal Parts and Products MACT Municipal Solid Waste Landfills MACT Paper and Other Web MACT Plastic Parts MACT Plywood & Composite Wood Products MACT Wet Formed Fiberglass Production MACT Wood Building Products MACT	VOC	EPA, 2004b Pechan, 2004

Table 13: Nonpoint (stationary area) source control packet strategies.

Control Strategies (Grouped by Affected Pollutants or Standard)	**Pollutants Affected**	**Data Source**
1-hr ozone non-attainment SIPs	NOx, VOC	Pechan, 2002
Federal Control Measures (National) Consumer Solvents Onboard Vapor Recovery Systems; and Stage II for Gasoline Service Stations	VOC	EPA, 2000 EPA, 2003b
Title III MACT (National) Wood Furniture Surface Coating Aerospace Surface Coating Marine Vessel Surface Coating (Shipbuilding) Halogenated Solvent Cleaners (Cold Cleaning) Petroleum Refinery Fugitives Synthetic Organic Chemical Manufacturing Industry (SOCMI) Fugitives (Hazardous Organic NESHAP) Motor Vehicle Surface Coating Large Appliances Wood Building Products Open Top & Conveyorized Degreasing Publicly Owned Treatment Works (POTWs) Metal Furniture & Appliances Surface Coating Miscellaneous Metal Parts Electronic Coating	VOC	EPA, 2000
Title I RACT Petroleum Dry Cleaning Paper Surface Coating	VOC	EPA, 2000
Residential Wood Combustion	CO, PM, VOC	EPA, 2000

4.4 2010, 2015, and 2020 base year emission inventories

4.4.1 All Non-IPM sectors

With the exception of the IPM sector, the inventories obtained and developed from the approaches described above are available in the CAIR docket (number OAR-2003-0053-1688) and at the airmodeling ftp site in zip files as follows:

2010CAIR_ar_072104.zip: 2010 stationary area data
2010CAIR_nr_072104.zip: 2010 nonroad mobile data
2010CAIR_or_072104.zip: 2010 on-road mobile data
2010CAIR_pt_072304.zip: 2010 point data (except IPM sector)

2015CAIR_ar_072104.zip: 2015 stationary area data
2015CAIR_nr_072104.zip: 2015 nonroad mobile data
2015CAIR_or_072104.zip: 2015 on-road mobile data
2015CAIR_pt_072304.zip: 2015 point data (except IPM sector)**

2020CAIR_ar_122804.zip: 2020 stationary area data
2020CAIR_nr_122804.zip: 2020 nonroad mobile data

2020CAIR_or_122804.zip: 2020 on-road mobile data
2020CAIR_pt_122804.zip: 2020 point data (including IPM sector)

** Please note that the 2015 U.S. ptnonipm inventory file is superceded with the file provided in the "update1" zip files, described in Section 4.4.2. The file provided in the 2015CAIR_pt_072304.zip file should therefore be ignored.

A list of the files included in these files can also be found in the README_2010.txt, README_2015.txt, and README_2020.txt files, also available in the same locations. Included in these zip files are Microsoft® Access ® readers for all of the 2010 and 2015 SMOKE input files. The 2010 reader is in the directory inventory/2010/access_IDA of the file 2010CAIR_misc_072304.zip, and the 2015 reader is in the directory inventory/2015/access_IDA of the file 2015CAIR_misc_072304.zip. Instructions for using these readers are available in the zip file 2001CAIR_misc_072304.zip in inventory/multi-year/README_ACCESS_convert_20XX.pdf. All of these files are available from the same locations just listed. The 2015 readers can also be used for the 2020 files.

The zip file 2010CAIR_misc_072304.zip available in the CAIR docket (number OAR-2003-0053-1688) and the airmodeling ftp site also contains SMOKE-output ASCII SCC and state-SCC summaries in the directory inventory/summaries/2010/access_checks/. Similarly, the zip file 2015CAIR_misc_072304.zip available at the same location contains summaries for 2015 in the directory inventory/summaries/2015/access_checks.

For all states but California, the VMT data that we used for computing 2010 and 2015 on-road mobile source emissions are available in the CAIR docket (number OAR-2003-0053-1688) and the airmodeling ftp site. These data are in the 2001CAIR_or_072104.zip file in the Microsoft® Access® database inventory/multi-year/VMT4yrs.mdb. The VMT in this database is provided in units of millions of miles per year. The approach taken to grow the data is described in a contractor memorandum to EPA in Appendix G.

For California, the on-road mobile source emissions were provided as annual-total emissions for CO, NOX, Exhaust VOC, SO2, PM10, PM2.5, and NH3 in 2001 only (see Section 3.3.1). However, California could not provide the 2010, 2015, or 2020 data in time for our use, so we needed to "grow" the 2001 data to be consistent in our approach across the years. To obtain growth factors, we calculated growth ratios by county and pollutant using the county-SCC NMIM results for California. We then applied these growth ratios to the California-supplied emissions values to obtain emissions for 2010, 2015, and 2020.

In these zip files, we have not provided the data files for the avefire and biogenic sectors, since these are the same as the files in the 2001 zip files.

We used the same approaches for spatial allocation, temporal allocation, and chemical speciation in 2010 and 2015 as was used in 2001.

4.4.2 IPM sector and final 2015 ptnonipm sector

The 2010 and 2015 base IPM and 2015 ptnonipm sectors are provided separately in the CAIR docket and on the airmodeling ftp site.

The development of the base-year IPM sector data is documented in two places (1) by the IPM documentation available at http://www.epa.gov/airmarkets/epa-ipm and (2) by Chapter 7 of the Regulatory Impact Analysis (RIA) for the Final CAIR Rule. The resulting base-year IPM 2010 and 2015 SMOKE-input inventories are available in the CAIR docket (item number OAR-2003-0053-1936) and at the airmodeling ftp site in zip files as follows:

2010_2015_base_update1_101804.zip: 2010 and 2015 base IPM data for SMOKE input

A list of the files included in these files can also be found in the README_update1.txt file, also available in the same locations. The Access readers for these files were provided with the other Access readers, as described in Section 4.4.1.

This zip file also contains 2010 and 2015 IPM-sector SMOKE-output ASCII SCC and state-SCC summaries in the directories inventory/summaries/2010/access_checks/ and inventory/summaries/2010/access_checks/.

Additionally, the zip file contains the final 2015 ptnonipm sector inventory that supercedes one of the files provided for this sector by the zip files described in Section 4.4.1. The README_update1.txt file explains how to install this zip file to use this updated file for use in SMOKE. This zip file also include new state-SCC summaries for the ptnonipm sector to use for checking the ptnonipm Microsoft® Access® reader. The Access® reader described previously in Section 4.4.1 will also work for this new file.

4.4.3 Sensitivity inventory for Arkansas and North Dakota

The 2001, 2010 and 2015 base emission inventories were provided for public review in the NODA. We received specific comments on these inventories on emissions from Arkansas and North Dakota. We reviewed these comments and felt that the changes could potentially affect the projected contribution from emissions in these states to PM2.5 nonattainment in other states. We therefore developed 2001 and 2010 Base Case emissions test case for these two states and used these emissions as part of a sensitivity analysis to examine the contributions from these States. The state/sector emissions totals for Arkansas and North Dakota that reflect comments from these States are provided in Tables 14(a) and 14(b). The Response to Comments document contains the specific comments made by these states. The results of air quality modeling with the revised inventory of the contributions from these states to downwind nonattainment is described in the CAIR Air Quality Modeling TSD.

Table 14(a): 2001 CAIR Base compared to 2001 CAIR test sensitivity case for Arkansas and North Dakota

		[tons/yr] 2001 VOC		[tons/yr] 2001 NOX		[tons/yr] 2001 CO		[tons/yr] 2001 SO2		[tons/yr] 2001 PM10		[tons/yr] 2001 PM2.5		[tons/yr] 2001 NH3	
State name	Sector	CAIR Base	Base test	CAIR Base	Base test	CAIR Base	Base test	CAIR Base	Base test	CAIR Base	Base test	CAIR Base	Base test	CAIR Base	Base test
Arkansas	afdust	0	0	0	0	0	0	0	0	209,931	209,931	36,921	36,921	0	0
	Ag	0	0	0	0	0	0	0	0	0	0	0	0	126,549	126,549
	Ave fire	7,523	7,523	3,305	3,305	146,745	146,745	728	728	14,466	14,466	12,754	12,754	556	556
	EGU	563	563	47,478	47,478	4,433	4,433	78,777	78,777	3,350	3,350	2,779	2,779	57	57
	NonEGU	28,795	28,795	54,281	54,275	109,260	109,256	61,319	26,960	25,382	25,367	19,850	19,840	1,235	1,235
	Nonroad	29,649	29,649	65,002	65,002	213,415	213,415	7,129	7,129	4,891	4,891	4,699	4,699	22	22
	on-road	54,425	54,425	97,331	97,331	728,950	728,950	3,740	3,740	2,737	2,737	2,090	2,090	3,016	3,016
	Other area	106,221	106,221	35,804	35,804	35,920	35,920	20,009	20,009	10,121	10,121	8,415	8,415	1,069	1,069
	pfdust	0	0	0	0	0	0	0	0	54	54	35	35	0	0
Arkansas Total		227,176	227,176	303,201	303,195	1,238,722	1,238,719	171,702	137,342	270,932	270,917	87,545	87,534	132,504	132,504
North Dakota	afdust	0	0	0	0	0	0	0	0	324,745	324,745	60,603	60,603	0	0
	Ag	0	0	0	0	0	0	0	0	0	0	0	0	58,125	58,125
	Ave fire	561	561	251	251	11,607	11,607	66	66	1,136	1,136	981	981	50	50
	EGU	862	862	79,411	79,411	7,211	7,211	156,098	156,098	7,941	7,941	6,468	6,468	8	8
	NonEGU	203	666	7,450	10,628	3,665	6,851	66,179	21,629	2,673	3,968	2,511	3,569	12	12
	Nonroad	13,477	13,477	58,424	58,424	97,595	97,595	5,302	5,302	5,626	5,626	5,445	5,445	25	25
	on-road	13,838	13,838	26,378	26,378	215,951	215,951	878	878	693	693	532	532	734	734
	Other area	64,111	64,111	18,463	18,463	23,099	23,099	56,233	56,233	4,450	4,450	3,115	3,115	202	202
	pfdust		0		0		0		0		0		0		0
North Dakota Total		93,052	93,515	190,377	193,554	359,128	362,314	284,756	240,205	347,263	348,559	79,656	80,713	59,156	59,156

Table 14(b): 2010 CAIR Base compared to 2010 CAIR test sensitivity case for Arkansas and North Dakota

		[tons/yr] 2010 VOC		[tons/yr] 2010 NOX		[tons/yr] 2010 CO		[tons/yr] 2010 SO2		[tons/yr] 2010 PM10		[tons/yr] 2010 PM2.5		[tons/yr] 2010 NH3	
State name	Sector	CAIR Base	Base test	CAIR Base	Base test	CAIR Base	Base test	CAIR Base	Base test	CAIR Base	Base test	CAIR Base	Base test	CAIR Base	Base test
Arkansas	afdust	0	0	0	0	0	0	0	0	212,942	212,942	37,329	37,329	0	0
	Ag	0	0	0	0	0	0	0	0	0	0	0	0	131,580	131,580
	Ave fire	7,523	7,523	3,305	3,305	146,745	146,745	728	728	14,466	14,466	12,754	12,754	556	556
	EGU	574	574	43,589	43,589	6,636	6,636	82,416	82,416	3,488	3,488	2,926	2,926	7	7
	NonEGU	28,649	28,649	61,100	61,100	129,664	129,664	74,089	28,748	27,180	27,180	21,413	21,413	1,428	1,428
	Nonroad	25,167	25,167	50,770	50,770	242,307	242,307	3,222	3,222	3,863	3,863	3,701	3,701	27	27
	on-road	29,942	29,942	53,304	53,304	425,214	425,214	339	339	1,783	1,783	1,134	1,134	3,616	3,616
	Other area	98,633	98,633	40,495	40,495	28,318	28,318	28,371	28,371	10,095	10,095	7,928	7,928	1,231	1,231
	pfdust	0	0	0	0	0	0	0	0	53	53	35	35	0	0
Arkansas Total		190,487	190,487	252,563	252,563	978,885	978,885	189,165	143,824	273,871	273,871	87,218	87,218	138,445	138,445
North Dakota	afdust	0	0	0	0	0	0	0	0	325,098	325,098	60,449	60,449	0	0
	Ag	0	0	0	0	0	0	0	0	0	0	0	0	57,555	57,555
	Ave fire	561	561	251	251	11,607	11,607	66	66	1,136	1,136	981	981	50	50
	EGU	734	734	65,684	65,684	9,545	9,545	124,255	124,255	7,386	7,386	6,335	6,335	6	6
	NonEGU	189	709	7,886	10,991	4,211	7,464	70,024	22,987	2,707	3,858	2,584	3,558	14	14
	Nonroad	10,783	10,783	45,943	45,943	103,046	103,046	457	457	3,738	3,738	3,613	3,613	30	30
	on-road	7,052	7,052	13,838	13,838	128,770	128,770	79	79	426	426	273	273	836	836
	Other area	54,183	54,183	19,182	19,182	16,139	16,139	52,762	52,762	3,550	3,550	2,283	2,283	222	222
	pfdust		0		0		0		0		0		0		0
North Dakota Total		73,503	74,022	152,784	155,889	273,318	276,570	247,642	200,606	344,042	345,193	76,518	77,491	58,713	58,713

4.5 2010, 2015, and 2020 CAIR strategy emission inventories

The 2010, 2015, 2020 CAIR strategy emission inventories are the same as the base-case inventories except for the IPM sector. The development of the IPM sector emissions is documented in the same two places listed at the end of Section 4.4 for the base-year IPM sector. Tables 15(a) through 15(c) provide summaries of 2010 control, 2015 control, and 2020 control emissions by sector and pollutant for (a) all the states in the continental U.S., (b) all states in the CAIR region (including NJ, DE, and AR), and (c) all states in the modified CAIR region (excluding NJ, DE, and AR).

The SMOKE input files for these emissions are available from the CAIR docket and on the airmodeling ftp site. A Readme file is included in both locations lists the specific files that are included for use in modeling for SMOKE.

The state- and sector-total emissions by sector are provided for the 2010 and 2015 CAIR strategies in Appendix H. This information is also available in the CAIR docket and on the CAIR website in a Microsoft® Excel® file.

Table 15(a): Sector and pollutant emissions totals for 2010 control, 2015 control, and 2020 control for all states in the continental U.S.

Year	Sector	[tons/yr] VOC	[tons/yr] NOX	[tons/yr] CO	[tons/yr] SO2	[tons/yr] PM10	[tons/yr] PM2.5	[tons/yr] NH3
2010	afdust	0	0	0	0	10,428,325	1,784,758	0
	Ag	0	0	0	0	0	0	3,220,011
	Ave fire	653,544	238,931	10,767,438	49,108	1,103,540	979,607	38,237
	EGU	41,160	2,427,892	583,089	6,283,602	648,643	522,951	905
	NonEGU	1,363,530	2,931,360	4,421,697	3,189,864	957,490	739,036	93,078
	Nonroad	1,903,516	3,282,339	26,195,189	219,032	262,247	250,607	2,069
	on-road	2,593,430	4,683,086	37,718,382	27,439	151,876	91,721	341,564
	Other area	6,777,802	1,630,411	2,959,763	1,408,990	833,547	710,557	153,569
	pfdust	0	0	0	0	14,727	4,405	0
2010 Total		13,332,981	15,194,019	82,645,557	11,178,034	14,400,396	5,083,643	3,849,432
2015	afdust	0	0	0	0	10,564,873	1,803,965	0
	Ag	0	0	0	0	0	0	3,299,775
	Ave fire	653,544	238,931	10,767,438	49,108	1,103,540	979,607	38,237
	EGU	42,782	2,172,837	652,215	5,111,436	603,800	476,350	717
	NonEGU	1,553,429	3,183,499	4,971,592	3,422,915	1,080,189	833,372	102,627
	Nonroad	1,648,402	2,912,387	27,364,911	232,628	228,217	217,762	2,264
	on-road	2,031,739	3,152,563	34,182,190	30,823	134,202	70,697	379,401
	Other area	7,132,086	1,702,154	2,810,041	1,480,348	839,500	709,230	166,326
	pfdust	0	0	0	0	16,517	4,959	0
2015 Total		13,061,982	13,362,370	80,748,387	10,327,257	14,570,837	5,095,942	3,989,347
2020	afdust	0	0	0	0	10,336,463	1,770,042	0
	Ag	0	0	0	0	0	0	3,379,491
	Ave fire	653,544	238,931	10,767,438	49,108	1,103,540	979,607	38,237
	EGU	45,828	2,187,418	717,889	4,387,267	653,040	523,183	610
	NonEGU	1,745,188	3,456,971	5,554,596	3,673,660	1,203,227	928,433	111,913
	Nonroad	1,529,509	2,671,828	29,040,715	280,518	203,583	193,213	2,456
	on-road	1,768,003	2,437,713	34,101,523	34,372	134,560	65,683	417,670
	Other area	7,309,208	1,801,541	2,669,482	1,516,207	847,816	710,554	178,695
	pfdust	0	0	0	0	18,415	5,546	0
2020 Total		13,051,280	12,794,403	82,851,643	9,941,131	14,500,643	5,176,261	4,129,073

Table 15(b): Sector and pollutant emissions totals for 2010 control, 2015 control, and 2020 control for all states in the CAIR region[1].

Year	Sector	[tons/yr] VOC	[tons/yr] NOX	[tons/yr] CO	[tons/yr] SO2	[tons/yr] PM10	[tons/yr] PM2.5	[tons/yr] NH3
2010	afdust	0	0	0	0	6,255,621	1,067,926	0
	Ag	0	0	0	0	0	0	2,053,336
	Ave fire	324,827	113,345	4,866,287	17,867	483,817	435,601	15,100
	EGU	32,195	1,612,628	419,209	5,486,600	554,622	446,503	823
	NonEGU	1,133,811	2,256,736	3,533,314	2,652,165	748,028	589,006	66,529
	Nonroad	1,405,137	2,409,759	18,623,369	193,521	191,569	183,021	1,463
	on-road	1,931,244	3,370,367	27,679,973	22,256	110,038	68,150	243,367
	Other area	4,939,213	1,061,151	2,366,253	1,195,855	624,831	534,347	129,680
	pfdust	0	0	0	0	7,607	3,102	0
2010 Total		9,766,427	10,823,986	57,488,406	9,568,265	8,976,132	3,327,656	2,510,298
2015	afdust	0	0	0	0	6,344,836	1,080,369	0
	Ag	0	0	0	0	0	0	2,100,562
	Ave fire	324,827	113,345	4,866,287	17,867	483,817	435,601	15,100
	EGU	33,413	1,353,929	471,122	4,310,244	508,548	398,551	633
	NonEGU	1,294,244	2,456,414	3,996,536	2,835,839	843,391	664,439	73,422
	Nonroad	1,214,085	2,151,994	19,400,654	208,772	168,774	161,037	1,601
	on-road	1,509,382	2,292,682	24,988,852	24,876	95,701	51,716	268,122
	Other area	5,174,352	1,098,248	2,233,863	1,259,470	621,703	526,870	140,712
	pfdust	0	0	0	0	8,529	3,493	0
2015 Total		9,550,304	9,466,612	55,957,313	8,657,069	9,075,300	3,322,077	2,600,152
2020	afdust	0	0	0	0	6,167,700	1,054,026	0
	Ag	0	0	0	0	0	0	2,137,747
	Ave fire	324,827	113,345	4,866,287	17,867	483,817	435,601	15,100
	EGU	35,393	1,352,187	515,930	3,610,591	529,076	418,302	526
	NonEGU	1,456,066	2,662,334	4,478,449	3,033,939	940,467	741,167	81,139
	Nonroad	1,125,461	1,999,893	20,573,267	251,992	153,350	145,670	1,736
	on-road	1,315,676	1,803,835	24,855,926	27,628	94,996	47,530	293,343
	Other area	5,259,316	1,144,551	2,107,949	1,293,656	620,839	521,811	151,404
	pfdust	0	0	0	0	9,505	3,912	0
2020 Total		9,516,740	9,076,146	57,397,808	8,235,672	8,999,751	3,368,019	2,680,995

[1] The CAIR region is defined here to include the following states: AL, AR, CT, DE, DC, FL, GA, IL, IN, IA, KY, LA, MD, MA, MI, MN, MS, MO, NJ, NY, NC, OH, PA, SC, TN, TX, VA, WV, WI

Table 15(c): Sector and pollutant emissions totals for 2010 control, 2015 control, and 2020 control for all states in the modified CAIR region[2].

Year	Sector	[tons/yr] VOC	[tons/yr] NOX	[tons/yr] CO	[tons/yr] SO2	[tons/yr] PM10	[tons/yr] PM2.5	[tons/yr] NH3
2010	afdust	0	0	0	0	5,995,629	1,022,879	0
	Ag	0	0	0	0	0	0	1,902,883
	Ave fire	316,157	109,575	4,699,945	17,072	467,373	421,028	14,492
	EGU	31,287	1,566,340	406,710	5,356,494	540,445	435,515	814
	NonEGU	1,077,223	2,166,556	3,372,316	2,514,622	713,866	561,649	64,156
	Nonroad	1,330,055	2,302,234	17,565,478	186,733	182,027	173,931	1,383
	on-road	1,839,168	3,190,542	26,314,018	21,073	104,297	64,611	230,434
	Other area	4,693,796	974,629	2,255,482	1,099,999	590,419	505,287	123,710
	pfdust	0	0	0	0	7,554	3,067	0
2010 Total		9,287,686	10,309,876	54,613,949	9,195,992	8,601,609	3,187,966	2,337,872
2015	afdust	0	0	0	0	6,082,091	1,035,033	0
	Ag	0	0	0	0	0	0	1,940,506
	Ave fire	316,157	109,575	4,699,945	17,072	467,373	421,028	14,492
	EGU	32,345	1,303,899	453,367	4,187,554	492,564	386,418	623
	NonEGU	1,231,606	2,357,493	3,815,827	2,681,426	805,070	633,773	70,830
	Nonroad	1,149,011	2,058,235	18,292,060	201,683	160,489	153,160	1,513
	on-road	1,436,399	2,157,844	23,746,604	23,554	90,691	49,017	253,878
	Other area	4,919,191	1,008,625	2,132,493	1,159,940	587,578	498,448	134,149
	pfdust	0	0	0	0	8,465	3,451	0
2015 Total		9,084,710	8,995,671	53,140,296	8,271,228	8,694,322	3,180,329	2,415,992
2020	afdust	0	0	0	0	5,913,208	1,009,851	0
	Ag	0	0	0	0	0	0	1,970,577
	Ave fire	316,157	109,575	4,699,945	17,072	467,373	421,028	14,492
	EGU	34,328	1,301,895	498,278	3,502,859	513,740	406,868	517
	NonEGU	1,386,379	2,554,539	4,277,485	2,861,494	897,651	706,884	78,296
	Nonroad	1,064,254	1,914,690	19,391,664	243,432	145,962	138,696	1,641
	on-road	1,251,350	1,686,303	23,615,466	26,161	90,017	45,043	277,774
	Other area	5,000,219	1,051,735	2,015,590	1,192,849	587,045	494,023	144,283
	pfdust	0	0	0	0	9,429	3,862	0
2020 Total		9,052,686	8,618,737	54,498,428	7,843,866	8,624,425	3,226,256	2,487,580

[2] The modified CAIR region is defined here to include the following states: AL, CT, DC, FL, GA, IL, IN, IA, KY, LA, MD, MA, MI, MN, MS, MO, NY, NC, OH, PA, SC, TN, TX, VA, WV, WI (excludes AR, DE, and NJ from Table 15b).

5 References

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Pechan, 2004. Personal communication [by contractor] with Jim Wilson.

Appendix A
SCC assignments using new speciation profiles

Please note that in this lists, where the column for old profile assignment is blank, that SCC had not appeared in previous inventories.

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SCC	Old profile	Old profile description	New profile	New profile description	SCC Description
50200203			NAGBN	Agricultural Burning	Waste Disposal; Solid Waste Disposal - Commercial/Institutional; Open Burning; Field Crops
50200204			NAGBN	Agricultural Burning	Waste Disposal; Solid Waste Disposal - Commercial/Institutional; Open Burning; Vine Crops
50200205	22060	Agricultural Burning	NAGBN	Agricultural Burning	Waste Disposal; Solid Waste Disposal - Commercial/Institutional; Open Burning; Weeds
50200206			NAGBN	Agricultural Burning	Waste Disposal; Solid Waste Disposal - Commercial/Institutional; Open Burning; Orchard Crops
50200207			NAGBN	Agricultural Burning	Waste Disposal; Solid Waste Disposal - Commercial/Institutional; Open Burning; Forest Residues
50300201	22060	Agricultural Burning	NAGBN	Agricultural Burning	Waste Disposal; Solid Waste Disposal - Industrial; Open Burning; Wood/Vegetation/Leaves
A2610000100			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Yard Waste - Leaf Species Unspecified
A2610000110			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is Black Ash
A2610000120			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is Modesto Ash
A2610000130			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is White Ash
A2610000140			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is Catalpa
A2610000150			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is Horse Chestnut
A2610000160			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is Cottonwood
A2610000170			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is American Elm
A2610000180			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is Eucalyptus
A2610000190			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is Sweet Gum
A2610000200			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is Black Locust
A2610000210			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is Magnolia
A2610000220			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is Silver Maple
A2610000230			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is American Sycamore
A2610000240			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is California Sycamore

SCC	Old profile	Old profile description	New profile	New profile description	SCC Description
A2610000250			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is Tulip
A2610000260			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is Red Oak
A2610000270			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Leaf Species is Sugar Maple
A2610000300			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Yard Waste - Weed Species Unspecified (incl Grass)
A2610000310			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Weed Species is Russian thistle (tumbleweed)
A2610000320			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Weed Species is Tales (wild reeds)
A2610000400			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Yard Waste - Brush Species Unspecified
A2610000500			NAGBN	Agricultural Burning	Waste Disposal, Treatment, and Recovery; Open Burning; All Categories; Land Clearing Debris (use 28-10-005-000 for Logging Debris Burning)
A2801500000	22060	Agricultural Burning	NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Total, all crop types
A2801500100			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crops Unspecified
A2801500111			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Alfalfa : Headfire Burning
A2801500112			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Alfalfa: Backfire Burning
A2801500120			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Asparagus: Burning Techniques Not Significant
A2801500130			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Barley: Burning Techniques Not Significant
A2801500141			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Bean (red): Headfire Burning
A2801500142			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Bean (red): Backfire Burning
A2801500150			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops;

SCC	Old profile	Old profile description	New profile	New profile description	SCC Description
					Agricultural Field Burning - whole field set on fire; Field Crop is Corn: Burning Techniques Not Important
A2801500160			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Cotton: Burning Techniques Not Important
A2801500170			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Grasses: Burning Techniques Not Important
A2801500181			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Hay (wild): Headfire Burning
A2801500182			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Hay (wild): Backfire Burning
A2801500191			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Oats: Headfire Burning
A2801500192			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Oats: Backfire Burning
A2801500201			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Pea: Headfire Burning
A2801500202			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Pea: Backfire Burning
A2801500210			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Pineapple: Burning Techniques Not Significant
A2801500220			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Rice: Burning Techniques Not Significant
A2801500230			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Safflower: Burning Techniques Not Significant
A2801500240			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Sorghum: Burning Techniques Not Significant
A2801500250			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Sugar Cane: Burning Techniques Not Significant
A2801500261			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops;

SCC	Old profile	Old profile description	New profile	New profile description	SCC Description
					Agricultural Field Burning - whole field set on fire; Field Crop is Wheat: Headfire Burning
A2801500262			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Field Crop is Wheat: Backfire Burning
A2801500300			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Orchard Crop Unspecified
A2801500310			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Orchard Crop is Almond
A2801500320			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Orchard Crop is Apple
A2801500330			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Orchard Crop is Apricot
A2801500340			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Orchard Crop is Avocado
A2801500350			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Orchard Crop is Cherry
A2801500360			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Orchard Crop is Citrus (orange, lemon)
A2801500370			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Orchard Crop is Date palm
A2801500380			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Orchard Crop is Fig
A2801500390			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Orchard Crop is Nectarine
A2801500400			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Orchard Crop is Olive
A2801500410			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Orchard Crop is Peach
A2801500420			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops;

SCC	Old profile	Old profile description	New profile	New profile description	SCC Description
					Agricultural Field Burning - whole field set on fire; Orchard Crop is Pear
A2801500430			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Orchard Crop is Prune
A2801500440			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Orchard Crop is Walnut
A2801500450			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Orchard Crop is Filbert (Hazelnut)
A2801500500			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Vine Crop Unspecified
A2801500600			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Forest Residues Unspecified (see also 28-10-015-000)
A2801500610			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Forest Residues: Species are Hemlock, Douglas fir, Cedar
A2801500620			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Field Burning - whole field set on fire; Forest Residues: Species is Ponderosa Pine (see also 28-10-015-000)
A2801501000			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Propaning - tractor-pulled burners to burn stubble only; Total, all crop types
A2801501105			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Propaning - tractor-pulled burners to burn stubble only; Cereal Grains, Total
A2801501130			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Propaning - tractor-pulled burners to burn stubble only; Barley
A2801501170			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Propaning - tractor-pulled burners to burn stubble only; Grass
A2801501260			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Propaning - tractor-pulled burners to burn stubble only; Wheat
A2801501270			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Propaning - tractor-pulled burners to burn stubble only; Mint
A2801502000			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops;

SCC	Old profile	Old profile description	New profile	New profile description	SCC Description
					Agricultural Stack Burning - straw stacks moved from field for burning; Total, all crop types
A2801502105			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Stack Burning - straw stacks moved from field for burning; Cereal Grains, Total
A2801502130			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Stack Burning - straw stacks moved from field for burning; Barley
A2801502170			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Stack Burning - straw stacks moved from field for burning; Grass
A2801502260			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Stack Burning - straw stacks moved from field for burning; Wheat
A2801502270			NAGBN	Agricultural Burning	Miscellaneous Area Sources; Agriculture Production - Crops; Agricultural Stack Burning - straw stacks moved from field for burning; Mint
10100101			NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Anthracite Coal; Pulverized Coal
10100102			NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Anthracite Coal; Traveling Grate (Overfeed) Stoker
10100201	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Pulverized Coal: Wet Bottom (Bituminous Coal)
10100202	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Pulverized Coal: Dry Bottom (Bituminous Coal)
10100203	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Cyclone Furnace (Bituminous Coal)
10100204	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Spreader Stoker (Bituminous Coal)
10100205	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Traveling Grate (Overfeed) Stoker (Bituminous Coal)
10100211	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Wet Bottom (Tangential) (Bituminous Coal)
10100212	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Pulverized Coal: Dry Bottom (Tangential) (Bituminous Coal)

SCC	Old profile	Old profile description	New profile	New profile description	SCC Description
10100215	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Cell Burner (Bituminous Coal)
10100217	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Atmospheric Fluidized Bed Combustion: Bubbling Bed (Bituminous Coal)
10100218	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Atmospheric Fluidized Bed Combustion: Circulating Bed (Bitum. Coal)
10100221	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Pulverized Coal: Wet Bottom (Subbituminous Coal)
10100222	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Pulverized Coal: Dry Bottom (Subbituminous Coal)
10100223	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Cyclone Furnace (Subbituminous Coal)
10100224	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Spreader Stoker (Subbituminous Coal)
10100225	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Traveling Grate (Overfeed) Stoker (Subbituminous Coal)
10100226	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Pulverized Coal: Dry Bottom Tangential (Subbituminous Coal)
10100235	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Cell Burner (Subbituminous Coal)
10100238	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Bituminous/Subbituminous Coal; Atmospheric Fluidized Bed Combustion - Circulating Bed (subbitum coal)
10100300	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Lignite; Pulverized Coal: Wet Bottom
10100301	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Lignite; Pulverized Coal: Dry Bottom, Wall Fired
10100302	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Lignite; Pulverized Coal: Dry Bottom, Tangential Fired
10100303	22101	Coal Combustion - w/SULF=0 (use when SULF provided as	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Lignite; Cyclone Furnace

SCC	Old profile	Old profile description	New profile	New profile description	SCC Description
		separate pollutant)			
10100304	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Lignite; Traveling Grate (Overfeed) Stoker
10100306	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Lignite; Spreader Stoker
10100316	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Lignite; Atmospheric Fluidized Bed ** (See 101003-17 & -18)
10100317	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Lignite; Atmospheric Fluidized Bed Combustion - Bubbling Bed
10100318	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Lignite; Atmospheric Fluidized Bed Combustion - Circulating Bed
10100801	22001	Coal Combustion	NCOAL	Coal Combustion	External Combustion Boilers; Electric Generation; Coke; All Boiler Sizes
10200101	22001	Coal Combustion	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Anthracite Coal; Pulverized Coal
10200102	22001	Coal Combustion	NCOAL	Coal Combustion	; ; ;
10200104	22001	Coal Combustion	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Anthracite Coal; Traveling Grate (Overfeed) Stoker
10200107	22001	Coal Combustion	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Anthracite Coal; Hand-fired
10200117			NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Anthracite Coal; Fluidized Bed Boiler Burning Anthracite-Culm Fuel
10200201	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Pulverized Coal: Wet Bottom
10200202	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Pulverized Coal: Dry Bottom
10200203	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Cyclone Furnace
10200204	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Spreader Stoker
10200205	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Overfeed Stoker
10200206	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Underfeed Stoker
10200210	22101	Coal Combustion - w/SULF=0	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous

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		(use when SULF provided as separate pollutant)			Coal; Overfeed Stoker **
10200212	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Pulverized Coal: Dry Bottom (Tangential)
10200213	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Wet Slurry
10200217	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Atmospheric Fluidized Bed Combustion: Bubbling Bed (Bituminous Coal)
10200218	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Atmospheric Fluidized Bed Combustion: Circulating Bed (Bitum. Coal)
10200219	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Cogeneration (Bituminous Coal)
10200221	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Pulverized Coal: Wet Bottom (Subbituminous Coal)
10200222	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Pulverized Coal: Dry Bottom (Subbituminous Coal)
10200223	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Cyclone Furnace (Subbituminous Coal)
10200224	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Spreader Stoker (Subbituminous Coal)
10200225	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Traveling Grate (Overfeed) Stoker (Subbituminous Coal)
10200226	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Pulverized Coal: Dry Bottom Tangential (Subbituminous Coal)
10200229	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Bituminous/Subbituminous Coal; Cogeneration (Subbituminous Coal)
10200300	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Lignite; Pulverized Coal: Wet Bottom
10200301	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Lignite; Pulverized Coal: Dry Bottom, Wall Fired
10200302	22101	Coal Combustion - w/SULF=0 (use when SULF provided as	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Lignite; Pulverized Coal: Dry Bottom, Tangential Fired

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		separate pollutant)			
10200303	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Lignite; Cyclone Furnace
10200304	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Lignite; Traveling Grate (Overfeed) Stoker
10200306	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Lignite; Spreader Stoker
10200307	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Lignite; Cogeneration
10200801	22001	Coal Combustion	NCOAL	Coal Combustion	; ; ;
10200802	22001	Coal Combustion	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Coke; All Boiler Sizes
10200804	22001	Coal Combustion	NCOAL	Coal Combustion	External Combustion Boilers; Industrial; Coke; Cogeneration
10300101	22001	Coal Combustion	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Anthracite Coal; Pulverized Coal
10300102	22001	Coal Combustion	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Anthracite Coal; Traveling Grate (Overfeed) Stoker
10300103	22001	Coal Combustion	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Anthracite Coal; Hand-fired
10300203	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Cyclone Furnace (Bituminous Coal)
10300205	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Pulverized Coal: Wet Bottom (Bituminous Coal)
10300206	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Pulverized Coal: Dry Bottom (Bituminous Coal)
10300207	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Overfeed Stoker (Bituminous Coal)
10300208	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Underfeed Stoker (Bituminous Coal)
10300209	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Spreader Stoker (Bituminous Coal)
10300211	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Overfeed Stoker **

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10300214	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Hand-fired (Bituminous Coal)
10300216	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Pulverized Coal: Dry Bottom (Tangential) (Bituminous Coal)
10300217	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Atmospheric Fluidized Bed Combustion: Bubbling Bed (Bituminous Coal)
10300218	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Atmospheric Fluidized Bed Combustion: Circulating Bed (Bitum. Coal)
10300221	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Pulverized Coal: Wet Bottom (Subbituminous Coal)
10300222	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Pulverized Coal: Dry Bottom (Subbituminous Coal)
10300223	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Cyclone Furnace (Subbituminous Coal)
10300224	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Spreader Stoker (Subbituminous Coal)
10300225	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Traveling Grate (Overfeed) Stoker (Subbituminous Coal)
10300226	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Bituminous/Subbituminous Coal; Pulverized Coal: Dry Bottom Tangential (Subbituminous Coal)
10300300	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Lignite; Pulverized Coal: Wet Bottom
10300305	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Lignite; Pulverized Coal: Dry Bottom, Wall Fired
10300306	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Lignite; Pulverized Coal: Dry Bottom, Tangential Fired
10300307	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Lignite; Traveling Grate (Overfeed) Stoker
10300309	22101	Coal Combustion - w/SULF=0 (use when SULF provided as	NCOAL	Coal Combustion	External Combustion Boilers; Commercial/Institutional; Lignite; Spreader Stoker

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		separate pollutant)			
10500102	22001	Coal Combustion	NCOAL	Coal Combustion	External Combustion Boilers; Space Heaters; Industrial; Coal **
10500202	22001	Coal Combustion	NCOAL	Coal Combustion	External Combustion Boilers; Space Heaters; Commercial/Institutional; Coal **
30300302	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Oven Charging
30300303	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Oven Pushing
30300304	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Quenching
30300305	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Coal Unloading
30300306	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Oven Underfiring
30300307	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Coal Crushing/Handling
30300308	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Oven/Door Leaks
30300309	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Coal Conveying
30300310	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Coal Crushing
30300311	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Coal Screening
30300312	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Coke: Crushing/Screening/Handling
30300313	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Coal Preheater
30300314	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Topside Leaks
30300315	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Gas By-product Plant
30300316	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Coal Storage Pile
30300317			NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Combustion Stack: Coke Oven Gas (COG)
30300318			NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Combustion Stack: Blast Furnace Gas (BFG)
30300331	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; By-product Coke Manufacturing
30300332	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Flushing-liquor Circulation Tank

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30300333	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Excess-ammonia Liquor Tank
30300334	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Tar Dehydrator
30300335	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Tar Interceding Sump
30300336	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Tar Storage
30300341	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Light Oil Sump
30300342	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Light Oil Decanter/Condenser Vent
30300343	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Wash Oil Decanter
30300344	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Wash-oil Circulation Tank
30300351	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; By-product Coke Manufacturing
30300352	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Tar Bottom Final Cooler
30300353	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Naphthalene Processing/Handling
30300361	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Equipment Leaks
30300399	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; By-product Coke Manufacturing; Not Classified **
30300401	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; Coke Manufacture: Beehive Process; General
30302355			NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; Taconite Iron Ore Processing; Induration: Grate/Kiln, Coke-fired, Acid Pellets
30302356			NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; Taconite Iron Ore Processing; Induration: Grate/Kiln, Coke-fired, Flux Pellets
30302357			NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; Taconite Iron Ore Processing; Induration: Grate/Kiln, Coke & Coal-fired, Acid Pellets
30302358			NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; Taconite Iron Ore Processing; Induration: Grate/Kiln, Coke & Coal-fired, Flux Pellets
30302359			NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; Taconite Iron Ore Processing; Induration: Grate/Kiln, Coal-fired, Acid Pellets
30302360			NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; Taconite Iron Ore Processing; Induration: Grate/Kiln, Coal-fired, Flux Pellets
30302361			NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; Taconite Iron Ore Processing; Induration: Grate/Kiln, Coal & Oil-fired, Acid Pellets

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30302362			NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; Taconite Iron Ore Processing; Induration: Grate/Kiln, Coal & Oil-fired, Flux Pellets
30302385			NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; Taconite Iron Ore Processing; Induration: Straight Grate, Coke-fired, Acid Pellets
30302386			NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; Taconite Iron Ore Processing; Induration: Straight Grate, Coke-fired, Flux Pellets
30302387			NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; Taconite Iron Ore Processing; Induration: Straight Grate, Coke & Gas-fired, Acid Pellets
30302388			NCOAL	Coal Combustion	Industrial Processes; Primary Metal Production; Taconite Iron Ore Processing; Induration: Straight Grate, Coke & Gas-fired, Flux Pellets
30500313	22034	Brick Grinding & Screening	NCOAL	Coal Combustion	Industrial Processes; Mineral Products; Brick Manufacture; Curing and Firing: Coal-fired Tunnel Kilns
30500316	22034	Brick Grinding & Screening	NCOAL	Coal Combustion	Industrial Processes; Mineral Products; Brick Manufacture; Curing and Firing: Coal-fired Periodic Kilns
30500334			NCOAL	Coal Combustion	Industrial Processes; Mineral Products; Brick Manufacture; Curing and Firing: Coal-fired Kiln, Other Type
30501618	22051	Gypsum Manufacture	NCOAL	Coal Combustion	Industrial Processes; Mineral Products; Lime Manufacture; Calcining: Coal-fired Rotary Kiln
30501620	22051	Gypsum Manufacture	NCOAL	Coal Combustion	Industrial Processes; Mineral Products; Lime Manufacture; Calcining: Coal- and Gas-fired Rotary Kiln
30501621			NCOAL	Coal Combustion	Industrial Processes; Mineral Products; Lime Manufacture; Calcining: Coal- and Coke-fired Rotary Kiln
30501622			NCOAL	Coal Combustion	Industrial Processes; Mineral Products; Lime Manufacture; Calcining: Coal-fired Rotary Preheater Kiln
39000189	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; In-process Fuel Use; Anthracite Coal; General
39000199	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; In-process Fuel Use; Anthracite Coal; General
39000201	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; In-process Fuel Use; Bituminous Coal; Cement Kiln/Dryer (Bituminous Coal)
39000203	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; In-process Fuel Use; Bituminous Coal; Lime Kiln (Bituminous)
39000288	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; In-process Fuel Use; Bituminous Coal; General (Subbituminous)
39000289	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; In-process Fuel Use; Bituminous Coal; General (Bituminous)
39000299	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; In-process Fuel Use; Bituminous Coal; General (Bituminous)
39000389	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; In-process Fuel Use; Lignite; General
39000399	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; In-process Fuel Use; Lignite; General

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39000801	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; In-process Fuel Use; Coke; Mineral Wool Fuel **
39000889	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; In-process Fuel Use; Coke; General
39000899	22001	Coal Combustion	NCOAL	Coal Combustion	Industrial Processes; In-process Fuel Use; Coke; General: Coke
50190002			NCOAL	Coal Combustion	Waste Disposal; Solid Waste Disposal - Government; Auxillary Fuel/No Emissions; Coal
50290002			NCOAL	Coal Combustion	Waste Disposal; Solid Waste Disposal - Commercial/Institutional; Auxillary Fuel/No Emissions; Coal
50300204	22009	Solid Waste Combustion	NCOAL	Coal Combustion	Waste Disposal; Solid Waste Disposal - Industrial; Open Burning; Coal Refuse Piles
50390002			NCOAL	Coal Combustion	Waste Disposal; Solid Waste Disposal - Industrial; Auxillary Fuel/No Emissions; Coal
A2101009000			NCOAL	Coal Combustion	Stationary Source Fuel Combustion; Electric Utility; Coke; Total: All Boiler Types
A2102001000	22001	Coal Combustion	NCOAL	Coal Combustion	Stationary Source Fuel Combustion; Industrial; Anthracite Coal; Total: All Boiler Types
A2102002000	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	Stationary Source Fuel Combustion; Industrial; Bituminous/Subbituminous Coal; Total: All Boiler Types
A2102009000	22001	Coal Combustion	NCOAL	Coal Combustion	Stationary Source Fuel Combustion; Industrial; Coke; Total: All Boiler Types
A2103001000	22001	Coal Combustion	NCOAL	Coal Combustion	Stationary Source Fuel Combustion; Commercial/Institutional; Anthracite Coal; Total: All Boiler Types
A2103002000	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	Stationary Source Fuel Combustion; Commercial/Institutional; Bituminous/Subbituminous Coal; Total: All Boiler Types
A2104001000	22001	Coal Combustion	NCOAL	Coal Combustion	Stationary Source Fuel Combustion; Residential; Anthracite Coal; Total: All Combustor Types
A2104002000	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	Stationary Source Fuel Combustion; Residential; Bituminous/Subbituminous Coal; Total: All Combustor Types
A2199001000			NCOAL	Coal Combustion	Stationary Source Fuel Combustion; Total Area Source Fuel Combustion; Anthracite Coal; Total: All Boiler Types
A2199002000	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	Stationary Source Fuel Combustion; Total Area Source Fuel Combustion; Bituminous/Subbituminous Coal; Total: All Boiler Types
A2199003000	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	Stationary Source Fuel Combustion; Total Area Source Fuel Combustion; Lignite Coal; Total: All Boiler Types
A2199009000			NCOAL	Coal Combustion	Stationary Source Fuel Combustion; Total Area Source Fuel Combustion; Coke; Total: All Boiler Types
A2280001000	22001	Coal Combustion	NCOAL	Coal Combustion	Mobile Sources; Marine Vessels, Commercial; Coal; Total, All Vessel Types

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A2280001010			NCOAL	Coal Combustion	Mobile Sources; Marine Vessels, Commercial; Coal; Ocean-going Vessels
A2280001020			NCOAL	Coal Combustion	Mobile Sources; Marine Vessels, Commercial; Coal; Harbor Vessels
A2280001030			NCOAL	Coal Combustion	Mobile Sources; Marine Vessels, Commercial; Coal; Fishing Vessels
A2280001040			NCOAL	Coal Combustion	Mobile Sources; Marine Vessels, Commercial; Coal; Military Vessels
A2390001000			NCOAL	Coal Combustion	Industrial Processes; In-process Fuel Use; Anthracite Coal; Total
A2390002000			NCOAL	Coal Combustion	Industrial Processes; In-process Fuel Use; Bituminous/Subbituminous Coal; Total
A2390009000			NCOAL	Coal Combustion	Industrial Processes; In-process Fuel Use; Coke; Total
AA210100100			NCOAL	Coal Combustion	Stationary Source Fuel Combustion; Electric Utility; Anthracite Coal; Total: All Boiler Types
AA210100200	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	Stationary Source Fuel Combustion; Electric Utility; Bituminous/Subbituminous Coal; Total: All Boiler Types
AA210100300	22101	Coal Combustion - w/SULF=0 (use when SULF provided as separate pollutant)	NCOAL	Coal Combustion	Stationary Source Fuel Combustion; Electric Utility; Lignite Coal; Total: All Boiler Types
30300834	22058	Paved Road Dust	NPAVE	Paved Road Dust	Industrial Processes; Primary Metal Production; Iron Production (See 3-03-015 for Integrated Iron & Steel MACT); Paved Roads: All Vehicle Types
A2294000000	22058	Paved Road Dust	NPAVE	Paved Road Dust	Mobile Sources; Paved Roads; All Paved Roads; Total: Fugitives
A2294000001			NPAVE	Paved Road Dust	Mobile Sources; Paved Roads; All Paved Roads; Total: Average Conditions - Fugitives
A2294000002			NPAVE	Paved Road Dust	Mobile Sources; Paved Roads; All Paved Roads; Total: Sanding/Salting - Fugitives
A2294005000			NPAVE	Paved Road Dust	Mobile Sources; Paved Roads; Interstate/Arterial; Total: Fugitives
A2294005001			NPAVE	Paved Road Dust	Mobile Sources; Paved Roads; Interstate/Arterial; Total: Average Conditions - Fugitives
A2294005002			NPAVE	Paved Road Dust	Mobile Sources; Paved Roads; Interstate/Arterial; Total: Sanding/Salting - Fugitives
A2294010000			NPAVE	Paved Road Dust	Mobile Sources; Paved Roads; All Other Public Paved Roads; Total: Fugitives
A2294010001			NPAVE	Paved Road Dust	Mobile Sources; Paved Roads; All Other Public Paved Roads; Total: Average Conditions - Fugitives
A2294010002			NPAVE	Paved Road Dust	Mobile Sources; Paved Roads; All Other Public Paved Roads; Total: Sanding/Salting - Fugitives
A2294015000			NPAVE	Paved Road Dust	Mobile Sources; Paved Roads; Industrial Roads; Total: Fugitives
A2294015001			NPAVE	Paved Road Dust	Mobile Sources; Paved Roads; Industrial Roads; Total: Average Conditions - Fugitives

SCC	Old profile	Old profile description	New profile	New profile description	SCC Description
A2294015002			NPAVE	Paved Road Dust	Mobile Sources; Paved Roads; Industrial Roads; Total: Sanding/Salting - Fugitives
A2810001000	22070	Wildfires	NWFIR	Wildfires	Miscellaneous Area Sources; Other Combustion; Forest Wildfires; Total
A2810005000	22060	Agricultural Burning	NWFIR	Wildfires	Miscellaneous Area Sources; Other Combustion; Managed Burning, Slash (Logging Debris); Total
A2810015000	22060	Agricultural Burning	NWFIR	Wildfires	Miscellaneous Area Sources; Other Combustion; Prescribed Burning for Forest Management; Total
A2810020000			NWFIR	Wildfires	Miscellaneous Area Sources; Other Combustion; Prescribed Burning of Rangeland; Total
10100901			NWWAS	Wood Waste Combustion	External Combustion Boilers; Electric Generation; Wood/Bark Waste; Bark-fired Boiler
10100902	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	External Combustion Boilers; Electric Generation; Wood/Bark Waste; Wood/Bark Fired Boiler
10100903	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	External Combustion Boilers; Electric Generation; Wood/Bark Waste; Wood-fired Boiler - Wet Wood (>=20% moisture)
10100908			NWWAS	Wood Waste Combustion	External Combustion Boilers; Electric Generation; Wood/Bark Waste; Wood-fired Boiler - Dry Wood (<20% moisture)
10100910			NWWAS	Wood Waste Combustion	External Combustion Boilers; Electric Generation; Wood/Bark Waste; Fuel cell/Dutch oven boilers **
10100911			NWWAS	Wood Waste Combustion	External Combustion Boilers; Electric Generation; Wood/Bark Waste; Stoker boilers **
10100912			NWWAS	Wood Waste Combustion	External Combustion Boilers; Electric Generation; Wood/Bark Waste; Fluidized bed combustion boilers
10101101			NWWAS	Wood Waste Combustion	External Combustion Boilers; Electric Generation; Bagasse; All Boiler Sizes
10200901	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	External Combustion Boilers; Industrial; Wood/Bark Waste; Bark-fired Boiler
10200902	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	External Combustion Boilers; Industrial; Wood/Bark Waste; Wood/Bark-fired Boiler
10200903	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	External Combustion Boilers; Industrial; Wood/Bark Waste; Wood-fired Boiler - Wet Wood (>=20% moisture)
10200904	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	External Combustion Boilers; Industrial; Wood/Bark Waste; Bark-fired Boiler (< 50,000 Lb Steam) **
10200905	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	External Combustion Boilers; Industrial; Wood/Bark Waste; Wood/Bark-fired Boiler (< 50,000 Lb Steam) **
10200906	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	External Combustion Boilers; Industrial; Wood/Bark Waste; Wood-fired Boiler (< 50,000 Lb Steam) **
10200907	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	External Combustion Boilers; Industrial; Wood/Bark Waste; Wood Cogeneration
10200908			NWWAS	Wood Waste Combustion	External Combustion Boilers; Industrial; Wood/Bark Waste; Wood-fired Boiler - Dry Wood (<20% moisture)

SCC	Old profile	Old profile description	New profile	New profile description	SCC Description
10200910			NWWAS	Wood Waste Combustion	External Combustion Boilers; Industrial; Wood/Bark Waste; Fuel cell/Dutch oven boilers **
10200911			NWWAS	Wood Waste Combustion	External Combustion Boilers; Industrial; Wood/Bark Waste; Stoker boilers **
10200912			NWWAS	Wood Waste Combustion	External Combustion Boilers; Industrial; Wood/Bark Waste; Fluidized bed combustion boiler
10201101	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	External Combustion Boilers; Industrial; Bagasse; All Boiler Sizes
10300901	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	External Combustion Boilers; Commercial/Institutional; Wood/Bark Waste; Bark-fired Boiler
10300902	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	External Combustion Boilers; Commercial/Institutional; Wood/Bark Waste; Wood/Bark-fired Boiler
10300903	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	External Combustion Boilers; Commercial/Institutional; Wood/Bark Waste; Wood-fired Boiler - Wet Wood (>=20% moisture)
10300908			NWWAS	Wood Waste Combustion	External Combustion Boilers; Commercial/Institutional; Wood/Bark Waste; Wood-fired Boiler - Dry Wood (<20% moisture)
10300910			NWWAS	Wood Waste Combustion	External Combustion Boilers; Commercial/Institutional; Wood/Bark Waste; Fuel cell/Dutch oven boilers **
10300911			NWWAS	Wood Waste Combustion	External Combustion Boilers; Commercial/Institutional; Wood/Bark Waste; Stoker boilers **
10300912			NWWAS	Wood Waste Combustion	External Combustion Boilers; Commercial/Institutional; Wood/Bark Waste; Fluidized bed combustion boilers
10500209	22001	Coal Combustion	NWWAS	Wood Waste Combustion	External Combustion Boilers; Space Heaters; Commercial/Institutional; Wood
30500318	22034	Brick Grinding & Screening	NWWAS	Wood Waste Combustion	Industrial Processes; Mineral Products; Brick Manufacture; Tunnel Kiln: Wood-fired
30700602			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Particleboard Manufacture; Direct Wood-fired Rotary Dryer, Unspecified Pines, <730F Inlet Air
30700604			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Particleboard Manufacture; Direct Wood-fired Rotary Dryer, Unspecified Pines, >900F Inlet Air
30700606			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Particleboard Manufacture; Direct Wood-fired Rotary Dryer, Southern Yellow Pine
30700610			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Particleboard Manufacture; Direct Wood-fired Rotary Dryer, Hardwoods
30700621			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Particleboard Manufacture; Direct Wood-fired Rotary Final Dryer, Unspecified Pines
30700628			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Particleboard Manufacture; Direct Wood-fired Rotary Predryer,

SCC	Old profile	Old profile description	New profile	New profile description	SCC Description
					Douglas Fir
30700629			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Particleboard Manufacture; Direct Wood-fired Tube Final Dryer, Douglas Fir
30700740			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Plywood Operations; Direct Wood-Fired Dryer: Non-specified Pine Species Veneer
30700744			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Plywood Operations; Direct Wood-Fired Dryer: Hemlock Veneer
30700746			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Plywood Operations; Direct Wood-Fired Dryer: Non-specified Fir Species Veneer
30700747			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Plywood Operations; Direct Wood-Fired Dryer: Douglas Fir Veneer
30700921			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Medium Density Fiberboard (MDF) Manufacture; Direct Wood-fired Tube Dryer, Unspecified Pines
30700925			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Medium Density Fiberboard (MDF) Manufacture; Direct Wood-fired Tube Dryer, Hardwoods
30701001			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Oriented Strandboard (OSB) Manufacture; Direct Wood-fired Rotary Dryer, Unspecified Pines
30701008			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Oriented Strandboard (OSB) Manufacture; Direct Wood-fired Rotary Dryer, Aspen
30701010			NWWAS	Wood Waste Combustion	Industrial Processes; Pulp and Paper and Wood Products; Oriented Strandboard (OSB) Manufacture; Direct Wood-fired Rotary Dryer, Hardwoods
39000989	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	Industrial Processes; In-process Fuel Use; Wood; General
39000999	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	Industrial Processes; In-process Fuel Use; Wood; General: Wood
50100508	22009	Solid Waste Combustion	NWWAS	Wood Waste Combustion	Waste Disposal; Solid Waste Disposal - Government; Other Incineration; Conical Design (Tee Pee) Wood Refuse
50100510	22009	Solid Waste Combustion	NWWAS	Wood Waste Combustion	Waste Disposal; Solid Waste Disposal - Government; Other Incineration; Trench Burner: Wood
50100604	22009	Solid Waste Combustion	NWWAS	Wood Waste Combustion	Waste Disposal; Solid Waste Disposal - Government; Fire Fighting; Structure: Wood Pallets
50200105	22009	Solid Waste Combustion	NWWAS	Wood Waste Combustion	Waste Disposal; Solid Waste Disposal - Commercial/Institutional; Incineration; Conical Design (Tee Pee) Wood Refuse
50200201	22009	Solid Waste Combustion	NWWAS	Wood Waste Combustion	Waste Disposal; Solid Waste Disposal - Commercial/Institutional; Open Burning; Wood
50300105	22009	Solid Waste Combustion	NWWAS	Wood Waste Combustion	Waste Disposal; Solid Waste Disposal - Industrial; Incineration;

SCC	Old profile	Old profile description	New profile	New profile description	SCC Description
					Conical Design (Tee Pee) Wood Refuse
50300106	22009	Solid Waste Combustion	NWWAS	Wood Waste Combustion	Waste Disposal; Solid Waste Disposal - Industrial; Incineration; Trench Burner: Wood
A2101008000			NWWAS	Wood Waste Combustion	Stationary Source Fuel Combustion; Electric Utility; Wood; Total: All Boiler Types
A2102008000	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	Stationary Source Fuel Combustion; Industrial; Wood; Total: All Boiler Types
A2103008000	22008	Wood Waste Boiler	NWWAS	Wood Waste Combustion	Stationary Source Fuel Combustion; Commercial/Institutional; Wood; Total: All Boiler Types
A2199008000			NWWAS	Wood Waste Combustion	Stationary Source Fuel Combustion; Total Area Source Fuel Combustion; Wood; Total: All Boiler Types
A2390008000			NWWAS	Wood Waste Combustion	Industrial Processes; In-process Fuel Use; Wood; Total

Appendix B

State-sector emissions summary for 2001, 2010 base, and 2015 base

The following table contains the state-sector emission summaries for the 2001 base, 2010 base, and 2015 base cases. Please note that the non-IPM sector emissions do not reflect the revisions in Arkansas and North Dakota as described in Tables 14(a) and 14(b), in Section 4.4.3.

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State	Sector	2001 VOC [tons/yr]	2010 Base VOC [tons/yr]	2015 Base VOC [tons/yr]	2001 NOX [tons/yr]	2010 Base NOX [tons/yr]	2015 Base NOX [tons/yr]	2001 CO [tons/yr]	2010 Base CO [tons/yr]	2015 Base CO [tons/yr]	2001 SO2 [tons/yr]	2010 Base SO2 [tons/yr]	2015 Base SO2 [tons/yr]	2001 PM10 [tons/yr]	2010 Base PM10 [tons/yr]	2015 Base PM10 [tons/yr]	2001 PM25 [tons/yr]	2010 Base PM25 [tons/yr]	2015 Base PM25 [tons/yr]	2001 NH3 [tons/yr]	2010 Base NH3 [tons/yr]	2015 Base NH3 [tons/yr]
Alabama	afdust	0	0	0	0	0	0	0	0	0	0	0	0	119,273	120,703	123,387	19,521	19,644	20,082	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65,027	68,708	75,737
	fire	12,716	12,716	12,716	5,055	5,055	5,055	222,531	222,531	222,531	983	983	983	21,505	21,505	21,505	19,127	19,127	19,127	752	752	752
	IPM	1,148	1,261	1,380	168,541	132,036	133,867	9,172	14,924	19,122	466,255	477,894	404,772	27,180	31,017	31,739	23,316	26,432	27,094	15	11	13
	nonIPM	60,452	50,344	57,246	105,325	101,963	113,880	164,468	183,021	205,870	114,971	120,282	129,670	33,472	34,817	39,425	25,832	26,735	30,325	517	552	609
	nonroad	45,264	34,254	28,867	65,926	52,550	46,937	354,527	400,935	416,532	7,320	3,832	4,109	4,984	4,204	3,708	4,760	4,005	3,530	25	30	32
	on-road	104,566	55,869	43,194	155,614	84,467	54,049	1,277,848	728,039	642,034	5,968	574	634	4,263	2,787	2,403	3,172	1,718	1,296	5,456	6,259	6,802
	other area	130,640	122,611	129,788	10,482	12,309	12,971	49,681	43,532	41,948	44,911	12,827	31,442	17,325	16,049	17,013	13,265	12,564	13,013	1,370	1,422	1,635
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	346	337	394	224	217	255	0	0	0
Alabama Total		354,786	277,055	273,191	510,943	388,380	366,759	2,078,227	1,592,982	1,548,037	640,408	616,392	571,610	228,349	231,419	239,574	109,216	110,442	114,721	73,161	77,734	85,580
Arizona	afdust	0	0	0	0	0	0	0	0	0	0	0	0	131,092	151,555	161,242	23,405	27,167	28,907	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26,488	30,750	32,450
	fire	22,458	22,458	22,458	10,983	10,983	10,983	455,825	455,825	455,825	2,888	2,888	2,888	44,570	44,570	44,570	38,716	38,716	38,716	2,020	2,020	2,020
	IPM	874	1,017	1,043	96,669	79,903	80,334	7,124	22,436	23,439	73,473	60,242	60,308	10,573	12,257	12,338	7,678	9,903	9,984	111	5	5
	nonIPM	8,851	7,026	8,435	29,725	34,567	38,755	7,809	9,273	10,246	32,737	40,360	48,351	3,731	4,159	4,773	2,315	2,557	2,952	41	63	78
	nonroad	45,092	31,420	28,423	54,414	40,391	35,169	444,475	552,581	588,474	4,283	603	338	4,304	3,535	3,053	4,109	3,362	2,896	28	33	36
	on-road	82,667	54,660	43,847	163,599	104,250	67,474	896,835	676,635	622,740	3,639	758	892	4,507	3,442	3,074	3,409	2,188	1,698	5,068	6,986	8,097
	other area	102,465	106,501	118,587	53,983	65,401	67,980	25,745	25,001	25,050	3,461	3,325	3,502	7,000	7,591	7,981	5,760	6,161	6,439	2,699	2,962	3,159
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	1,050	1,166	1,315	327	364	413	0	0	0
Arizona Total		262,406	223,082	222,793	409,373	335,495	300,695	1,837,813	1,741,751	1,725,774	120,481	108,176	116,279	206,827	228,275	238,347	85,719	90,418	92,004	36,455	42,819	45,845
Arkansas	afdust	0	0	0	0	0	0	0	0	0	0	0	0	209,931	212,942	212,779	36,921	37,329	37,191	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	126,549	131,580	139,678
	fire	7,523	7,523	7,523	3,305	3,305	3,305	146,745	146,745	146,745	728	728	728	14,466	14,466	14,466	12,754	12,754	12,754	556	556	556
	IPM	563	574	639	47,478	43,589	44,237	4,433	6,636	9,194	78,777	82,416	82,416	3,350	3,488	3,695	2,779	2,926	3,132	57	7	7
	nonIPM	28,795	28,649	32,374	54,281	61,100	67,799	109,260	129,664	146,780	61,319	74,089	87,106	25,382	27,180	30,800	19,850	21,413	24,254	1,235	1,428	1,601
	nonroad	29,649	25,167	20,286	65,002	50,770	45,047	213,415	242,307	248,779	7,129	3,222	3,361	4,891	3,863	3,246	4,699	3,701	3,108	22	27	29
	on-road	54,425	29,942	23,272	97,331	53,304	33,613	728,950	425,214	375,667	3,740	339	376	2,737	1,783	1,495	2,090	1,134	822	3,016	3,616	3,961
	other area	106,221	98,633	104,148	35,804	40,495	42,943	35,920	28,318	28,064	20,009	28,371	30,679	10,121	10,095	10,464	8,415	7,928	8,113	1,069	1,231	1,377
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	54	53	64	35	35	42	0	0	0
Arkansas Total		227,176	190,488	188,242	303,201	252,563	236,944	1,238,723	978,885	955,229	171,702	189,165	204,666	270,932	273,871	277,009	87,544	87,219	89,416	132,504	138,445	147,209
California	afdust	0	0	0	0	0	0	0	0	0	0	0	0	364,259	397,445	414,154	63,498	69,170	71,862	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	216,707	239,029	253,435
	fire	64,986	64,986	64,986	27,019	27,019	27,019	1,282,348	1,282,348	1,282,348	6,749	6,749	6,749	127,889	127,889	127,889	110,956	110,956	110,956	5,117	5,117	5,117
	IPM	3,578	966	1,342	28,277	20,473	22,817	38,053	35,909	50,609	3,506	5,066	5,066	4,503	3,780	4,966	4,210	3,678	4,864	1,144	1	1
	nonIPM	58,689	51,007	58,199	105,211	113,408	122,850	69,455	79,194	87,378	41,476	47,603	50,720	36,894	41,734	48,301	25,343	28,391	32,612	13,905	12,978	13,703
	nonroad	246,649	164,282	148,543	300,773	233,308	203,498	2,699,512	3,365,015	3,577,135	10,328	9,397	10,758	22,945	19,977	17,622	21,893	19,016	16,736	158	184	202
	on-road	369,523	223,836	173,023	661,023	512,250	325,324	3,723,121	3,286,869	2,969,975	4,588	14	14	17,463	16,411	16,058	12,126	7,676	6,772	29,276	43,514	49,451
	other area	487,218	484,144	512,272	143,692	153,383	165,175	213,454	163,908	162,327	10,253	11,028	11,921	78,656	81,940	87,571	63,962	64,126	67,791	0	0	0
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	412	498	541	33	39	43	0	0	0
California Total		1,230,643	989,221	958,365	1,265,996	1,059,841	866,683	8,025,943	8,213,243	8,129,772	76,901	79,857	85,228	653,020	689,674	717,103	302,021	303,051	311,636	266,307	300,822	321,909
Colorado	afdust	0	0	0	0	0	0	0	0	0	0	0	0	141,155	145,796	146,792	25,523	26,295	26,379	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65,081	68,394	70,217
	fire	13,610	13,610	13,610	6,271	6,271	6,271	288,013	288,013	288,013	1,719	1,719	1,719	28,019	28,019	28,019	24,054	24,054	24,054	1,299	1,299	1,299
	IPM	863	566	610	75,712	68,386	69,353	9,670	8,977	10,683	92,843	91,817	92,760	6,219	3,816	3,953	5,328	3,285	3,422	27	5	5
	nonIPM	36,924	40,008	45,310	38,694	41,505	43,708	30,938	36,106	39,396	11,653	12,972	14,242	20,316	23,464	26,293	12,745	14,619	16,356	242	281	296
	nonroad	36,188	27,112	23,760	51,773	39,745	33,422	371,398	400,343	421,188	4,503	579	289	4,527	3,543	2,899	4,345	3,387	2,764	29	35	38
	on-road	77,474	44,804	35,898	130,403	79,677	55,159	1,148,700	747,909	704,070	4,379	511	595	3,272	2,403	2,208	2,413	1,464	1,179	4,392	5,611	6,426
	other area	62,384	64,617	67,872	10,883	13,675	15,063	44,186	35,758	33,281	1,887	2,169	2,229	7,803	7,171	7,004	7,420	6,748	6,567	72	89	97
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	232	276	315	45	53	61	0	0	0
Colorado Total		227,443	190,718	187,060	313,736	249,260	222,976	1,892,906	1,517,105	1,496,631	116,984	109,767	111,834	211,543	214,488	217,484	81,872	79,904	80,782	71,142	75,714	78,378

State	Sector	2001 VOC [tons/yr]	2010 Base VOC [tons/yr]	2015 Base VOC [tons/yr]	2001 NOX [tons/yr]	2010 Base NOX [tons/yr]	2015 Base NOX [tons/yr]	2001 CO [tons/yr]	2010 Base CO [tons/yr]	2015 Base CO [tons/yr]	2001 SO2 [tons/yr]	2010 Base SO2 [tons/yr]	2015 Base SO2 [tons/yr]	2001 PM10 [tons/yr]	2010 Base PM10 [tons/yr]	2015 Base PM10 [tons/yr]	2001 PM25 [tons/yr]	2010 Base PM25 [tons/yr]	2015 Base PM25 [tons/yr]	2001 NH3 [tons/yr]	2010 Base NH3 [tons/yr]	2015 Base NH3 [tons/yr]
Connecticut	afdust	0	0	0	0	0	0	0	0	0	0	0	0	10,794	12,053	12,894	1,649	1,840	1,963	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,930	3,555	3,380
	fire	1,071	1,071	1,071	433	433	433	15,179	15,179	15,179	4	4	4	1,568	1,568	1,568	1,559	1,559	1,559	3	3	3
	IPM	473	116	110	15,259	6,162	5,758	2,853	8,714	8,496	38,148	7,087	7,087	2,813	807	790	2,169	667	649	156	1	1
	nonIPM	5,953	3,810	4,298	3,527	3,800	4,236	2,741	3,205	3,655	2,946	3,888	4,038	2,187	2,761	3,070	1,777	2,265	2,526	39	49	52
	nonroad	28,333	18,106	16,179	23,855	19,125	15,811	265,871	301,383	315,067	2,383	989	1,000	2,380	1,986	1,737	2,261	1,883	1,642	17	20	21
	on-road	44,884	24,224	19,574	86,715	51,630	41,416	667,909	399,311	369,720	2,276	336	376	2,270	1,587	1,403	1,659	967	750	3,134	3,702	4,078
	other area	54,970	44,691	46,604	12,431	13,533	13,538	34,370	22,815	20,928	12,070	12,544	12,067	7,300	6,032	5,798	6,882	5,592	5,353	1,881	2,063	2,258
Connecticut Total		135,684	92,018	87,836	142,220	94,683	81,192	988,923	750,607	733,046	57,826	24,848	24,572	29,312	26,794	27,260	17,957	14,772	14,442	9,159	9,393	9,792
Delaware	afdust	0	0	0	0	0	0	0	0	0	0	0	0	9,614	10,338	10,780	1,664	1,762	1,820	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12,489	13,767	15,499
	fire	271	271	271	105	105	105	4,198	4,198	4,198	6	6	6	421	421	421	405	405	405	5	5	5
	IPM	297	90	104	11,099	9,398	10,695	786	911	1,119	35,026	39,951	45,065	3,993	6,987	7,959	2,497	4,065	4,589	45	1	1
	nonIPM	4,589	3,505	3,893	10,235	8,769	9,258	20,332	20,998	22,617	48,524	51,047	54,329	2,180	2,331	2,536	1,777	1,897	2,059	671	725	762
	nonroad	9,825	6,227	5,441	11,169	9,933	8,940	70,113	77,777	80,561	1,643	1,164	1,296	1,064	896	823	1,013	853	782	6	6	7
	on-road	13,478	7,388	5,903	26,090	15,540	12,132	178,901	107,602	98,712	733	99	111	709	493	427	527	306	232	894	1,079	1,191
	other area	13,867	12,062	12,129	3,874	4,954	5,238	12,880	10,925	10,237	10,598	15,055	16,088	3,016	3,071	3,056	2,633	2,581	2,537	322	348	377
Delaware Total		42,327	29,544	27,742	62,572	48,699	46,367	287,210	222,412	217,444	96,529	107,322	116,895	20,997	24,537	26,002	10,516	11,870	12,425	14,432	15,931	17,842
District of Columbia	afdust	0	0	0	0	0	0	0	0	0	0	0	0	1,583	2,055	2,206	262	345	367	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	fire	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	IPM	10	0	1	340	0	36	54	0	27	923	0	0	25	0	2	21	0	2	5	0	0
	nonIPM	4	5	5	628	527	547	104	114	118	792	875	904	373	260	265	180	142	147	9	11	12
	nonroad	1,285	800	706	2,707	2,060	1,548	13,642	15,342	15,872	269	24	4	238	174	131	229	167	125	2	2	2
	on-road	5,837	3,206	2,664	9,192	5,834	4,925	72,206	43,633	41,975	282	41	47	236	178	167	168	105	88	371	457	517
	other area	10,254	10,059	10,689	2,341	2,880	3,079	2,534	2,256	2,149	5,941	7,101	7,450	1,149	1,321	1,380	992	1,127	1,173	982	1,054	1,133
District of Columbia Total		17,390	14,070	14,065	15,208	11,301	10,135	88,541	61,346	60,142	8,207	8,041	8,405	3,604	3,987	4,152	1,852	1,886	1,903	1,369	1,524	1,664
Florida	afdust	0	0	0	0	0	0	0	0	0	0	0	0	151,953	162,922	171,083	23,322	24,680	25,840	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44,505	43,527	43,765
	fire	65,245	65,245	65,245	27,859	27,859	27,859	1,282,029	1,282,029	1,282,029	7,018	7,018	7,018	127,189	127,189	127,189	110,101	110,101	110,101	5,366	5,366	5,366
	IPM	3,498	1,642	1,843	314,838	151,235	151,128	24,986	43,313	51,448	570,693	220,670	220,670	38,536	27,397	28,054	31,774	20,981	21,637	1,221	22	15
	nonIPM	45,326	42,839	50,665	59,588	67,976	75,209	127,464	140,950	173,180	87,311	93,789	103,340	34,362	31,320	36,665	30,097	27,137	32,000	569	671	736
	nonroad	186,518	117,473	106,441	136,854	119,398	106,062	1,668,894	1,901,499	2,027,758	16,130	7,368	7,675	15,369	12,722	11,524	14,572	12,045	10,882	98	112	122
	on-road	292,594	162,446	125,107	400,980	228,021	146,654	3,198,972	1,762,577	1,530,957	19,539	1,675	1,870	11,564	7,949	6,999	8,619	4,858	3,752	15,030	18,430	20,268
	other area	317,105	318,968	344,223	30,881	34,661	36,444	106,047	92,275	88,392	39,912	58,382	62,357	24,423	25,299	25,626	22,122	22,375	22,507	3,389	4,032	4,548
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	62	78	88	19	24	26	0	0	0
Florida Total		910,286	708,613	693,524	971,001	629,150	543,356	6,408,392	5,222,643	5,153,764	740,604	388,903	402,930	403,458	394,877	407,228	240,626	222,200	226,746	70,178	72,160	74,821
Georgia	afdust	0	0	0	0	0	0	0	0	0	0	0	0	199,350	207,816	213,247	33,003	34,407	35,321	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88,615	91,963	101,013
	fire	29,700	29,700	29,700	10,987	10,987	10,987	458,170	458,170	458,170	2,010	2,010	2,010	49,723	49,723	49,723	44,744	44,744	44,744	1,299	1,299	1,299
	IPM	972	1,586	1,653	160,901	143,167	140,799	8,217	19,083	21,500	486,241	584,425	588,004	28,769	41,594	42,056	24,120	34,557	34,950	21	13	14
	nonIPM	37,736	35,090	39,505	110,569	87,266	94,408	207,798	236,884	268,270	92,948	113,071	124,500	85,079	84,739	95,343	65,818	69,313	77,992	4,778	5,678	6,247
	nonroad	67,088	48,108	41,899	90,552	68,417	58,634	679,976	780,674	822,001	7,990	2,055	1,807	7,089	5,759	4,865	6,779	5,489	4,626	44	52	57
	on-road	188,849	108,020	84,484	304,490	173,987	110,646	2,336,143	1,395,792	1,249,372	11,717	1,209	1,375	8,553	6,003	5,277	6,423	3,734	2,860	10,441	13,135	14,720
	other area	194,588	189,365	202,196	26,481	31,021	32,806	106,187	93,772	90,212	4,469	5,664	5,993	24,844	25,670	26,145	22,280	22,557	22,784	2,452	2,804	3,180
Georgia Total		518,933	411,869	399,437	703,980	514,846	448,280	3,796,491	2,984,375	2,909,525	605,375	708,434	723,689	403,407	421,304	436,657	203,167	214,801	223,276	107,650	114,944	126,530

State	Sector	2001 VOC [tons/yr]	2010 Base VOC [tons/yr]	2015 Base VOC [tons/yr]	2001 NOX [tons/yr]	2010 Base NOX [tons/yr]	2015 Base NOX [tons/yr]	2001 CO [tons/yr]	2010 Base CO [tons/yr]	2015 Base CO [tons/yr]	2001 SO2 [tons/yr]	2010 Base SO2 [tons/yr]	2015 Base SO2 [tons/yr]	2001 PM10 [tons/yr]	2010 Base PM10 [tons/yr]	2015 Base PM10 [tons/yr]	2001 PM25 [tons/yr]	2010 Base PM25 [tons/yr]	2015 Base PM25 [tons/yr]	2001 NH3 [tons/yr]	2010 Base NH3 [tons/yr]	2015 Base NH3 [tons/yr]
Idaho	afdust	0	0	0	0	0	0	0	0	0	0	0	0	161,357	165,009	166,122	26,675	27,295	27,458	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61,556	70,894	74,615
	fire	73,835	73,835	73,835	14,255	14,255	14,255	980,150	980,150	980,150	3,845	3,845	3,845	130,706	130,706	130,706	118,934	118,934	118,934	2,856	2,856	2,856
	IPM	2	22	22	50	585	585	36	852	852	1	0	0	12	69	69	12	69	69	0	0	0
	nonIPM	4,356	4,831	5,431	11,298	12,867	14,139	26,227	31,443	35,805	18,110	20,124	23,324	10,073	11,560	13,249	7,688	8,811	10,102	984	1,157	1,292
	nonroad	20,674	18,662	15,332	26,444	19,788	17,170	139,104	163,158	168,498	2,209	214	66	2,395	1,869	1,524	2,293	1,780	1,449	13	16	17
	on-road	26,397	15,136	11,910	50,100	29,146	18,784	379,808	245,949	224,605	1,659	175	199	1,319	919	792	1,005	584	436	1,465	1,867	2,101
	other area	165,296	204,760	230,586	36,359	45,352	50,782	23,571	21,173	20,607	1,658	2,038	2,037	16,416	19,584	21,713	13,896	16,573	18,367	562	664	740
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	6	7	8	3	4	4	0	0	0
Idaho Total		290,560	317,245	337,116	138,505	121,994	115,715	1,548,896	1,442,725	1,430,517	27,481	26,396	29,471	322,284	329,723	334,183	170,506	174,050	176,819	67,436	77,454	81,621
Illinois	afdust	0	0	0	0	0	0	0	0	0	0	0	0	503,012	503,942	499,020	92,653	92,486	91,304	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74,626	77,644	77,642
	fire	692	692	692	231	231	231	9,613	9,613	9,613	20	20	20	1,060	1,060	1,060	1,014	1,014	1,014	15	15	15
	IPM	2,188	1,987	2,143	206,231	146,832	160,038	14,017	13,594	15,200	387,391	406,145	451,351	19,684	24,119	26,344	17,071	22,077	24,182	90	14	15
	nonIPM	96,201	87,485	100,720	133,686	120,690	131,730	118,102	124,677	143,370	254,874	267,741	281,660	55,692	60,664	69,323	37,220	40,515	46,439	9,215	11,816	13,490
	nonroad	92,320	66,060	57,894	191,650	150,810	132,707	843,790	950,775	983,588	19,892	8,593	8,835	14,627	11,402	9,712	14,065	10,938	9,302	77	92	101
	on-road	176,564	93,394	70,494	314,465	171,305	106,306	2,372,322	1,491,280	1,342,947	9,626	1,168	1,308	8,116	5,596	4,916	5,995	3,433	2,640	10,727	12,820	14,144
	other area	318,048	281,275	298,585	39,232	45,411	46,413	104,089	91,365	86,931	41,326	55,234	57,013	25,694	25,690	25,553	23,064	22,699	22,478	9,979	11,035	12,272
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	415	440	506	215	223	260	0	0	0
Illinois Total		686,012	530,893	530,528	885,495	635,279	577,425	3,461,933	2,681,304	2,581,649	713,128	738,901	800,187	628,299	632,913	636,434	191,297	193,386	197,619	104,729	113,437	117,679
Indiana	afdust	0	0	0	0	0	0	0	0	0	0	0	0	307,355	313,496	316,199	54,771	55,637	55,949	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83,816	82,272	84,584
	fire	1,844	1,844	1,844	698	698	698	25,996	25,996	25,996	24	24	24	2,750	2,750	2,750	2,693	2,693	2,693	19	19	19
	IPM	2,071	2,128	2,207	318,700	236,221	235,691	15,695	17,171	19,292	802,244	675,381	555,736	53,507	56,588	58,427	43,312	45,961	47,681	36	18	18
	nonIPM	74,530	70,924	81,048	94,598	99,959	108,140	475,184	482,921	555,510	111,794	172,639	178,610	68,327	75,226	83,348	58,954	65,244	72,059	3,460	4,326	4,802
	nonroad	48,777	35,955	30,961	108,621	86,329	74,973	485,248	542,856	557,537	12,250	5,934	6,254	8,265	6,527	5,524	7,956	6,268	5,298	43	52	57
	on-road	134,794	71,969	55,409	232,963	127,561	80,820	1,780,208	1,087,513	974,822	9,927	809	899	6,290	4,113	3,503	4,778	2,582	1,911	7,273	8,730	9,564
	other area	259,115	224,985	233,924	45,165	47,281	48,129	173,387	145,901	136,619	9,114	9,292	9,248	41,159	38,795	38,314	29,174	26,887	26,083	2,948	3,339	3,754
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	1,259	1,481	1,644	576	676	744	0	0	0
Indiana Total		521,131	407,805	405,393	800,745	598,049	548,451	2,955,718	2,302,358	2,269,776	945,354	864,079	750,771	488,912	498,975	509,709	202,213	205,947	212,418	97,595	98,756	102,798
Iowa	afdust	0	0	0	0	0	0	0	0	0	0	0	0	389,879	391,365	387,686	70,859	70,861	69,945	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	212,654	219,166	226,189
	fire	619	619	619	233	233	233	9,506	9,506	9,506	25	25	25	999	999	999	941	941	941	19	19	19
	IPM	708	765	831	81,244	79,727	85,455	6,278	6,653	7,679	139,976	160,981	171,807	6,700	10,123	10,816	5,345	8,675	9,253	14	7	7
	nonIPM	11,065	7,351	8,557	28,043	30,142	32,015	6,556	9,227	11,138	90,700	86,037	87,789	10,958	10,331	11,655	6,873	6,823	7,703	4,145	4,887	5,382
	nonroad	34,873	26,711	22,530	88,218	69,205	58,605	287,364	316,933	323,041	8,400	1,560	1,154	8,332	5,853	4,618	8,041	5,635	4,441	41	50	55
	on-road	55,482	28,803	22,015	100,277	53,094	33,341	782,170	471,944	420,227	3,505	319	351	2,680	1,679	1,393	2,044	1,067	766	2,970	3,411	3,702
	other area	138,487	122,817	125,528	29,637	33,205	34,525	65,293	48,223	46,829	23,947	24,472	24,394	11,825	10,006	10,056	10,042	8,124	8,130	7,234	7,404	7,583
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	0	0	0	0	0	0
Iowa Total		241,234	187,066	180,080	327,652	265,606	244,174	1,157,167	862,486	818,420	266,553	273,394	285,520	431,374	430,357	427,225	104,146	102,126	101,180	227,077	234,944	242,938
Kansas	afdust	0	0	0	0	0	0	0	0	0	0	0	0	574,326	577,376	572,344	102,444	102,658	101,454	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133,458	142,610	145,180
	fire	6,136	6,136	6,136	1,419	1,419	1,419	63,824	63,824	63,824	103	103	103	8,063	8,063	8,063	7,352	7,352	7,352	79	79	79
	IPM	1,208	815	816	89,044	90,161	90,228	7,114	6,172	6,243	120,257	82,988	80,071	7,822	7,148	7,154	6,145	5,913	5,919	54	7	7
	nonIPM	26,700	23,398	26,021	85,655	88,988	96,298	96,194	116,308	129,190	18,123	22,869	24,962	13,798	15,537	17,271	9,578	10,870	12,036	858	1,009	1,116
	nonroad	24,406	17,017	14,771	85,742	64,657	55,195	261,471	290,613	301,049	7,296	681	171	7,082	4,875	3,823	6,845	4,704	3,684	34	41	45
	on-road	51,365	27,525	21,368	90,283	49,185	31,264	711,364	422,052	376,248	3,246	313	347	2,444	1,594	1,352	1,848	1,002	737	2,859	3,369	3,692
	other area	94,933	82,463	85,765	14,439	15,857	16,402	50,250	33,512	32,750	3,810	4,108	4,379	9,457	7,533	7,549	9,015	7,042	7,033	1,637	1,773	1,895
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	1,391	1,660	1,872	213	254	286	0	0	0
Kansas Total		204,748	157,354	154,877	366,582	310,267	290,806	1,190,217	932,481	909,304	152,836	111,062	110,033	624,383	623,786	619,428	143,440	139,795	138,500	138,979	148,887	152,014

State	Sector	2001 VOC [tons/yr]	2010 Base VOC [tons/yr]	2015 Base VOC [tons/yr]	2001 NOX [tons/yr]	2010 Base NOX [tons/yr]	2015 Base NOX [tons/yr]	2001 CO [tons/yr]	2010 Base CO [tons/yr]	2015 Base CO [tons/yr]	2001 SO2 [tons/yr]	2010 Base SO2 [tons/yr]	2015 Base SO2 [tons/yr]	2001 PM10 [tons/yr]	2010 Base PM10 [tons/yr]	2015 Base PM10 [tons/yr]	2001 PM25 [tons/yr]	2010 Base PM25 [tons/yr]	2015 Base PM25 [tons/yr]	2001 NH3 [tons/yr]	2010 Base NH3 [tons/yr]	2015 Base NH3 [tons/yr]
Kentucky	afdust	0	0	0	0	0	0	0	0	0	0	0	0	108,329	110,477	114,377	19,297	19,455	20,077	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51,298	51,963	52,667
	fire	4,968	4,968	4,968	2,080	2,080	2,080	88,958	88,958	88,958	364	364	364	8,936	8,936	8,936	8,080	8,080	8,080	278	278	278
	IPM	1,474	1,597	1,619	233,564	178,393	178,851	14,204	15,980	16,568	538,756	454,214	420,398	37,652	35,647	36,357	29,558	28,259	28,867	16	13	13
	nonIPM	66,657	67,105	74,649	50,546	39,150	42,659	96,240	110,655	120,510	41,083	42,070	44,911	18,315	18,923	21,174	13,541	14,070	15,845	575	623	664
	nonroad	33,986	27,166	22,743	89,231	75,948	70,723	269,590	309,572	320,702	13,498	10,076	11,310	5,891	5,128	4,724	5,664	4,924	4,536	23	27	30
	on-road	84,417	44,449	33,987	157,966	83,213	51,705	1,143,466	664,674	587,047	6,497	536	594	4,343	2,766	2,335	3,307	1,746	1,279	4,914	5,757	6,293
	other area	126,168	110,521	113,645	74,118	80,916	84,657	104,712	92,704	89,177	57,002	55,012	56,673	18,711	18,098	17,969	16,955	16,295	16,113	1,242	1,371	1,521
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	551	551	601	298	298	325	0	0	0
Kentucky Total		317,670	255,806	251,611	607,505	459,700	430,675	1,717,170	1,282,542	1,222,962	657,201	562,273	534,250	202,728	200,526	206,474	96,699	93,126	95,123	58,347	60,032	61,466
Louisiana	afdust	0	0	0	0	0	0	0	0	0	0	0	0	110,868	117,319	120,673	19,530	20,641	21,202	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32,152	28,672	28,911
	fire	13,087	13,087	13,087	4,631	4,631	4,631	207,238	207,238	207,238	892	892	892	48,324	48,324	48,324	43,428	43,428	43,428	682	682	682
	IPM	1,555	578	668	88,310	49,640	50,440	19,133	7,215	10,731	168,847	99,182	99,182	5,819	3,376	3,660	5,009	2,954	3,238	482	8	8
	nonIPM	74,586	50,803	55,669	240,802	254,206	275,300	195,096	214,486	233,570	177,323	201,406	222,110	68,013	72,081	78,521	62,134	65,755	71,509	11,291	13,096	14,397
	nonroad	55,152	43,825	38,231	218,346	208,992	203,485	382,020	430,539	449,416	39,230	35,173	40,231	12,281	11,668	11,669	11,825	11,238	11,244	30	35	38
	on-road	79,613	43,230	33,530	129,693	69,845	44,132	990,187	559,792	491,864	5,075	463	515	3,685	2,379	2,017	2,795	1,499	1,103	4,244	4,984	5,458
	other area	114,746	99,673	104,561	93,735	106,174	113,002	48,663	40,735	41,081	90,952	125,217	135,365	15,433	16,183	16,925	12,346	12,177	12,606	22,827	23,082	23,289
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	5	5	6	3	3	4	0	0	0
Louisiana Total		338,739	251,197	245,746	775,516	693,489	690,990	1,842,336	1,460,005	1,433,900	482,319	462,333	498,295	264,427	271,335	281,795	157,071	157,695	164,333	71,708	70,558	72,783
Maine	afdust	0	0	0	0	0	0	0	0	0	0	0	0	13,921	14,688	15,397	2,319	2,463	2,591	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,568	5,948	5,907
	fire	2,532	2,532	2,532	1,063	1,063	1,063	43,562	43,562	43,562	150	150	150	4,121	4,121	4,121	3,767	3,767	3,767	115	115	115
	IPM	400	45	59	4,807	1,747	1,875	3,146	3,761	4,317	7,688	5,338	5,338	184	225	270	161	212	257	40	0	0
	nonIPM	4,562	4,438	5,050	18,897	23,791	25,341	11,764	13,691	15,103	31,735	43,518	44,870	13,076	14,799	16,428	10,146	11,270	12,591	123	162	170
	nonroad	26,351	24,432	20,014	9,165	7,255	5,990	136,840	158,406	159,660	898	172	132	1,448	1,326	1,133	1,365	1,243	1,060	11	13	14
	on-road	22,542	11,195	9,115	39,147	22,348	18,441	355,595	203,416	190,419	1,017	133	147	969	642	565	700	388	301	1,413	1,518	1,638
	other area	54,708	51,266	54,276	7,623	8,022	7,902	47,163	29,999	27,352	15,639	17,055	16,769	9,350	7,482	7,211	8,905	7,005	6,722	660	736	797
Maine Total		111,094	93,907	91,046	80,702	64,226	60,612	598,071	452,835	440,413	57,127	66,366	67,406	43,070	43,284	45,125	27,362	26,348	27,289	8,930	8,492	8,641
Maryland	afdust	0	0	0	0	0	0	0	0	0	0	0	0	36,682	41,132	43,664	6,377	7,075	7,442	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23,571	24,434	25,899
	fire	4,268	4,268	4,268	1,784	1,784	1,784	62,300	62,300	62,300	32	32	32	6,387	6,387	6,387	6,298	6,298	6,298	24	24	24
	IPM	560	488	500	75,644	56,993	57,786	3,346	9,193	10,097	255,331	309,968	312,974	19,782	24,779	24,889	18,424	23,083	23,179	97	4	4
	nonIPM	7,248	6,690	7,480	24,921	21,245	23,778	123,087	128,728	150,890	37,639	39,024	41,833	7,178	6,767	7,832	4,443	4,268	4,967	373	443	512
	nonroad	43,820	28,348	25,893	44,906	37,758	33,804	406,138	468,773	498,733	4,981	2,506	2,653	4,063	3,409	3,078	3,867	3,238	2,917	25	29	32
	on-road	76,523	42,727	35,380	148,432	89,988	73,128	1,090,675	660,592	625,121	4,442	580	662	3,923	2,788	2,495	2,897	1,713	1,341	5,176	6,348	7,140
	other area	73,747	61,893	64,024	17,131	19,936	20,846	73,216	60,461	56,011	41,597	51,406	54,854	20,287	20,297	20,228	17,652	17,273	17,099	1,256	1,394	1,570
Maryland Total		206,165	144,415	137,546	312,819	227,704	211,126	1,758,763	1,390,047	1,403,152	344,022	403,516	413,008	98,302	105,559	108,573	59,958	62,948	63,243	30,522	32,677	35,181
Massachusetts	afdust	0	0	0	0	0	0	0	0	0	0	0	0	66,191	69,333	71,739	10,346	10,860	11,249	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,693	2,515	2,189
	fire	1,280	1,280	1,280	534	534	534	22,858	22,858	22,858	93	93	93	2,300	2,300	2,300	2,080	2,080	2,080	71	71	71
	IPM	904	438	427	37,199	18,859	18,707	4,719	12,188	11,681	105,128	17,140	17,386	4,459	3,551	3,548	3,796	2,821	2,810	324	2	2
	nonIPM	10,579	9,188	10,563	18,580	21,076	22,510	5,452	6,264	6,763	18,626	24,700	25,473	4,142	5,045	5,484	3,162	3,792	4,119	66	83	89
	nonroad	50,820	33,286	29,410	65,748	52,386	41,257	469,275	525,937	544,700	6,929	1,939	1,733	6,339	5,014	4,106	6,070	4,791	3,911	44	52	57
	on-road	82,023	40,988	33,106	149,864	87,268	70,848	1,193,602	651,545	602,341	3,738	546	605	3,859	2,697	2,394	2,807	1,641	1,277	5,368	6,044	6,611
	other area	126,264	108,027	114,117	25,129	27,679	28,058	81,193	60,811	59,030	68,173	81,128	85,724	15,631	13,557	13,319	14,398	12,155	11,887	5,017	5,530	6,104
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0
Massachusetts Total		271,870	193,207	188,903	297,054	207,802	181,914	1,777,100	1,279,603	1,247,373	202,687	125,546	131,014	102,922	101,499	102,891	42,659	38,141	37,333	13,583	14,297	15,123

State	Sector	2001 VOC [tons/yr]	2010 Base VOC [tons/yr]	2015 Base VOC [tons/yr]	2001 NOX [tons/yr]	2010 Base NOX [tons/yr]	2015 Base NOX [tons/yr]	2001 CO [tons/yr]	2010 Base CO [tons/yr]	2015 Base CO [tons/yr]	2001 SO2 [tons/yr]	2010 Base SO2 [tons/yr]	2015 Base SO2 [tons/yr]	2001 PM10 [tons/yr]	2010 Base PM10 [tons/yr]	2015 Base PM10 [tons/yr]	2001 PM25 [tons/yr]	2010 Base PM25 [tons/yr]	2015 Base PM25 [tons/yr]	2001 NH3 [tons/yr]	2010 Base NH3 [tons/yr]	2015 Base NH3 [tons/yr]
Michigan	afdust	0	0	0	0	0	0	0	0	0	0	0	0	225,943	234,534	239,306	37,839	39,257	39,987	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53,231	53,589	52,745
	fire	3,560	3,560	3,560	1,422	1,422	1,422	53,912	53,912	53,912	91	91	91	5,563	5,563	5,563	5,350	5,350	5,350	69	69	69
	IPM	1,389	1,202	1,286	157,668	119,980	122,763	14,570	11,385	13,497	354,825	395,276	405,766	18,320	26,437	27,474	15,152	22,183	23,032	72	11	11
	nonIPM	56,607	49,909	56,582	105,103	107,576	118,410	83,444	93,254	106,070	77,341	86,043	93,452	18,671	20,490	22,899	14,220	15,564	17,412	393	464	492
	nonroad	140,904	118,715	98,557	108,181	90,550	80,034	963,545	1,087,502	1,106,608	13,315	7,537	8,172	10,833	9,547	8,424	10,293	9,042	7,968	67	80	87
	on-road	190,195	97,869	76,146	314,262	169,852	110,114	2,744,972	1,629,443	1,471,237	14,151	1,072	1,197	8,155	5,267	4,569	6,151	3,263	2,471	9,931	11,679	12,847
	other area	294,527	254,661	258,056	49,429	55,497	56,909	168,975	139,123	129,640	34,484	38,198	39,113	34,134	31,664	30,690	32,258	29,599	28,563	5,489	6,159	6,912
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	400	461	516	34	39	44	0	0	0
Michigan Total		687,182	525,916	494,187	736,064	544,877	489,652	4,029,419	3,014,619	2,880,964	494,207	528,217	547,791	322,018	333,963	339,441	121,297	124,298	124,828	69,253	72,051	73,164
Minnesota	afdust	0	0	0	0	0	0	0	0	0	0	0	0	520,021	518,209	513,641	89,132	88,505	87,403	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	155,549	154,239	151,326
	fire	6,263	6,263	6,263	2,766	2,766	2,766	123,691	123,691	123,691	631	631	631	12,168	12,168	12,168	10,684	10,684	10,684	482	482	482
	IPM	888	667	695	92,697	74,379	76,887	6,713	5,361	5,748	99,901	95,225	94,528	19,068	18,861	20,063	13,747	13,847	14,713	12	6	6
	nonIPM	25,356	24,411	27,388	57,565	64,864	68,943	22,642	26,127	28,506	24,250	25,797	27,335	25,810	18,113	20,190	16,942	13,027	14,522	990	1,100	1,106
	nonroad	98,427	87,907	72,414	114,296	96,163	86,250	475,080	532,078	529,617	12,902	6,139	6,440	10,942	8,850	7,556	10,469	8,436	7,193	58	71	77
	on-road	91,293	52,220	41,053	170,088	96,807	63,578	1,274,936	902,748	839,341	4,181	586	663	4,358	2,959	2,570	3,258	1,852	1,399	5,326	6,336	7,062
	other area	178,116	145,463	148,527	22,048	23,638	24,232	105,522	56,547	52,853	5,699	5,965	6,135	20,592	14,610	14,343	19,539	13,506	13,206	3,776	4,001	4,237
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	849	926	1,018	343	375	413	0	0	0
Minnesota Total		400,343	316,931	296,340	459,460	358,616	322,656	2,008,584	1,646,552	1,579,756	147,564	134,343	135,732	613,807	594,696	591,550	164,113	150,231	149,534	166,193	166,235	164,296
Mississippi	afdust	0	0	0	0	0	0	0	0	0	0	0	0	148,944	148,345	149,398	26,160	25,963	26,121	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62,073	64,689	69,589
	fire	17,239	17,239	17,239	5,942	5,942	5,942	262,748	262,748	262,748	1,051	1,051	1,051	27,980	27,980	27,980	24,944	24,944	24,944	804	804	804
	IPM	1,196	307	354	70,495	36,910	37,609	9,031	4,257	6,094	156,186	85,626	85,626	8,636	4,767	4,915	7,384	3,765	3,913	243	3	3
	nonIPM	59,249	59,133	70,027	106,503	111,455	125,920	64,538	74,892	95,426	73,234	78,408	85,920	37,318	42,501	50,528	26,591	30,108	36,522	1,155	1,426	1,714
	nonroad	30,576	24,827	20,578	69,868	60,272	55,723	204,854	230,935	237,384	10,664	7,901	8,867	4,933	4,253	3,881	4,736	4,077	3,721	19	23	25
	on-road	59,917	28,827	20,863	116,572	57,144	33,407	718,609	375,183	317,217	4,350	324	345	3,477	2,047	1,609	2,706	1,349	916	3,469	3,640	3,811
	other area	120,325	104,863	110,979	4,093	4,804	5,060	31,821	27,732	26,699	482	339	453	9,326	9,549	9,761	7,864	7,761	7,815	798	907	1,021
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	3	3	4	1	1	1	0	0	0
Mississippi Total		288,502	235,196	240,040	373,473	276,527	263,661	1,291,601	975,747	945,568	245,967	173,648	182,262	240,617	239,445	248,075	100,385	97,967	103,953	68,562	71,492	76,967
Missouri	afdust	0	0	0	0	0	0	0	0	0	0	0	0	525,852	537,247	541,109	85,085	86,799	87,280	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	107,169	104,940	104,847
	fire	3,435	3,435	3,435	1,397	1,397	1,397	54,047	54,047	54,047	186	186	186	6,188	6,188	6,188	5,681	5,681	5,681	142	142	142
	IPM	1,578	1,729	1,761	150,068	120,183	122,191	10,870	12,327	13,047	246,545	271,312	275,976	10,579	28,667	29,018	8,604	26,550	26,873	17	13	13
	nonIPM	34,559	31,628	36,204	36,272	36,621	40,196	103,569	118,177	130,250	115,366	130,542	140,420	15,681	16,003	18,123	10,559	10,588	12,025	3,968	4,651	4,918
	nonroad	54,607	40,150	34,531	119,734	95,279	86,216	472,525	539,769	563,203	12,941	6,271	6,616	8,643	6,808	5,918	8,302	6,526	5,667	40	47	52
	on-road	118,537	64,563	49,481	209,689	114,198	71,395	1,604,812	970,330	862,410	6,965	767	858	5,681	3,834	3,306	4,259	2,391	1,795	6,944	8,315	9,165
	other area	169,783	141,283	146,517	35,328	36,371	37,083	107,587	67,303	64,313	34,228	37,286	37,581	20,428	15,908	15,868	18,619	13,892	13,774	3,806	3,986	4,153
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	797	945	1,059	78	90	101	0	0	0
Missouri Total		382,499	282,787	271,929	552,487	404,049	358,478	2,353,411	1,761,953	1,687,270	416,231	446,364	461,637	593,848	615,600	620,590	141,186	152,517	153,196	122,086	122,094	123,290
Montana	afdust	0	0	0	0	0	0	0	0	0	0	0	0	173,077	178,917	180,359	30,195	31,110	31,280	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45,209	45,205	44,373
	fire	10,631	10,631	10,631	5,401	5,401	5,401	211,269	211,269	211,269	1,422	1,422	1,422	20,735	20,735	20,735	18,097	18,097	18,097	946	946	946
	IPM	360	317	317	40,849	38,420	38,420	2,983	2,711	2,711	27,944	22,474	22,474	7,926	7,634	7,634	4,928	4,830	4,830	3	3	3
	nonIPM	3,696	3,626	3,995	16,241	17,586	19,088	50,399	59,165	65,311	23,165	25,300	27,453	10,007	10,123	11,836	6,533	6,389	7,222	407	442	473
	nonroad	12,142	10,599	8,821	67,243	48,020	44,100	89,085	101,923	105,551	5,004	447	118	3,747	2,646	2,180	3,622	2,552	2,102	13	16	18
	on-road	18,554	10,455	8,349	37,238	21,367	13,935	293,063	191,363	177,063	1,255	121	138	975	656	558	750	421	309	1,019	1,277	1,440
	other area	46,729	39,776	38,884	10,346	12,475	13,059	23,817	19,188	17,977	1,236	1,215	1,244	4,627	4,221	4,136	4,389	3,969	3,874	269	309	344
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	817	1,032	1,166	125	156	176	0	0	0
Montana Total		92,112	75,404	70,997	177,318	143,269	134,003	670,617	585,619	579,882	60,026	50,978	52,849	221,911	225,965	228,605	68,639	67,523	67,890	47,866	48,198	47,597

State	Sector	2001 VOC [tons/yr]	2010 Base VOC [tons/yr]	2015 Base VOC [tons/yr]	2001 NOX [tons/yr]	2010 Base NOX [tons/yr]	2015 Base NOX [tons/yr]	2001 CO [tons/yr]	2010 Base CO [tons/yr]	2015 Base CO [tons/yr]	2001 SO2 [tons/yr]	2010 Base SO2 [tons/yr]	2015 Base SO2 [tons/yr]	2001 PM10 [tons/yr]	2010 Base PM10 [tons/yr]	2015 Base PM10 [tons/yr]	2001 PM25 [tons/yr]	2010 Base PM25 [tons/yr]	2015 Base PM25 [tons/yr]	2001 NH3 [tons/yr]	2010 Base NH3 [tons/yr]	2015 Base NH3 [tons/yr]
Nebraska	afdust	0	0	0	0	0	0	0	0	0	0	0	0	429,668	436,237	435,986	73,819	74,654	74,351	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	132,637	136,842	139,772
	fire	921	921	921	409	409	409	18,827	18,827	18,827	105	105	105	1,846	1,846	1,846	1,600	1,600	1,600	80	80	80
	IPM	628	445	446	49,659	49,297	49,378	5,723	3,524	3,544	70,485	72,224	72,333	2,831	2,494	2,496	2,206	2,054	2,057	8	4	4
	nonIPM	7,231	7,961	9,539	11,538	13,084	14,609	7,669	8,831	9,972	7,099	8,377	9,414	4,516	5,621	6,497	2,711	3,388	3,921	14	17	18
	nonroad	18,876	14,147	12,160	95,994	70,153	62,713	172,118	190,843	196,860	7,507	686	179	6,314	4,352	3,500	6,106	4,202	3,378	26	31	34
	on-road	33,287	17,475	13,528	61,595	33,065	20,978	475,112	285,017	255,640	2,144	200	222	1,647	1,047	878	1,254	664	482	1,842	2,140	2,347
	other area	76,588	70,441	71,103	13,762	15,882	16,472	16,010	11,158	10,946	9,846	13,396	13,528	4,286	3,929	3,982	3,839	3,389	3,429	598	699	783
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	703	836	933	56	67	75	0	0	0
Nebraska Total		137,531	111,390	107,697	232,957	181,890	164,559	695,458	518,200	495,790	97,186	94,989	95,780	451,811	456,362	456,117	91,590	90,018	89,293	135,205	139,812	143,037
Nevada	afdust	0	0	0	0	0	0	0	0	0	0	0	0	87,262	102,582	109,721	15,680	18,561	19,888	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,110	6,402	6,506
	fire	11,048	11,048	11,048	5,003	5,003	5,003	231,404	231,404	231,404	1,346	1,346	1,346	22,566	22,566	22,566	19,401	19,401	19,401	1,026	1,026	1,026
	IPM	509	409	444	44,137	43,097	47,059	3,143	7,844	8,530	54,698	28,435	31,058	4,271	4,579	4,939	3,410	3,712	4,022	62	2	3
	nonIPM	878	1,042	1,228	4,692	5,711	6,460	16,038	19,201	21,092	656	771	867	2,180	2,536	2,822	1,298	1,501	1,665	14	18	21
	nonroad	16,760	11,619	10,370	25,926	20,219	17,101	165,550	184,355	195,756	2,353	383	243	2,173	1,718	1,417	2,083	1,641	1,350	14	16	18
	on-road	36,302	24,297	19,903	56,560	39,183	26,365	437,695	319,706	302,973	1,049	259	309	1,459	1,260	1,172	1,071	778	632	1,934	2,828	3,320
	other area	35,984	40,457	45,816	7,168	8,257	8,917	7,668	7,089	7,106	3,452	3,156	3,461	2,605	2,814	2,952	2,297	2,487	2,603	915	1,124	1,302
Nevada Total		101,481	88,872	88,808	143,487	121,470	110,905	861,498	769,599	766,861	63,554	34,350	37,284	122,516	138,055	145,589	45,241	48,082	49,561	10,076	11,417	12,195
New Hampshire	afdust	0	0	0	0	0	0	0	0	0	0	0	0	5,157	5,673	6,059	821	903	964	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,512	1,358	1,208
	fire	1,732	1,732	1,732	710	710	710	26,312	26,312	26,312	38	38	38	2,690	2,690	2,690	2,601	2,601	2,601	29	29	29
	IPM	156	164	190	8,436	2,808	3,051	1,997	3,312	4,336	48,522	7,289	7,289	2,800	987	1,070	2,696	888	971	15	1	1
	nonIPM	2,766	1,706	1,976	2,743	3,392	3,622	3,006	3,526	3,939	5,250	7,385	7,609	1,751	2,047	2,298	1,642	1,899	2,144	47	61	69
	nonroad	18,305	15,145	12,600	8,669	7,078	5,989	115,785	132,074	134,930	842	305	299	1,121	996	868	1,057	937	814	8	10	10
	on-road	20,360	11,692	10,029	40,999	25,799	21,223	315,151	209,462	204,955	1,014	140	160	1,062	728	630	801	461	345	1,235	1,505	1,686
	other area	32,750	27,350	28,547	5,038	5,379	5,400	35,415	23,670	22,072	10,137	11,141	11,044	6,759	5,497	5,386	6,416	5,124	4,996	550	620	683
New Hampshire Total		76,069	57,789	55,073	66,595	45,166	39,995	497,666	398,356	396,544	65,803	26,298	26,439	21,340	18,619	19,001	16,034	12,813	12,834	3,396	3,583	3,685
New Jersey	afdust	0	0	0	0	0	0	0	0	0	0	0	0	32,621	36,712	39,186	5,321	5,956	6,324	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,093	5,106	4,879
	fire	876	876	876	360	360	360	15,399	15,399	15,399	61	61	61	1,557	1,557	1,557	1,414	1,414	1,414	47	47	47
	IPM	569	264	306	36,092	17,118	18,319	3,245	4,502	6,016	52,812	45,004	33,588	4,233	6,403	6,391	3,760	5,866	5,839	38	2	2
	nonIPM	21,679	24,433	26,370	20,118	20,310	21,865	9,296	10,336	11,312	11,624	12,408	12,978	4,061	4,651	4,985	3,432	4,046	4,353	189	220	229
	nonroad	68,022	43,687	39,348	56,957	46,822	39,772	640,063	737,807	779,254	5,740	2,402	2,432	5,735	4,784	4,217	5,449	4,537	3,987	41	47	51
	on-road	98,836	54,747	43,808	184,757	110,982	89,094	1,348,463	833,140	767,868	4,802	745	835	4,856	3,465	3,088	3,526	2,099	1,645	6,901	8,238	9,092
	other area	174,479	134,722	138,884	38,184	41,073	41,442	100,470	71,528	63,069	47,900	52,430	52,763	23,589	21,246	20,605	21,204	18,551	17,772	4,051	4,391	4,809
New Jersey Total		364,461	258,729	249,592	336,468	236,665	210,852	2,116,936	1,672,712	1,642,918	122,940	113,050	102,657	76,652	78,818	80,030	44,105	42,470	41,334	16,360	18,051	19,109
New Mexico	afdust	0	0	0	0	0	0	0	0	0	0	0	0	465,738	475,680	480,650	71,712	73,530	74,394	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33,436	41,553	46,075
	fire	28,263	28,263	28,263	12,905	12,905	12,905	594,265	594,265	594,265	3,450	3,450	3,450	57,847	57,847	57,847	49,790	49,790	49,790	2,626	2,626	2,626
	IPM	669	513	515	83,598	73,514	73,547	4,985	4,394	4,455	62,480	52,884	52,884	13,313	11,412	11,417	9,744	7,898	7,903	65	8	8
	nonIPM	12,962	13,100	13,965	79,543	84,897	87,950	34,534	42,064	43,538	76,313	91,205	104,590	4,207	5,116	5,856	3,083	3,731	4,231	42	48	51
	nonroad	12,628	9,840	8,652	40,566	28,413	26,184	118,683	136,915	145,328	2,909	293	110	1,986	1,528	1,315	1,910	1,466	1,260	9	10	11
	on-road	46,654	27,278	22,047	78,265	46,430	30,573	602,168	379,856	350,302	2,674	284	329	2,107	1,487	1,304	1,604	944	717	2,354	3,036	3,464
	other area	51,726	50,811	53,607	25,476	29,634	31,424	21,151	19,080	18,762	8,458	4,508	5,943	5,572	5,390	5,614	4,868	4,781	4,930	389	434	487
New Mexico Total		152,902	129,805	127,049	320,353	275,793	262,583	1,375,786	1,176,573	1,156,650	156,284	152,624	167,306	550,770	558,460	564,003	142,711	142,140	143,225	38,921	47,715	52,722

State	Sector	2001 VOC [tons/yr]	2010 Base VOC [tons/yr]	2015 Base VOC [tons/yr]	2001 NOX [tons/yr]	2010 Base NOX [tons/yr]	2015 Base NOX [tons/yr]	2001 CO [tons/yr]	2010 Base CO [tons/yr]	2015 Base CO [tons/yr]	2001 SO2 [tons/yr]	2010 Base SO2 [tons/yr]	2015 Base SO2 [tons/yr]	2001 PM10 [tons/yr]	2010 Base PM10 [tons/yr]	2015 Base PM10 [tons/yr]	2001 PM25 [tons/yr]	2010 Base PM25 [tons/yr]	2015 Base PM25 [tons/yr]	2001 NH3 [tons/yr]	2010 Base NH3 [tons/yr]	2015 Base NH3 [tons/yr]
New York	afdust	0	0	0	0	0	0	0	0	0	0	0	0	146,772	157,649	163,555	24,250	26,037	26,943	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50,334	47,782	44,527
	fire	5,076	5,076	5,076	2,039	2,039	2,039	76,314	76,314	76,314	113	113	113	7,864	7,864	7,864	7,598	7,598	7,598	86	86	86
	IPM	2,071	666	700	92,831	47,636	46,282	15,561	18,124	19,625	263,165	141,775	143,412	16,679	16,463	16,504	15,137	15,099	15,148	1,257	6	3
	nonIPM	6,670	5,886	6,652	49,135	44,112	48,959	44,483	55,101	62,124	78,328	80,230	84,966	7,494	7,575	8,525	5,496	5,627	6,339	1,078	1,058	1,217
	nonroad	131,038	95,842	83,104	153,524	129,717	114,084	1,167,483	1,347,860	1,412,562	17,824	9,494	10,128	13,294	11,214	9,841	12,695	10,687	9,363	83	98	108
	on-road	212,330	115,287	94,606	377,204	225,563	184,683	3,069,354	1,823,694	1,699,726	10,359	1,342	1,471	9,827	6,749	5,902	7,223	4,125	3,154	13,215	14,992	16,266
	other area	413,259	348,348	354,694	63,694	64,396	64,628	340,512	241,478	212,983	158,860	156,008	159,043	66,688	55,381	51,816	59,669	48,406	44,741	10,258	11,237	12,121
New York Total		770,444	571,105	544,831	738,427	513,463	460,675	4,713,706	3,562,571	3,483,334	528,649	388,962	399,133	268,618	262,895	264,007	132,067	117,579	113,287	76,311	75,259	74,328
North Carolina	afdust	0	0	0	0	0	0	0	0	0	0	0	0	93,843	97,755	102,083	16,858	17,359	18,045	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	156,010	171,267	181,517
	fire	77,359	77,359	77,359	13,689	13,689	13,689	644,350	644,350	644,350	696	696	696	27,670	27,670	27,670	25,328	25,328	25,328	532	532	532
	IPM	951	1,242	1,328	152,863	61,656	63,163	9,707	12,540	13,758	458,977	268,653	149,410	27,029	28,459	25,501	22,575	22,014	18,710	19	12	12
	nonIPM	74,605	68,604	80,534	59,524	53,546	58,639	74,489	85,329	95,820	66,448	75,666	82,500	19,767	21,035	23,912	15,164	15,804	18,003	1,876	2,196	2,469
	nonroad	72,951	50,981	43,985	77,895	58,591	47,408	702,706	785,555	815,113	7,002	1,639	1,374	7,190	5,790	4,815	6,863	5,509	4,569	48	56	61
	on-road	172,320	94,532	72,588	276,699	150,713	93,967	2,102,376	1,229,518	1,086,447	10,594	1,018	1,140	7,719	5,148	4,427	5,829	3,226	2,413	9,129	10,998	12,140
	other area	237,395	220,789	234,873	14,766	17,248	17,969	127,140	110,668	105,228	31,872	32,592	33,698	30,713	31,114	31,419	27,639	27,601	27,681	2,122	2,385	2,657
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	3	4	4	0	0	0	0	0	0
North Carolina Total		635,580	513,506	510,667	595,435	355,443	294,835	3,660,768	2,867,960	2,760,716	575,589	380,264	268,818	213,934	216,975	219,831	120,256	116,841	114,750	169,736	187,446	199,389
North Dakota	afdust	0	0	0	0	0	0	0	0	0	0	0	0	324,745	325,098	323,161	60,603	60,449	59,960	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58,125	57,555	56,227
	fire	561	561	561	251	251	251	11,607	11,607	11,607	66	66	66	1,136	1,136	1,136	981	981	981	50	50	50
	IPM	862	734	768	79,411	65,684	69,816	7,211	9,545	9,819	156,098	124,255	106,461	7,941	7,386	7,304	6,468	6,335	6,193	8	6	6
	nonIPM	203	189	194	7,450	7,886	8,328	3,665	4,211	4,459	66,179	70,024	73,425	2,673	2,707	2,924	2,511	2,584	2,793	12	14	14
	nonroad	13,477	10,783	8,858	58,424	45,943	39,164	97,595	103,046	102,747	5,302	457	71	5,626	3,738	2,866	5,445	3,613	2,768	25	30	33
	on-road	13,838	7,052	5,439	26,378	13,838	8,762	215,951	128,770	115,914	878	79	88	693	426	353	532	273	195	734	836	918
	other area	64,111	54,183	50,184	18,463	19,182	19,707	23,099	16,139	15,488	56,233	52,762	52,829	4,450	3,550	3,512	3,115	2,283	2,240	202	222	243
North Dakota Total		93,052	73,502	66,003	190,377	152,784	146,028	359,128	273,317	260,034	284,756	247,642	232,940	347,264	344,042	341,256	79,656	76,517	75,129	59,156	58,712	57,491
Ohio	afdust	0	0	0	0	0	0	0	0	0	0	0	0	249,147	259,499	264,426	45,282	47,037	47,812	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61,719	62,147	62,702
	fire	3,011	3,011	3,011	1,141	1,141	1,141	41,605	41,605	41,605	22	22	22	4,409	4,409	4,409	4,357	4,357	4,357	17	17	17
	IPM	1,697	2,004	2,195	339,638	267,127	277,697	15,849	17,558	21,219	1,155,173	1,404,118	1,095,379	69,201	88,007	93,787	59,683	77,433	82,672	25	18	20
	nonIPM	45,039	35,667	41,381	83,112	80,194	86,125	268,698	267,956	309,220	118,582	113,682	117,450	22,739	23,439	26,832	17,803	18,499	21,126	3,035	3,342	3,558
	nonroad	97,883	69,467	60,695	165,361	132,860	116,357	933,226	1,055,003	1,094,526	19,033	9,963	10,652	12,631	10,397	9,054	12,111	9,945	8,648	71	83	91
	on-road	196,854	101,783	77,320	333,185	177,487	110,761	2,605,951	1,527,784	1,365,388	14,613	1,194	1,330	8,967	5,874	5,082	6,750	3,641	2,748	10,974	13,000	14,273
	other area	308,848	281,685	299,348	60,551	66,935	68,313	139,727	122,576	117,176	67,584	74,298	75,559	33,876	33,264	33,133	30,047	29,109	28,835	5,956	6,555	7,293
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	1,194	1,366	1,553	695	795	909	0	0	0
Ohio Total		653,332	493,617	483,950	982,988	725,744	660,394	4,005,055	3,032,482	2,949,134	1,375,007	1,603,278	1,300,392	402,164	426,255	438,276	176,727	190,815	197,107	81,797	85,163	87,954
Oklahoma	afdust	0	0	0	0	0	0	0	0	0	0	0	0	463,093	474,137	476,999	76,436	78,164	78,465	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100,966	104,399	106,168
	fire	4,361	4,361	4,361	1,923	1,923	1,923	87,506	87,506	87,506	469	469	469	8,608	8,608	8,608	7,506	7,506	7,506	359	359	359
	IPM	1,086	974	998	86,224	77,851	78,144	12,067	25,905	26,687	107,066	117,565	117,565	5,139	12,711	12,775	4,291	11,672	11,736	227	23	27
	nonIPM	23,544	19,925	21,573	100,393	98,822	105,490	58,544	65,480	70,491	32,307	35,428	37,182	10,832	12,081	13,304	8,202	9,157	10,079	3,490	3,941	4,268
	nonroad	30,516	21,896	18,691	54,163	40,733	35,008	283,923	318,537	333,095	4,582	524	233	4,643	3,390	2,760	4,458	3,245	2,637	25	29	32
	on-road	81,612	44,113	34,537	136,338	75,076	48,131	1,055,761	612,230	547,429	5,836	487	544	3,782	2,469	2,115	2,868	1,548	1,153	4,412	5,263	5,794
	other area	134,221	137,639	143,451	30,289	33,392	35,255	32,665	25,673	25,439	5,280	6,217	6,730	9,090	8,836	9,090	8,401	8,039	8,242	7,736	7,889	8,029
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	108	126	141	13	17	19	0	0	0
Oklahoma Total		275,340	228,908	223,611	409,331	327,797	303,951	1,530,466	1,135,331	1,090,647	155,540	160,689	162,723	505,295	522,357	525,792	112,175	119,347	119,837	117,215	121,902	124,676

State	Sector	2001 VOC [tons/yr]	2010 Base VOC [tons/yr]	2015 Base VOC [tons/yr]	2001 NOX [tons/yr]	2010 Base NOX [tons/yr]	2015 Base NOX [tons/yr]	2001 CO [tons/yr]	2010 Base CO [tons/yr]	2015 Base CO [tons/yr]	2001 SO2 [tons/yr]	2010 Base SO2 [tons/yr]	2015 Base SO2 [tons/yr]	2001 PM10 [tons/yr]	2010 Base PM10 [tons/yr]	2015 Base PM10 [tons/yr]	2001 PM25 [tons/yr]	2010 Base PM25 [tons/yr]	2015 Base PM25 [tons/yr]	2001 NH3 [tons/yr]	2010 Base NH3 [tons/yr]	2015 Base NH3 [tons/yr]
Oregon	afdust	0	0	0	0	0	0	0	0	0	0	0	0	56,443	59,322	60,635	9,507	9,966	10,164	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43,461	39,462	40,108
	fire	44,660	44,660	44,660	20,122	20,122	20,122	845,553	845,553	845,553	4,896	4,896	4,896	82,346	82,346	82,346	71,637	71,637	71,637	3,542	3,542	3,542
	IPM	245	256	198	12,799	13,205	10,597	1,565	8,522	6,269	17,881	10,034	10,034	833	1,053	872	682	987	805	1	0	0
	nonIPM	16,269	13,530	15,305	16,194	17,986	20,053	57,363	66,851	74,522	9,060	10,040	11,129	11,288	12,251	13,821	8,553	9,195	10,388	67	70	75
	nonroad	37,246	28,175	24,406	58,011	48,250	42,615	328,335	380,866	400,183	7,204	3,976	4,292	4,663	3,919	3,432	4,466	3,742	3,273	26	30	33
	on-road	64,967	38,798	31,744	116,196	69,619	46,143	920,038	607,862	569,318	4,547	463	541	3,128	2,234	2,016	2,364	1,390	1,091	3,627	4,853	5,616
	other area	157,986	151,881	167,745	14,110	15,207	16,384	47,759	33,799	32,643	21,602	21,834	23,511	12,255	11,319	11,688	11,487	10,388	10,679	292	319	349
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	9	11	13	4	5	6	0	0	0
Oregon Total		321,373	277,300	284,058	237,433	184,389	155,914	2,200,613	1,943,453	1,928,488	65,190	51,243	54,403	170,965	172,455	174,822	108,700	107,310	108,043	51,016	48,276	49,723
Pennsylvania	afdust	0	0	0	0	0	0	0	0	0	0	0	0	120,404	128,874	134,279	21,186	22,657	23,581	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73,417	71,030	71,486
	fire	5,617	5,617	5,617	2,188	2,188	2,188	78,438	78,438	78,438	32	32	32	8,222	8,222	8,222	8,146	8,146	8,146	25	25	25
	IPM	2,006	1,779	1,876	222,692	200,747	204,768	21,563	17,893	20,907	971,947	925,392	868,884	66,074	75,483	76,536	58,464	67,806	68,785	114	15	16
	nonIPM	46,243	39,634	44,985	105,740	102,870	111,680	107,778	117,839	128,610	118,615	118,629	123,830	24,648	23,638	26,177	18,632	18,059	19,969	1,278	1,388	1,521
	nonroad	87,254	66,418	57,294	123,448	100,898	89,284	891,025	1,023,698	1,069,892	13,945	7,860	8,480	9,270	8,020	7,054	8,873	7,655	6,726	55	65	72
	on-road	175,978	95,632	78,421	327,114	193,428	153,638	2,520,921	1,494,400	1,403,706	9,781	1,160	1,294	8,608	5,793	4,990	6,439	3,612	2,710	10,599	12,580	13,832
	other area	285,538	239,045	249,638	54,064	59,927	60,946	223,429	185,342	172,540	94,312	104,863	105,165	46,326	43,012	41,881	42,297	38,811	37,628	6,050	6,590	7,261
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	230	246	275	97	103	115	0	0	0
Pennsylvania Total		602,636	448,125	437,831	835,246	660,057	622,504	3,843,154	2,917,610	2,874,093	1,208,632	1,157,937	1,107,685	283,781	293,288	299,414	164,134	166,848	167,661	91,539	91,693	94,213
Rhode Island	afdust	0	0	0	0	0	0	0	0	0	0	0	0	3,277	3,755	4,083	528	610	663	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	381	534	510
	fire	103	103	103	42	42	42	1,498	1,498	1,498	1	1	1	154	154	154	151	151	151	1	1	1
	IPM	83	38	32	1,203	543	449	1,735	1,466	1,264	25	0	0	62	118	102	60	118	102	0	0	0
	nonIPM	2,598	1,854	2,158	1,727	2,000	2,291	941	1,040	1,213	2,505	3,472	3,573	219	292	309	139	182	193	3	4	4
	nonroad	6,727	4,238	3,833	7,152	5,993	5,271	68,278	77,382	80,858	811	511	559	596	518	473	568	492	449	4	4	5
	on-road	12,962	6,648	5,271	23,708	13,415	10,751	184,643	105,980	96,883	643	89	100	592	408	364	427	245	193	865	992	1,089
	other area	32,757	39,740	44,351	4,938	5,772	6,009	9,481	8,158	7,890	5,269	5,592	5,715	1,807	1,649	1,647	1,652	1,474	1,458	97	107	107
Rhode Island Total		55,230	52,621	55,749	38,770	27,765	24,813	266,576	195,524	189,606	9,255	9,665	9,948	6,707	6,894	7,132	3,525	3,272	3,209	1,351	1,642	1,716
South Carolina	afdust	0	0	0	0	0	0	0	0	0	0	0	0	88,114	89,203	91,242	14,153	14,239	14,562	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25,592	27,284	28,747
	fire	8,609	8,609	8,609	3,716	3,716	3,716	157,331	157,331	157,331	646	646	646	15,638	15,638	15,638	14,118	14,118	14,118	494	494	494
	IPM	468	605	655	85,941	48,776	50,486	3,765	6,625	8,410	207,110	196,065	170,353	16,655	20,552	20,972	13,155	15,992	16,365	8	5	5
	nonIPM	33,055	30,198	34,894	45,244	39,562	43,286	60,304	70,018	78,396	52,420	55,603	60,028	11,120	10,252	11,512	8,276	7,455	8,381	1,111	1,364	1,472
	nonroad	39,866	26,944	23,483	43,172	33,196	28,176	348,022	387,539	402,907	4,182	1,456	1,430	3,779	3,065	2,649	3,599	2,912	2,510	23	27	29
	on-road	83,746	45,972	35,826	148,419	80,349	50,976	1,118,909	661,817	588,968	5,521	504	562	4,089	2,643	2,228	3,118	1,678	1,226	4,544	5,391	5,917
	other area	144,094	139,893	152,089	18,684	20,994	21,933	70,457	62,057	58,937	14,782	14,945	15,292	14,235	14,020	13,941	12,910	12,569	12,425	1,005	1,135	1,268
South Carolina Total		309,839	252,221	255,556	345,176	226,593	198,573	1,758,788	1,345,387	1,294,949	284,661	269,219	248,311	153,630	155,373	158,182	69,329	68,962	69,586	32,778	35,701	37,932
South Dakota	afdust	0	0	0	0	0	0	0	0	0	0	0	0	245,971	252,503	252,194	45,472	46,410	46,169	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	81,492	82,265	81,180
	fire	4,109	4,109	4,109	1,867	1,867	1,867	86,425	86,425	86,425	498	498	498	8,413	8,413	8,413	7,241	7,241	7,241	381	381	381
	IPM	27	109	109	17,278	14,537	14,541	188	505	507	14,438	12,085	12,085	221	215	215	215	203	203	3	1	1
	nonIPM	1,483	1,337	1,893	4,503	5,362	5,965	0	0	0	1,363	1,739	1,851	1,028	860	911	602	515	548	1	1	1
	nonroad	11,386	9,155	7,450	32,718	26,870	22,031	83,199	89,112	89,146	3,219	284	44	3,883	2,600	1,970	3,754	2,510	1,900	19	23	25
	on-road	15,027	8,033	6,243	30,394	16,596	10,509	228,508	141,245	127,759	1,039	96	106	806	519	430	620	334	238	844	1,011	1,114
	other area	43,803	37,055	35,760	6,321	6,542	6,646	18,710	10,387	9,781	20,391	20,528	20,633	4,117	3,153	3,117	3,542	2,566	2,523	309	353	386
South Dakota Total		75,834	59,798	55,563	93,081	71,775	61,559	417,030	327,674	313,618	40,949	35,231	35,217	264,438	268,263	267,251	61,445	59,779	58,822	83,049	84,034	83,087

State	Sector	2001 VOC [tons/yr]	2010 Base VOC [tons/yr]	2015 Base VOC [tons/yr]	2001 NOX [tons/yr]	2010 Base NOX [tons/yr]	2015 Base NOX [tons/yr]	2001 CO [tons/yr]	2010 Base CO [tons/yr]	2015 Base CO [tons/yr]	2001 SO2 [tons/yr]	2010 Base SO2 [tons/yr]	2015 Base SO2 [tons/yr]	2001 PM10 [tons/yr]	2010 Base PM10 [tons/yr]	2015 Base PM10 [tons/yr]	2001 PM25 [tons/yr]	2010 Base PM25 [tons/yr]	2015 Base PM25 [tons/yr]	2001 NH3 [tons/yr]	2010 Base NH3 [tons/yr]	2015 Base NH3 [tons/yr]
Tennessee	afdust	0	0	0	0	0	0	0	0	0	0	0	0	107,433	111,021	115,791	19,380	19,783	20,546	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38,730	39,546	39,276
	fire	5,465	5,465	5,465	2,265	2,265	2,265	91,351	91,351	91,351	277	277	277	9,243	9,243	9,243	8,590	8,590	8,590	212	212	212
	IPM	906	866	914	156,848	106,416	105,632	6,514	6,720	7,122	357,003	354,455	315,876	20,064	20,529	22,445	18,127	18,588	20,455	10	8	8
	nonIPM	95,619	94,763	110,380	86,590	68,421	74,636	126,933	147,121	167,320	99,114	99,630	106,590	42,071	41,696	48,409	33,744	33,516	38,958	2,246	2,667	2,951
	nonroad	50,150	38,042	32,126	89,577	72,462	64,786	434,947	490,826	508,534	11,024	6,566	7,156	6,469	5,448	4,799	6,199	5,210	4,587	32	38	42
	on-road	122,670	66,297	50,813	205,457	110,406	69,026	1,590,237	924,628	817,381	7,697	738	826	5,566	3,708	3,199	4,191	2,315	1,739	6,715	8,020	8,845
	other area	208,586	198,912	214,161	24,209	27,986	29,488	87,181	76,160	73,446	41,847	44,614	46,450	20,514	20,641	20,934	18,030	17,927	18,079	3,377	4,215	4,946
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	4	5	6	2	3	3	0	0	0
Tennessee Total		483,396	404,344	413,859	564,946	387,956	345,833	2,337,163	1,736,806	1,665,154	516,963	506,281	477,175	211,365	212,291	224,826	108,263	105,932	112,957	51,323	54,705	56,280
Texas	afdust	0	0	0	0	0	0	0	0	0	0	0	0	1,403,939	1,455,268	1,478,723	232,115	240,441	243,991	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	265,794	271,976	278,482
	fire	30,680	30,680	30,680	12,476	12,476	12,476	472,783	472,783	472,783	1,178	1,178	1,178	47,578	47,578	47,578	43,668	43,668	43,668	2,577	2,577	2,577
	IPM	6,474	5,000	4,914	324,553	186,176	179,768	54,377	91,260	93,922	545,984	417,397	417,558	38,883	36,990	37,463	29,774	28,166	28,623	1,533	605	451
	nonIPM	156,129	107,361	118,390	452,894	445,621	477,110	360,430	418,115	457,150	303,847	270,232	287,600	38,778	41,112	44,994	30,695	32,956	35,943	0	0	0
	nonroad	154,874	107,571	96,578	373,189	314,550	288,470	1,620,189	1,842,688	1,941,244	46,157	28,603	31,367	24,782	20,629	18,639	23,826	19,805	17,879	118	138	151
	on-road	394,815	220,527	172,207	619,217	343,962	218,904	4,609,120	2,714,039	2,431,628	23,730	2,502	2,846	17,297	12,111	10,767	12,869	7,458	5,796	22,223	27,367	30,672
	other area	561,814	581,046	610,047	43,741	47,686	49,961	107,388	85,679	85,206	7,142	8,337	8,990	37,114	37,731	39,328	32,179	31,812	32,928	6,917	7,827	8,777
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	283	333	373	88	102	115	0	0	0
Texas Total		1,304,786	1,052,185	1,032,816	1,826,070	1,350,471	1,226,689	7,224,286	5,624,564	5,481,933	928,038	728,249	749,539	1,608,654	1,651,752	1,677,865	405,214	404,407	408,943	299,162	310,490	321,110
Utah	afdust	0	0	0	0	0	0	0	0	0	0	0	0	77,019	85,325	89,411	13,349	14,911	15,674	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25,323	24,531	24,971
	fire	22,422	22,422	22,422	9,065	9,065	9,065	378,512	378,512	378,512	1,934	1,934	1,934	40,245	40,245	40,245	35,028	35,028	35,028	1,479	1,479	1,479
	IPM	622	423	423	72,547	60,784	60,784	4,302	3,523	3,523	29,514	53,108	53,108	6,129	5,593	5,593	4,746	4,360	4,360	23	4	4
	nonIPM	8,118	7,749	8,794	26,665	28,308	30,986	40,246	45,412	51,243	11,234	10,682	12,020	7,187	8,116	9,254	4,468	5,066	5,741	1,088	1,232	1,288
	nonroad	24,508	20,967	17,155	37,397	28,448	22,572	191,331	217,706	223,835	3,557	385	135	3,365	2,648	2,059	3,230	2,532	1,964	22	27	29
	on-road	42,718	23,501	18,108	68,915	39,272	24,859	605,704	377,558	342,257	2,084	264	300	1,722	1,265	1,128	1,267	774	605	2,327	2,915	3,253
	other area	56,331	54,329	58,334	18,591	21,578	22,984	25,444	24,274	23,757	10,562	8,535	9,715	6,031	6,222	6,428	5,048	5,236	5,390	632	758	871
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	1,209	1,493	1,665	275	342	382	0	0	0
Utah Total		154,719	129,391	125,236	233,180	187,455	171,250	1,245,539	1,046,985	1,023,127	58,885	74,908	77,212	142,906	150,907	155,782	67,411	68,248	69,143	30,895	30,946	31,895
Vermont	afdust	0	0	0	0	0	0	0	0	0	0	0	0	16,176	17,012	17,585	2,578	2,724	2,823	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,347	9,121	8,594
	fire	1,030	1,030	1,030	424	424	424	16,996	16,996	16,996	49	49	49	1,727	1,727	1,727	1,612	1,612	1,612	38	38	38
	IPM	15	0	5	419	14	62	967	5	199	15	0	0	29	0	16	28	0	16	0	0	0
	nonIPM	1,859	1,739	2,130	926	742	1,361	1,308	1,462	1,850	1,559	2,190	2,296	601	536	651	458	395	485	1	2	2
	nonroad	9,216	8,490	6,945	4,002	3,152	2,529	59,961	69,194	70,433	359	37	12	580	513	426	550	483	401	4	5	6
	on-road	12,470	6,989	5,983	23,945	14,858	12,318	195,391	121,994	117,647	739	80	91	640	425	364	487	270	200	708	856	958
	other area	22,237	16,524	17,278	3,877	4,461	4,505	22,259	14,738	13,682	6,971	8,140	8,405	4,875	4,176	4,098	4,497	3,737	3,647	272	306	339
Vermont Total		46,827	34,772	33,371	33,593	23,652	21,199	296,882	224,389	220,807	9,693	10,496	10,853	24,628	24,390	24,867	10,210	9,221	9,185	10,370	10,328	9,937
Virginia	afdust	0	0	0	0	0	0	0	0	0	0	0	0	54,468	56,128	58,800	9,230	9,403	9,829	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43,682	45,973	47,321
	fire	6,634	6,634	6,634	2,812	2,812	2,812	115,270	115,270	115,270	399	399	399	11,553	11,553	11,553	10,614	10,614	10,614	305	305	305
	IPM	884	545	674	87,350	68,783	60,760	9,930	9,551	13,782	222,720	192,720	181,433	14,543	13,866	14,325	12,754	11,906	12,228	117	5	5
	nonIPM	48,525	46,402	54,407	74,021	72,545	81,522	68,572	78,387	85,544	76,018	82,130	88,671	15,634	16,052	18,142	12,234	12,508	14,162	728	720	788
	nonroad	56,361	37,973	33,983	91,712	71,890	64,211	500,527	572,683	602,623	8,961	3,661	3,732	6,609	5,424	4,787	6,322	5,176	4,560	37	43	47
	on-road	125,292	68,430	56,674	193,925	117,831	100,586	1,663,857	1,014,196	975,905	6,689	803	898	4,861	3,499	3,223	3,442	2,038	1,670	7,893	9,229	10,161
	other area	164,765	146,077	150,139	43,723	48,244	50,354	125,150	111,165	107,495	15,267	17,881	18,199	32,364	32,271	32,526	23,491	23,115	23,001	685	758	809
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	24	28	30	3	3	4	0	0	0
Virginia Total		402,461	306,061	302,511	493,544	382,104	360,245	2,483,306	1,901,252	1,900,619	330,053	297,593	293,332	140,056	138,820	143,386	78,089	74,764	76,068	53,446	57,033	59,436

State	Sector	2001 VOC [tons/yr]	2010 Base VOC [tons/yr]	2015 Base VOC [tons/yr]	2001 NOX [tons/yr]	2010 Base NOX [tons/yr]	2015 Base NOX [tons/yr]	2001 CO [tons/yr]	2010 Base CO [tons/yr]	2015 Base CO [tons/yr]	2001 SO2 [tons/yr]	2010 Base SO2 [tons/yr]	2015 Base SO2 [tons/yr]	2001 PM10 [tons/yr]	2010 Base PM10 [tons/yr]	2015 Base PM10 [tons/yr]	2001 PM25 [tons/yr]	2010 Base PM25 [tons/yr]	2015 Base PM25 [tons/yr]	2001 NH3 [tons/yr]	2010 Base NH3 [tons/yr]	2015 Base NH3 [tons/yr]
Washington	afdust	0	0	0	0	0	0	0	0	0	0	0	0	76,094	76,811	76,405	14,388	14,429	14,277	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47,366	44,913	46,798
	fire	6,156	6,156	6,156	2,290	2,290	2,290	84,741	84,741	84,741	407	407	407	9,301	9,301	9,301	8,444	8,444	8,444	248	248	248
	IPM	331	333	306	20,146	26,028	25,096	3,703	7,282	6,206	67,492	11,008	9,754	3,531	3,275	3,188	2,915	2,731	2,644	39	2	2
	nonIPM	14,317	12,836	14,757	32,189	35,986	40,159	197,139	230,745	252,600	40,824	45,963	49,759	12,997	14,219	15,880	10,830	11,646	13,003	4,206	4,335	5,515
	nonroad	57,710	41,738	36,406	87,106	72,082	64,131	508,558	573,036	601,146	10,237	5,377	5,756	7,000	5,804	5,115	6,699	5,541	4,875	38	45	49
	on-road	94,669	51,372	40,284	164,752	92,352	59,315	1,363,009	843,481	778,866	6,433	632	730	4,334	3,044	2,756	3,229	1,871	1,482	5,566	6,914	7,874
	other area	117,746	107,611	115,827	15,909	17,539	18,960	65,068	47,337	46,176	2,880	2,917	3,009	14,395	13,348	13,783	13,509	12,302	12,654	3,715	4,201	4,650
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	14	16	17	1	1	2	0	0	0
Washington Total		290,929	220,046	213,736	322,392	246,277	209,951	2,222,218	1,786,622	1,769,735	128,273	66,304	69,415	127,665	125,818	126,445	60,015	56,965	57,381	61,178	60,658	65,135
West Virginia	afdust	0	0	0	0	0	0	0	0	0	0	0	0	15,891	15,553	16,130	2,733	2,656	2,763	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10,445	10,604	10,886
	fire	3,984	3,984	3,984	1,676	1,676	1,676	67,748	67,748	67,748	215	215	215	6,815	6,815	6,815	6,309	6,309	6,309	165	165	165
	IPM	1,060	1,439	1,465	206,616	179,125	175,832	11,606	12,620	12,835	501,364	582,355	495,178	32,344	37,769	38,833	27,100	30,763	31,694	17	13	13
	nonIPM	19,973	16,479	18,537	52,877	45,416	48,624	109,208	128,270	143,560	61,111	63,074	67,373	15,726	15,824	17,964	12,232	12,292	14,037	514	522	587
	nonroad	15,338	14,830	12,086	53,665	48,100	46,281	114,583	139,182	146,387	8,583	7,060	8,014	2,967	2,821	2,702	2,857	2,711	2,600	8	10	11
	on-road	31,619	14,280	10,240	54,640	25,446	15,184	447,117	229,499	196,679	2,566	165	175	1,444	877	725	1,078	544	393	1,905	1,936	2,010
	other area	55,901	48,671	49,655	13,147	14,855	15,602	51,160	44,035	41,648	13,026	13,805	14,618	10,071	9,295	9,059	9,255	8,481	8,234	441	470	522
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	297	314	351	109	113	128	0	0	0
West Virginia Total		127,874	99,683	95,967	382,621	314,618	303,199	801,422	621,354	608,857	586,865	666,673	585,573	85,555	89,268	92,579	61,672	63,869	66,159	13,495	13,720	14,194
Wisconsin	afdust	0	0	0	0	0	0	0	0	0	0	0	0	126,590	133,732	137,433	23,557	24,813	25,429	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	97,312	83,398	75,079
	fire	3,735	3,735	3,735	1,521	1,521	1,521	55,978	55,978	55,978	70	70	70	5,741	5,741	5,741	5,576	5,576	5,576	54	54	54
	IPM	863	929	965	104,024	77,458	75,703	8,552	9,147	10,365	190,968	162,604	157,321	8,687	9,650	10,253	7,248	8,610	9,198	15	8	8
	nonIPM	38,612	35,515	40,841	41,810	45,755	49,031	45,409	50,600	54,987	72,072	69,432	70,453	12,019	13,203	14,759	8,810	9,587	10,742	846	1,021	1,045
	nonroad	80,582	70,297	57,844	69,889	54,727	46,407	518,662	584,942	586,513	7,260	2,534	2,490	7,156	5,916	4,975	6,826	5,618	4,714	44	54	58
	on-road	103,910	53,624	41,218	190,347	101,141	63,654	1,497,187	900,045	812,143	8,185	638	714	5,133	3,265	2,791	3,907	2,055	1,525	5,866	6,875	7,580
	other area	165,465	148,175	152,584	28,652	31,042	31,679	151,282	130,767	125,022	43,710	52,589	57,064	25,992	24,962	24,553	24,205	22,873	22,312	2,596	2,955	3,325
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	25	29	33	2	2	3	0	0	0
Wisconsin Total		393,167	312,276	297,187	436,243	311,644	267,995	2,277,070	1,731,478	1,645,008	322,265	287,866	288,112	191,343	196,499	200,538	80,130	79,135	79,498	106,733	94,365	87,149
Wyoming	afdust	0	0	0	0	0	0	0	0	0	0	0	0	222,527	227,781	230,738	34,475	35,364	35,873	0	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17,265	14,910	14,919
	fire	9,163	9,163	9,163	4,164	4,164	4,164	192,514	192,514	192,514	1,106	1,106	1,106	18,741	18,741	18,741	16,138	16,138	16,138	846	846	846
	IPM	798	752	678	86,411	81,171	81,173	6,634	6,269	5,650	88,283	73,639	73,492	13,811	9,168	8,652	11,161	7,596	7,244	9	7	6
	nonIPM	15,563	12,415	13,233	36,495	37,734	39,632	48,835	54,380	57,708	38,121	37,676	39,439	19,683	21,703	24,121	16,050	17,868	19,873	654	716	752
	nonroad	9,113	8,663	7,126	31,720	22,082	20,538	57,373	66,716	68,385	2,270	197	50	1,554	1,184	1,006	1,497	1,136	965	6	7	8
	on-road	14,072	7,325	5,730	28,582	14,993	9,572	219,852	131,054	118,276	914	85	95	740	460	385	568	295	213	789	906	999
	other area	19,903	17,041	17,489	60,255	72,270	74,880	23,766	23,469	23,092	14,905	13,471	14,274	3,513	3,311	3,335	2,951	2,780	2,776	292	324	353
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wyoming Total		68,612	55,360	53,419	247,626	232,413	229,959	548,974	474,402	465,625	145,599	126,174	128,456	280,569	282,349	286,978	82,840	81,176	83,082	19,861	17,716	17,884

Appendix C
Description of temporal approach for fire inventories

This description is in the form of a memorandum from the data developer (Bill Battye) to the project work assignment manager (Tom Pace) at the U.S. EPA.

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July 9, 2004

TO: Tom Pace, U.S. EPA

FROM: Bill Battye, EC/R Incorporated

SUBJECT: Temporal Allocation Factors for Wildland Fires - Revised

Seasonal and diurnal temporal allocation factors were developed to support regional modeling of emissions from wildland fires. Separate sets of factors were developed for wildfires and prescribed fires, for each state. In addition, separate seasonal factors were developed for each year from 1999 through 2002, and for an average year. Insufficient data were available to determine whether the day of the week has a systematic impact on wildland fire emissions.

The seasonal and diurnal allocation factors are provided in two separate Excel files, with formats as shown in Tables 1 and 2. The following sections discuss the data sources and methodologies used to develop these factors.

Table 1. Format of the Seasonal Allocation Factor File

Field	Description
State	State postal code
Fire type	PF = prescribed fire, WF = wildfire
Year	1999, 2000, 2001, 2002, or “Avg” (average)
Jan, Feb, Mar...	Fraction of annual fire activity estimated to occur during the given month
Acre/yr	Total acres burned in the given year, or average burned per year for multiyear averages
Source	Database used to develop the factors, or source of defaults
Years	Years covered by a multiyear average (e.g. 1970-2002

Table 2. Format of the Diurnal Allocation Factor File

Field	Description
State	State postal code
Fire type	PF = prescribed fire, WF = wildfire
Hr_1, Hr_2, ... Hr_24	Fraction of daily fire emissions estimated to occur during the given hour (counting from midnight)

Seasonal Allocation Factors

Seasonal allocation factors for wildland fire were developed using a number of different national and state-level fire incident databases for past years. The following are brief descriptions of the databases that were used:

- DOI database – Lists dates, sizes, and locations of wild and prescribed fire incidents on federal lands dating from prior to 1970 through 2002. Although the database includes fields for both the discovery date and the date that a fire was brought under control, the control date is often left blank.[i]

- DRI database – Compiled by Desert Research Institute (DRI), largely from the DOI database. Extensive quality assurance was performed for locations of wildfires, but this database does not cover prescribed fires.[ii]

- ICS-209 – A compilation by the U.S. Forest Service of Incident Status Summary report forms for wild and prescribed fires. This database mainly covers fires on federal land, although fires on state, and private lands can also be included. Unlike other databases, the ICS-209 database gives day-to-day information on fire size.[iii]

- VISTAS – Database of wildfire, prescribed fire, agricultural burning, and land clearing for ten southeastern states – Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia[iv]

- NC – Databases of wild and prescribed fires on state and private lands in North Carolina.[v, vi] (Used as a default for DC and Louisiana prescribed fires. VISTAS data were used for North Carolina.)

- IN – Database of wild and prescribed fires on state and private lands in Indiana[vii]

- OK – Database of wild and prescribed fires on state and private lands in Oklahoma[viii]

In general, seasonal (monthly) allocation factors were calculated using the following equation:

$$MF_m = \Sigma_{I,\,m}(A_i) \,/\, \Sigma_{i,\,a}(A_i)$$

where:

MF_m = Allocation factor for month, m

$\Sigma_{I,\,m}$ = Sum over all fire incidents, i, in month, m

A_i = Area of fire i

$\Sigma_{i,\,a}$ = Sum over all fire incidents, i, in year, a

This calculation was performed separately for wildfires and prescribed fires, and for each state and year that was analyzed. We did not combine the federal databases, but instead used the database which provided the most comprehensive information for each state and year. In North Carolina, Indiana, and Oklahoma, the federal and state databases were combined to give total fire activity. In other states, the seasonal patterns of fires on federal lands were assumed to be representative of all fires in the state, unless very little fire activity was reported on federal lands in the state.

The federal databases – DOI, DRI, and ICS-209 – are believed to provide a good picture of the seasonal distribution of burning in the western U.S., especially for wildfires. In the eastern U.S., the federal databases provide a less comprehensive picture because fires on state and private lands become more important. However, resources were not available to compile and analyze fire incident databases for all of the eastern states. Therefore, default seasonal factors were needed for many of the eastern states. If data were lacking for a given state and year, the first choice was to use the average seasonal factors for the given state and for the appropriate fire type (wild or prescribed). If no data were available for prescribed or wildfires in a given state, default factors for a nearby state were used.

Diurnal Factors

Hourly allocation factors were calculated using the Emission Production Model (EPM), which was developed by the U.S. Forest Service.[ix] EPM estimates hourly emissions from an individual fire, and from subsequent smoldering. We ran EPM for wildfires and prescribed fires in different forest types, using the classification system developed under the National Fire Danger Rating System (NFDRS). EPM was run for multiple days, and the second day was used to develop diurnal factors. By the second day, the model had reached a stable diurnal pattern.

Hourly allocation factors for a given state were calculated by taking the average allocation factors for all NFDRS categories found in the state. These averages were weighted by the distribution of land among the various NFDRS categories and the relative fuel consumption in the different NFDRS categories. The following equation was used:

$$HF_{a,\,i} = \Sigma_N(H_{N,\,i} \times F_N \times C_N) \,/\, \Sigma_N(F_N \times C_N)$$

where:

$HF_{a,\,i}$ = Average hourly allocation factor for hour, i, in the given state

Σ_N = Sum over all NFDRS categories, N, in the state
$H_{N,\,i}$ = Hourly allocation factor for NFDRS category, N
F_N = Fraction of wildland in the state in NFDRS category, N
C_N = Fuel consumed per acre burned within NFDRS category, N

References

i. Fire History Database. U.S. Department of Interior, Contact: Susan Goodman.

ii. Brown, Timothy, Beth Hall, Charlene Mohrle, and Hauss Reinbold. *Coarse Assessment of Federal Wildland Fire Occurrence Data*. CEFA Report 02-04, prepared by Desert Research Institute, Reno, Nevada, for the National Wildfire Coordinating Group.

iii. USDA Forest Service Fire Applications Support – 209 Program: Incident Status Summary, Form ICS-209. http://famweb.nwcg.gov/

iv. Database of burning in the VISTAS Region. Provided to Tom Pace, U.S. Environmental Protection Agency by Pat Brewer, VISTAS. November 2003.

v. *Burning Summary Accomplishments* (Prescribed Burns). North Carolina Division of Forest Resources, Forest Management Development Section, Contact: Joann Hocutt, 919-773-2162 x243.

vi. *Forestry Fire Tracking System* (Wildfires). North Carolina Division of Forest Resources, Forest Management Development Section, Contact: Ciscelia Greer, 919-773-2162 x231

vii. Wildland Fire Reports 01/01/00 to 05/05/03. Indiana Department of Natural Resources, Fire Headquarters from Rural and Volunteer Fire Departments in Indiana, Contact: Crystal Hunt, cmhunt@scican.net.

viii. New Fire Reports, 050101. Oklahoma Forestry Services, Contact: Pat McDowell, patrick@oda.state.ok.us.

ix. Emissions Production Model (EPM). U.S. Forest Service, Pacific Northwest. http://www.fs.fed.us/pnw/fera/sue/epm.html

Appendix D

SCCs for which transportable fractions were applied

SCC	Description 1	Description 2	Description 3
30300519	Prim Metal Prod	Primary Copper Smelting	Unpaved Road Traffic: Fug Emiss
30300831	Prim Metal Prod	Iron Production	Unpaved Roads: Light Duty Vehicles
30300832	Prim Metal Prod	Iron Production	Unpaved Roads: Med Duty Vehicles
30300833	Prim Metal Prod	Iron Production	Unpaved Roads: Heavy Duty Vehicles
30300834	Prim Metal Prod	Iron Production	Paved Roads: All Vehicle Types
30302321	Prim Metal Prod	Taconite Iron Ore Processing	Haul Road: Rock
30302322	Prim Metal Prod	Taconite Iron Ore Processing	Haul Road: Taconite
30501024	Mineral Products	Coal Mining, Cleaning, & Mat'l Handling	Hauling
30501031	Mineral Products	Coal Mining, Cleaning, & Mat'l Handling	Scrapers: Travel Mode
30501039	Mineral Products	Coal Mining, Cleaning, & Mat'l Handling	Hauling: Haul Trucks
30501045	Mineral Products	Coal Mining, Cleaning, & Mat'l Handling	Bulldozing: Overburden
30501046	Mineral Products	Coal Mining, Cleaning, & Mat'l Handling	Bulldozing: Coal
30501047	Mineral Products	Coal Mining, Cleaning, & Mat'l Handling	Grading
30501050	Mineral Products	Coal Mining, Cleaning, & Mat'l Handling	Vehicle Traffic: Light/Medium Vehicles
30501090	Mineral Products	Coal Mining, Cleaning, & Mat'l Handling	Haul Roads: General
30501640	Mineral Products	Lime Manufacture	Vehicle Traffic
30502011	Mineral Products	Stone Quarrying - Processing	Hauling
30502504	Mineral Products	Construction Sand and Gravel	Hauling
30531090	Mineral Products	Coal Mining, Cleaning, & Mat'l Handling	Haul Roads: General
31100101	Building Const	Construction: Building Contractors	Site Preparation: Topsoil Removal
31100102	Building Const	Construction: Building Contractors	Site Prep: Earth Moving (Cut and Fill)
31100103	Building Const	Construction: Building Contractors	Site Prep: Aggregate Hauling (On Dirt)
31100205	Building Const	Demolitions/Special Trade Contracts	On-site Truck Traffic
31100206	Building Const	Demolitions/Special Trade Contracts	On-site Truck Traffic
2275085000	Aircraft	Unpaved Airstrips	Total
2294000000	Paved Roads	All Paved Roads	Total: Fugitives
2294000001	Paved Roads	All Paved Roads	Total: Average Conditions - Fugitives
2294000002	Paved Roads	All Paved Roads	Total: Sanding/Salting - Fugitives
2294005000	Paved Roads	Interstate/Arterial	Total: Fugitives
2294005001	Paved Roads	Interstate/Arterial	Total: Average Conditions - Fugitives
2294005002	Paved Roads	Interstate/Arterial	Total: Sanding/Salting - Fugitives
2294010000	Paved Roads	All Other Public Paved Roads	Total: Fugitives
2294010001	Paved Roads	All Other Public Paved Roads	Total: Average Conditions - Fugitives
2294010002	Paved Roads	All Other Public Paved Roads	Total: Sanding/Salting - Fugitives
2294015000	Paved Roads	Industrial Roads	Total: Fugitives
2294015001	Paved Roads	Industrial Roads	Total: Average Conditions - Fugitives
2294015002	Paved Roads	Industrial Roads	Total: Sanding/Salting - Fugitives
2296000000	Unpaved Roads	All Unpaved Roads	Total: Fugitives
2296005000	Unpaved Roads	Public Unpaved Roads	Total: Fugitives
2296010000	Unpaved Roads	Industrial Unpaved Roads	Total: Fugitives
2311000000	Construction	All Processes	Total
2311000010	Construction	All Processes	Land Clearing
2311000040	Construction	All Processes	Ground Excavations
2311000050	Construction	All Processes	Cut and Fill Operations

SCC	Description 1	Description 2	Description 3
2311000060	Construction	All Processes	Construction
2311000070	Construction	All Processes	Vehicle Traffic
2311010000	Construction	General Building Construction	Total
2311010010	Construction	General Building Construction	Land Clearing
2311010040	Construction	General Building Construction	Ground Excavations
2311010050	Construction	General Building Construction	Cut and Fill Operations
2311010060	Construction	General Building Construction	Construction
2311010070	Construction	General Building Construction	Vehicle Traffic
2311020000	Construction	Heavy Construction	Total
2311020010	Construction	Heavy Construction	Land Clearing
2311020040	Construction	Heavy Construction	Ground Excavations
2311020050	Construction	Heavy Construction	Cut and Fill Operations
2311020060	Construction	Heavy Construction	Construction
2311020070	Construction	Heavy Construction	Vehicle Traffic
2311030000	Construction	Road Construction	Total
2311030010	Construction	Road Construction	Land Clearing
2311030040	Construction	Road Construction	Ground Excavations
2311030050	Construction	Road Construction	Cut and Fill Operations
2311030060	Construction	Road Construction	Construction
2311030070	Construction	Road Construction	Vehicle Traffic
2311040000	Construction	Special Trade Construction	Total
2325000000	Mining & quarrying	All Processes	Total
2801000001	Ag crops	Agriculture - Crops	Land Breaking
2801000002	Ag crops	Agriculture - Crops	Planting
2801000003	Ag crops	Agriculture - Crops	Tilling
2801000004	Ag crops	Agriculture - Crops	Defoliation
2801000005	Ag crops	Agriculture - Crops	Harvesting
2801000006	Ag crops	Agriculture - Crops	Drying
2801000007	Ag crops	Agriculture - Crops	Loading
2801000008	Ag crops	Agriculture - Crops	Transport
2805000000	Ag livestock	Agriculture - Livestock	Total
2805001000	Ag livestock	Beef Cattle Feedlots	Total (also see 2805020000)
2805001001	Ag livestock	Beef Cattle Feedlots	Feed Preparation
2805005000	Ag livestock	Poultry Operations	Total (also see 2805030000)
2805005001	Ag livestock	Poultry Operations	Feed Preparation
2805010000	Ag livestock	Dairy Operations	Total (also see 2805020000)
2805010001	Ag livestock	Dairy Operations	Feed Preparation
2805015000	Ag livestock	Hog Operations	Total (also see 2805025000)
2805015001	Ag livestock	Hog Operations	Feed Preparation
2805020000	Ag livestock	Cattle and Calves Composite	Total
2805025000	Ag livestock	Hogs and Pigs Composite	Total
2805030000	Ag livestock	Poultry and Chickens Composite	Total
2805035000	Ag livestock	Horses and Ponies Composite	Total
2805040000	Ag livestock	Sheep and Lambs Composite	Total
2805045001	Ag livestock	Goats	Total

Appendix E
Documentation of BEIS3.12

Reconsideration of the Emission Factors assumed in BEIS3 for Three USGS Vegetation Categories: Shrubland, Coniferous Forest, and Deciduous Forest

Thomas E Pierce
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U.S. Environmental Protection Agency
Research Triangle Park, North Carolina

July 25, 2001

Background—

This technical memorandum is in response to concerns raised about the emission factors assumed in BEIS3v0.9 for the shrubland and coniferous forest categories. Earlier in 2001, the Atmospheric Modeling Division released a prototype version of the Biogenic Emissions Inventory System (BEIS3v0.9) for preliminary testing. OAQPS has been actively examining results from SMOKE/BEIS3v0.9, including a CMAQ model grid domain that extends to the Pacific Ocean. This is one of the first – if the not the first – applications of CMAQ/BEIS to the western U.S. However, the resulting isoprene emissions estimated for this region have raised questions about the rather substantial emissions arising from "desert" areas. Further inspection revealed that these emissions were almost all attributable to the USGS shrubland category, a prominent vegetation category in the BELD3 database.

Shrubland is one of nineteen USGS categories in the Biogenic Emissions Landuse Database (BELD3). USGS categories are assigned to portions of the modeling domain lacking vegetation coverage from the US Forest Service and the US Department of Agriculture datasets. It was hoped in developing BELD3 that the USGS categories would not contribute significantly to the biogenic emissions estimates across the United States, because of the uncertainties in assigning vegetation species distributions, leaf biomass, and emission factors to these rather broad categories. Indeed, one of the primary motivations for developing BELD3 was to estimate, where possible, species-specific biomass distributions so that more accurate biogenic emission inventories could be constructed. It has now become painfully obvious, however, that the USGS categories demand more attention because of their prevalence in BELD3 over many parts of the U.S., particularly in the west. We will examine the distribution of three important USGS categories and reconsider their assumed emission factors for use in BEIS3.

BELD3 vegetation data—

To assess the prevalence of the USGS shrubland category, the BELD3 data have been summarized and sorted for the contiguous U.S. and for four southwestern states in Table 1.

Table 1. Areal coverage of the top five vegetation categories from BELD3 for four southwestern states and the contiguous United States

Arizona (total = 28.6 million ha)	
Shrubland	64%
Grassland	14%
Juniper	6%
Conifer forest	4%
Mesquite	2%
California (total = 40.0 million ha)	
Shrubland	26%
Savanna	12%
Shrub/grassland	7%
Misc_crop	6%
Conifer forest	6%
Nevada (total = 27.0 million ha)	
Shrubland	68%
Shrub/grassland	11%
Juniper	8%
Pine_pinyon	5%
Sparse/barren	3%
Utah (total = 20.7 million ha)	
Shrubland	53%
Grassland	6%
Juniper	6%
Shrub/grassland	5%
Conifer forest	5%
US-48 states (total = 731.5 million ha)	
Shrubland	13%
Grassland	11%
Misc_crop	8%
Conifer forest	4%
Corn	4%

Table 1 confirms the concern raised by Mr. Brian Timin of OAQPS that the USGS shrubland category predominates in the southwestern U.S. and thus deserves careful scrutiny for CMAQ modeling applications. It is also clear that the USGS coniferous forest category deserves attention as it comprises 4% of the land area in the contiguous U.S. and is among the top five categories for three of the four southwestern states shown above.

Emissions Potential—

To further investigate the emissions significance of the shrubland category and the other poorly characterized USGS vegetation categories, we multiplied the BEIS3 isoprene emission factors by the vegetation cover area for each BELD3 vegetation category across the contiguous United

States. As seen in Table 2, the top five potential contributors are oak, populus (e.g., aspen), and three USGS categories.

Table 2. Isoprene emissions potential for the top five categories estimated across the contiguous United States, based on normalized BEIS3v0.9 emission factors and vegetation coverage from BELD3

BELD3 vegetation category(s)	Isoprene emissions potential
Oak (summed over all species)	43%
Conifer forests	14%
Shrubland	10%
Populus	10%
Deciduous forests	8%

Although (as expected) the contribution to isoprene by oaks dominates across the continental U.S., nearly one-third of the emissions potential may be attributed to the USGS categories conifer forests, shrubland, and deciduous forests.

Basis and Recommendation for Selected USGS Emission Factors—

The basis for the isoprene emission factors currently assumed in BEIS3v0.9 for each of these three categories is given below.

$$\text{Conifer forests} = 11{,}383\ \text{gC/km}^2\text{-hr}$$

Our initial thinking was to construct an emission factor that would be applicable to Canada, since we were assuming that the US Forest Service data would account for any tree coverage information in the United States. The SMOKE/BEIS3 system currently accounts for this "on-the-fly" and applies a grassland (or "open forest") emission factor anytime a USGS tree category is encountered in a U.S. grid cell and there is US Forest Service information. This assumption avoids the problem of double-counting trees. According to the Ontario Forestry Association (www.oforest.on.ca), boreal or evergreen needleleaf forests are dominated by white spruce, black spruce, jack pine, balsam fir, poplars, and white birch. Using this tree distribution and the BEIS3 emission factors, we have computed the emission factor to be the following:

$$11{,}383 = (2*21{,}000 + 70 + 150 + 26{,}250 + 38)/6$$

where genus-level emission factors for the six tree "categories" were applied evenly to arrive at a rate of 11,383. Thus, three very high isoprene emitters – two species of spruce and poplar – result in a high isoprene emission factor.

The major limitation with this emission factor is that the assumed tree distribution applies everywhere across the modeling domain. As stated earlier, this may not seriously affect calculations for the U.S. (except with the existing SMOKE/BEIS2 code), but tree distributions in the western portion of Canada are likely to be different. Thus, for applications involving British

Columbia, this assumption needs to be revisited. I recommend that we sift through the database and determine to what extent conifer forests are actually producing significant emissions. For certain geographical areas, we may need to revisit the calculation of the emission factor and perhaps generate geographic specific emission factors. Logical geographical separations might be western Canada/northwestern U.S. conifer, southeastern U.S. conifer, northeastern U.S./eastern Canada conifer, southwestern U.S./Mexican conifer. If Chris Geron could provide a preliminary "one-size-fits-all" interim solution, I will gladly incorporate it into the emission factor database.

Deciduous forests = 8,232 gC/km^2-hr

The logic for this USGS category is analogous to the conifer forest emission factor and applies primarily to eastern Canadian forests. Using information given on the Ontario Forestry Association web site, the following tree distributions were assumed: 44% USGS coniferous forest (tree distribution given above) and approximately even proportions of maple, red pine, white pine, white oak, red oak, birch, tulip poplar, sassafras, and hickory.

Shrublands = 2,859 gC/km^2-hr

The basis for this emission factor is very weak, but closely follows that given by Guenther et al. (1995) in a global model of natural VOC emissions for the categories grass/shrub-hot, mediterranean, and semi-desert. In the Guenther et al. article, normalized emission factors for these three categories ranged from 2000 – 3000 gC/km2-hr.

Review of the Guenther et al. paper indicates that the basis for these three emission factors is scanty, with citations only available for work performed by Zimmerman (1979) and Arey et al. (1995). Given the prevalence of shrubland in the western U.S. and its contribution to isoprene emissions, a quick review of available U.S. emission factor data has been attempted with the goal of proposing a revised shrubland emission factor.

Information provided by Arey et al. (1995), Diem and Comric (1998), Guenther et al. (1995, 1999), Knowlton et al. (1999) and Geron (personal communication, 2001) allows us to propose the following revised emission factors for shrubland:

Isoprene = 600 gC/km^2-hr (range: 200 – 3000 gC/km^2-hr)
Monoterpenes = 250 gC/km^2-hr (range: 100 – 2000 gC/km^2-hr)

This revision represents nearly a factor of five decrease in the isoprene emission factor currently assumed in BEIS3v0.9. However, it should be duly noted that because of the absence of emission factor measurements, uncertainties in characterizing shrubland vegetation species

composition and biomass, the range of uncertainty for these assumed emission factors spans an order of magnitude!

In addition, it is recommended that the shrub/grassland category in BEIS3 be recalculated to reflect a mosaic of the USGS shrubland and grassland categories.

Summary—

- In the BEIS3/BELD3 system, the USGS shrubland category is prominent, especially in the western U.S. where it dominates in areal coverage and potential isoprene emissions.

- The emission factors for the USGS vegetation categories are based on very sketchy information.

- The emission factors proposed for the USGS coniferous forest and deciduous categories were based on vegetation distributions from Canada.

- The current BEIS3 system treats most (but not all) coniferous and deciduous forest areas in the U.S. as "open forest". We are not, at the moment, proposing changes to these emission factors.

- Revised shrubland and shrubland/grassland emission factors for isoprene and monoterpenes have been proposed, based on a few citations in the literature and on measurements performed (but not yet published) by NRMRL.

- The technical basis for the BEIS3 emission factors assumed for the USGS categories should continue to be closely evaluated and modified as new information becomes available.

References—

Arey, J., D. Crowley, M. Crowley, M. Resketo, and J. Lester (1995) Hydrocarbon emissions from natural vegetation in California's South Coast Air Basin, *Atmospheric Environment*, **29**, pp. 2977-2988. (One of two U.S. shrubland studies cited by Guenther et al. [1995]. Enclosure measurements reported for ten native plant species. Some plants emitted a significant amount of terpenes, including sequiterpenes. Emissions showed significant plant-to-plant and seasonal variability. Also, indications were strong that herbivory and other "disturbances" elevated the emissions of terpenes and other VOCs. Emissions from oak averaged <25 ug/g/hr, significantly less than NCAR measurements even after considering cuvette vs. enclosure effects. Am assuming that the emission factor measurements were assimilated by Guenther et al. [1995].)

Diem, J. and A. Comric (1998) Development of a biogenic emissions inventory for a southwestern semi-arid city, *Proceedings of the American Meteorological Society Second Urban Environment Symposium*, November 2-6, 1998, Albuquerque, New Mexico, pp. 40-41. (Very short article apparently based on the first author's PH.D. dissertation. Have been unable to locate any peer-reviewed journal material related to actual emission factor development. For the

Tucson region, authors developed a biogenic inventory that relies heavily on Benjamin's taxonomic approach. For the modeling domain, normalized isoprene = 454 ug/m2-hr and normalized monoterpenes = 248 ug/m2-hr. Also refers to a study by Chinkin for Phoenix (which also relies heavily on a taxonomic approach), where isoprene = 325 ug/m2-hr and monoterpenes = 93 ug/m2-hr.)

Geron, C., personal communication, July 3, 2001. (Assisted in measurements made in 1998 and 1999 at the FACE site in western Nevada. Ephedra and psorothamnus were found to be isoprene emitters. Suggests that a range of isoprene emissions for this region may be on the order of 400-1000 ug/m2-hr. As with the Knowlton et al. work, isoprene emissions continued to increase above 40C. Recommends that the range given above may be a good place to start for the shrubland/desert emission factors.)

Guenther, A., et al. (1995) A global model of natural volatile organic compounds, *Journal of Geophysical Research*, **100**, pp. 8873-8892. (Consensus model developed from emission factors available up to the early 1990s. Very limited information available for U.S. shrubland. Only two citations; both are considered here. Isoprene emissions for "shrubland" like categories ranged from 2000-3000 ug/m2-hr, monoterpenes ranged from 300-1000 ug/m2-hr, and other VOCs ranged from 500-1100 ug/m2-hr.)

Guenther, A., et al. (1999) Biogenic hydrocarbon emissions and landcover/climate change in a subtropical savanna, *Physics and Chemistry of the Earth – B: Hydrology, Oceans, and Atmosphere*, **24**, pp. 659-667. (Reports on enclosure and above-canopy measurements taken in a mixed savanna parkland/thorn woodland landscape. It is not exactly shrubland, but it is worth a comparison. Mean VOC emissions = 700 ug/m2-hr.)

Knowlton, J., R. Martin, and C. Popp (1999) Biogenic hydrocarbon, organic acid, and carbonyl emissions from desert shrubs, *Proceedings of the AWMA Annual Meeting*, June 20-23, 1999, St. Louis, Missouri, 14 pp. (This paper reports on enclosure measurements made over two days for seven desert shrubs in southern New Mexico: including shrub live oak, salt brush, juniper, creosote, and mesquite. Only live oak had detectable isoprene, averaging 25 ug/g-hr. All shrubs emitted other VOCs. Dominate monoterpenes were a-pinene and myrcene. Other detected compounds included acetic and formic acid, formaldehyde, and acetaldehyde. Important findings were that isoprene did not decline at temperatures above 40C, indicating a heat tolerance by desert plants. Response of monoterpenes to temperature was not as strong as other non-desert studies have shown. Assuming that desert shrub oak is $1/7^{th}$ of biomass and total leaf biomass = 100 g/m2, then normalized isoprene emissions inferred from this study is ~1000 ug/m2-hr. To my knowledge, this work has not yet been published in a peer-reviewed journal and it is based on only a few measurements.)

Zimmerman, P. (1979) *Testing of hydrocarbon emissions from vegetation, leaf litter and aquatic surfaces, and development of a methodology for compiling biogenic emission inventories*, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. (This report is a pioneering effort, from which later studies have been based. Reports on numerous enclosure measurements made in the Tampa Bay area. Light was poorly characterized, so isoprene factors are difficult to interpret. Because vegetation species do not necessarily represent western

shrublands, no information from this report was used directly in determining a revised emission factor for shrubland. However, Guenther et al. [1995] may have considered information from this report.)

Documentation of BEIS3.12 Software

NORMBEIS3

Normbeis3 reads gridded land use data and emissions factors and produces gridded normalized biogenic emissions. The gridded land use includes 230 different land use types. Emission factors are provided for each land use type. The output gridded domain is the same as the input domain for the land use data. Emission fluxes are normalized to 30 degrees Centigrade and isoprene, methyl-butenol and methanol, are also normalized to a photosynthetic active radiation of 1000 micro moles per square meter-second. Normbeis3 computes normalized emissions for winter months. Normbeis3 outputs winter and summer normalized emissions for these species/compounds (isoprene, methyl-butenol,14 terpenes ,methanol, ethane, propene, ethanol, acetone, hexanal, hexonal, hexenylacetate, formaldehyde, acetaldehyde, butane, ethane, formic acid, acetic acid,3-buten-2-one (MVK), carbon monoxide, other reactive VOCs) as well as winter and summer leaf area indices (LAI). The output units for all species/compounds are in grams of carbon per hour. For NO, there is no distinction between summer and winter. Instead, normalized emissions are computed for three categories: growing season for agricultural grid cells, non-growing season for agricultural grid cells, and non-agricultural grid cells. For non-agricultural areas, the normalized emissions are the same all year long. For agricultural regions, the normalized emissions are based on the grassland factor during the non-growing season and on the appropriate agricultural type during the growing season. Agricultural regions include USGS types of crop-grassland, crop-woodland, dry cropland, and irrigated cropland, and the land use types of alfalfa, barley, corn, cotton, grass, hay, miscellaneous crop, oats, pasture, peanuts, potatoes, rice, rye, sorghum, soybeans, tobacco, and wheat. For the USGS types of crop-grassland, and crop-woodland, the normalized NO factor is multiplied by a factor of a half to account for the fact that these regions contain mixed agricultural and non-agricultural components.

BEIS3

Tmpbeis3 uses version 3.12 of the BEIS3 model. Tmpbeis3 reads the gridded, normalized emissions file B3GRD and meteorological data from MET_FILE1 and optionally MET_FILE2 (these files may be either MET_CRO_2D or MET_CRO_3D). Note that Tmpbeis3 uses temperature, surface pressure, convective and nonconvective rainfall data that must be in MET_FILE1, and radiation/cloud data that may be in MET_FILE1 or MET_FILE2. If the Pleim-Xue Land Surface model (PX version) of MM5 was used, then Tmpbeis3 can use the Soil temperature, soil type, and soil moisture fields in MET_FILE1 in the calculation of NO soil emissions. However, if the PX version is not used, Tmpbeis3 will still compute NO soil emissions using the rainfall information.

Within Tmpbeis3, speciation profiles are used to speciate biogenic pollutants for appropriate chemical mechanisms. The speciation profiles used in SMOKE-BEIS3 are different than those used in SMOKE-BEIS2 modeling, and speciation profiles for the CB-IV, RADM2, and SAPRC99 mechanisms are available for BEIS3 modeling. The normalized emissions and meteorological data are used to produce gridded, speciated, hourly biogenic emissions. Additionally, an optional seasonal switch file, BIOSEASON, can be used to determine when and where to use summer or winter normalized emissions data on a daily basis.

In Tmpbeis312, a leaf shading algorithm has been added for estimating methanol emissions from non-forested areas.

The Soil NO algorithm has been completely revised in version 3.12. Based on the work of Yienger and Levy (1995), the soil NO emission flux is based on the normalized factor computed in normbeis312, a temperature adjustment factor, and precipitation adjustment factor, a fertilizer adjustment factor, and a canopy adjustment factor. For the PX Version, the Temperature adjustment factor accounts for wet and dry soils and the precipitation adjustment factor accounts for saturated soils. For the non-PX version, the basic algorithm remains with a temperature adjustment factor (dry soil) and no adjustment for saturated soils.

J.J. Yienger and H. Levy II, Journal of Geophysical Research, vol 100,11447-11464,1995

New Input Environment Variables:
PX_VERSION (Y./N) Y indicate the PX version of the met model was run and MET_FILE1 contains soil temperature, soil moisture, and soil type fields. N indicates these fields are not present or not used in the NO calculation. Default: N

SOILT_VAR: name of soil temperature variable if PX_VERSION = Y: Default SOIT1
ISLYTP_VAR: name of soil type variable if PX_VERSION=Y: Default SLTYP
SOILM_VAR: name of soil moisture variable if PX_VERSION=Y Default: SOIM1

INTIAL_RUN: set to Y for the first day of a sequence of runs. Set to N for subsequent days. If set to N, TmpBeis3 will look for a SOILINP file to restart the soil NO calculation. When set to Y, the Soil NO calculation will not have a rainfall dependence.
Default: N

NEW INPUT/OUTPUT files:
SOILINP: contains rainfall data for the past 24 hrs (from a previous run of Tmpbeis3) This file must exist if INITIAL_RUN is set to N

SOILOUT: created at the end of Ttmpbeis3 run for restarting the soil NO algorithm. The user must include in the script some way of renaming or moving the SOILOUT file to a SOILINP file at the end of each run.

Changes from previous versions:
1. A leaf shading algorithm is added for estimating methanol emissions from non-forested areas
2. Recent changes to the emission factor file:
   The emission factors for spruce and fir had been revised. It is Geron's opinion that the monoterpene emission factor for these tree types should reflect a moderate instead of a high monoterpene emission factor. The emission factor has been lowered from ~2.6 ugC/g-hr to ~1.5 ugC/g-hr. In some of the high-emitting counties in the western U.S. (such as Lassen County, California which is near the Lassen Volcanic Park IMPROVE site), this change should lower monoterpene emissions by ~20%.

Appendix F
Listing of the 2001 NEI facilities identified as IPM sources

Approach for splitting of 2001 Point Sources into IPM vs non-IPM for Projection Purposes.

The 2001 National Emission Inventory (NEI) point source data contain emissions estimates for sources that are both electric generating units (EGUs) and Non-EGUs, along with their geographic locations and stack parameters. The Integrated Planning Model (IPM) is used to predict the future-year emissions for the EGU sources; therefore, it is necessary to identify and remove all sources that will be replaced with future-year IPM results. Matching the facilities also allows maintaining consistent stack parameters between the base 2001 cases and all future-year cases. The approach also identifies those non-EGU sources that will be projected to the future years using approaches other than IPM. Identification of the IPM-predicted sources from the base year prevents double-counting of emissions sources that would otherwise be projected as a non-EGU source.

We used the National Electric Energy System (NEEDS) Database (http://www.epa.gov/airmarkets/epa-ipm/) as the universe of electric generating units to be identified as EGUs in the 2001 NEI point source data. IPM uses the NEEDS database for information about EGU facilities; however, the version of NEEDS we used (2003) was one version older than the 2004 version used in IPM Version 2.1.9 (the IPM version used in the final CAIR air quality modeling runs). This occurred because the identification of IPM sources in the 2001 NEI was completed before the NEEDS 2004 database was available. Nevertheless, we have confirmed that all significant EGUs existing as of 2001 are represented in the NEEDS 2003.

During development of the 2001 NEI, the developers had included ORIS Plant IDs, and in many instances Boiler IDs. We compared the NEEDS 2003 database to the 2001 NEI point-source data using the ORIS Plant IDs, which appears in both datasets. We also revised some of the ORIS Plant IDs in the 2001 NEI based on comparison of other fields such as the plants' state and county FIPS codes and names. Lastly, we performed additional matching for all large facilities in the NEEDS 2003 dataset that had not already been matched to the 2001 NEI.

Many of these additional matching steps were for NEEDS records where the entire facility (and therefore the entire facility's NEI emissions) were not all due to the generation of electricity for sale to the electrical grid (e.g., industrial sites with cogeneration emission units). To the extent practicable, individual emission units within such industrial sites were identified with ORIS Plant IDs and mapped to the NEEDS dataset by unit. We identified seventy of these cases. In some of these cases, we identified a NEEDS cogeneration sites in the 2001 NEI, but it was not possible to identify a specific emission record which should be matched. These cases were confined to those where the NEEDS-indicated emitting capacity was a minor fraction of the industrial source's NEI emissions; therefore, not matching them did not lead to significant double-counting.

The table below lists the 2001 NEI facilities which we identified as IPM sources (either all or some units at the facility). These facilities were replaced by IPM-predicted emissions in the

future year cases and where not projected as part of the non-EGU (non-IPM) sector. The NEI IDs and ORIS Plant IDs are included, along with an indicator of whether only a portion of the complete facility emission records were removed. The table includes emission totals (SO2, NOx, and PM2.5) of both the removed portion and the retained (Non-IPM) portion.

State ID	County ID	Plant ID	ORIS ID	PLANT	Partial Site	# EGU recs	EGU NOX	EGU SO2	EGU PM25	# Non-EGU recs	Non-EGU NOX	Non-EGU SO2	Non-EGU PM25
1	33	0010	47	TVA COLBERT		14	15,747	63,067	3,577				
1	39	0001	533	ALABAMA ELECTRIC COOPERATIVE MCWILLIAMS		1	29	1	9				
1	55	0002	7	ALABAMA POWER COMPANY GADSDEN		4	2,126	8,498	479				
1	63	0001	10	ALABAMA POWER COMPANY GREENE COUNTY		12	11,712	43,017	2,296				
1	69	0021	54985	CRESTWOOD CORPORATION		7	20	5	0				
1	71	0008	50	TVA WIDOWS CREEK		9	26,242	42,788	2,513				
1	73	010730011	6002	ALABAMA POWER COMPANY (MILLER POWER PLAN		6	29,997	47,619	1,806				
1	81	0030	55138	SOUTH EASTERN ELECTRIC DEVELOPMENT CORP		4	64	1	2				
1	83	0003	46	TVA BROWN'S FERRY NUCLEAR PLANT		3	17	6	0				
1	97	1001	3	ALABAMA POWER COMPANY BARRY		6	22,809	65,892	2,905				
1	117	0005	26	ALABAMA POWER COMPANY EC GASTON		6	29,394	120,342	6,107				
1	127	0001	8	ALABAMA POWER COMPANY GORGAS		6	20,219	58,289	2,878				
1	129	0001	56	ALABAMA ELECTRIC COOPERATIVE LOWMAN		4	9,779	16,726	711				
1	129	0012	7063	ALABAMA ELECTRIC COOPERATIVE MACINTOSH		3	121	1	1				
1	129	0018	7697	ALABAMA POWER COMPANY WASHINGTON COUNTY		4	267	3	32				
4	1	0400100059	6177	SALT RIVER PROJECT		9	14,230	19,048	1,269				
4	1	0400100060	8223	TUCSON ELECTRIC POWER CO-SPRINGERVILLE		43	13,190	20,125	853				
4	3	0400300037	160	AZ ELECTRIC POWER COOPERATIVE INC		19	7,288	5,388	739				
4	5	0004	4941	NAVAJO		6	34,020	3,980	2,826				
4	13	3313	117	APS WEST PHX POWER PLANT		29	1,510	5	50				
4	13	3315	8068	SANTAN GENERATING PLANT		16	1,433	4	136				
4	13	3316	141	SRP AGUA FRIA		25	4,824	47	87				
4	13	3317	147	SRP KYRENE STEAM PLANT		13	1,896	14	25				
4	13	52382	116	OCOTILLO POWER PLANT		21	764	7	39				
4	13	98	6008	PALO VERDE NUCLEAR GENERATING STATION		35	52	1	34				
4	17	0001	113	CHOLLA		8	13,290	21,049	1,322				
4	19	0082	126	IRVINGTON		6	2,910	3,177	125				
4	19	0425	124	TUCSON ELECTRIC POWER COMPANY (TEP)		5	30	126	77				
4	21	U118	118	SAGUARO		2	717	486	54				
4	27	0331	7478	ARIZONA PUBLIC SERVICE COMPANY (APS)		16	113	6	15				
4	27	0402700141	54694	YUMA COGENERATION ASSOCIATES		2	188	7	13				
4	27	U120	120	YUCCA		1	216	2	15				
5	7	0107	6138	FLINT CREEK		2	5,941	14,531	377				
5	47	0012	201	THOMAS FITZHUGH		2	218	529	20				
5	59	U170	170	LAKE CATHERINE		4	2,061	5	63				
5	63	0042	6641	INDEPENDENCE		4	18,560	23,015	1,105				

State ID	County ID	Plant ID	ORIS ID	PLANT	Partial Site	# EGU recs	EGU NOX	EGU SO2	EGU PM25	# Non-EGU recs	Non-EGU NOX	Non-EGU SO2	Non-EGU PM25
5	69	0110	6009	WHITE BLUFF		4	19,160	36,716	1,008				
5	73	U169	169	HARVEY COUCH		2	161	1	6				
5	93	0113	8109	ENTERGY-BLYTHEVILLE TURBINE FACILITY		3	67	49	1				
5	103	0055	203	MCCLELLAN		2	545	2,370	107				
5	107	0017	173	ROBERT E RITCHIE		2	234	1	7				
5	119	U167	167	CECIL LYNCH		2	109	0	3				
5	123	0168	168	HAMILTON MOSES		2	78	0	3				
5	147	0024	202	CARL BAILEY		2	344	1,560	79				
6	5	03040120	50950	WHEELABRATOR MARTELL INC.		4	228	4	118				
6	5	0304013	10744	JACKSON VALLEY ENERGY PARTNERS		18	74	82	44				
6	7	04160438	54469	PACIFIC OROVILLE POWER, INC.		3	74	0	6				
6	7	04160456	54477	OROVILLE COGENERATION LTD		15	5	0	0				
6	11	06160655	50293	WADHAM ENERGY LTD PARTNERSHIP		10	157	10	9				
6	13	07130312	271	SOUTHERN ENERGY CALIFORNIA, PI		16	4,235	32	399				
6	13	07130318	228	SOUTHERN ENERGY CALIFORNIA, CO		9	1,231	10	123				
6	13	0713031820	10342	MARTINEZ COGEN LIMITED PARTNER		4	171	5	20				
6	13	0713033243	10367	GWF POWER SYSTEMS,LP (SITE 1)		7	67	98	6				
6	13	0713033244	10368	GWF POWER SYSTEMS,LP (SITE 2)		10	50	55	3				
6	13	0713033245	10369	GWF POWER SYSTEMS,LP (SITE 3)		6	64	94	6				
6	13	0713033246	10371	GWF POWER SYSTEMS,LP (SITE 5)		9	46	54	5				
6	13	0713033981	10370	GWF POWER SYSTEMS,LP (SITE 4)		6	30	24	5				
6	13	0713038664	55084	CROCKETT COGENERATION, A CAL L		5	13	1	20				
6	19	10143014	10156	FRESNO COGENERATION PARTNERS		2	41	3	1				
6	19	1014301820	10767	RIO BRAVO FRESNO		1	44	16	3				
6	19	101430354	50131	COALINGA COGENERATION CO		1	27	1	0				
6	19	101430722	10405	KINGSBURG COGEN FACILITY		3	17	0	3				
6	23	12062059	246	P G & E-HUMBOLDT BAY PLANT		6	2,185	1,462	96				
6	23	12062096	10052	FAIRHAVEN POWER COMPANY		2	142	0	47				
6	23	12062097	10764	ULTRAPOWER 3		1	63	0	8				
6	25	13151115	389	IMPERIAL IRRIGATION DISTRICT		3	243	2	26				
6	25	13151152	50762	ORMESA 1H		1	0	0	0				
6	25	13151165	50766	ORMESA 1		1	0	0	0				
6	25	13151166	54724	ORMESA 2		1	0	0	0				
6	25	13151167	50764	ORMESA 1E		1	0	0	0				
6	29	150512593	10850	MOJAVE COGENERATION COMPANY		1	45	1	12				
6	29	1514301118	50495	HIGH SIERRA LIMITED		2	22	0	1				

State ID	County ID	Plant ID	ORIS ID	PLANT	Partial Site	# EGU recs	EGU NOX	EGU SO2	EGU PM25	# Non-EGU recs	Non-EGU NOX	Non-EGU SO2	Non-EGU PM25
6	29	1514301120	50494	KERN FRONT LIMITED		2	21	0	4				
6	29	1514301135	52169	AERA ENERGY LLC	yes	6	882	10	143	24	116	41	22
6	29	1514301250	10650	BADGER CREEK LIMITED		1	14	0	1				
6	29	1514301548	50752	AERA ENERGY LLC	yes	23	266	0	3	5	5	0	2
6	29	151430172	54768	LIVE OAK LIMITED		1	14	0	0				
6	29	1514301751	10768	RIO BRAVO JASMIN		2	129	52	0				
6	29	1514302049	10649	BEAR MOUNTAIN LIMITED		1	20	0	8				
6	29	151430511	50134	SYCAMORE COGENERATION CO		4	435	14	2				
6	29	151430723	50003	CHALK CLIFF LIMITED		1	17	0	1				
6	29	15143073	54371	OILDALE ENERGY LLC		2	92	2	73				
6	29	15143075	10840	DELANO ENERGY COMPANY INC		5	155	19	18				
6	29	15143088	10496	KERN RIVER COGENERATION CO		5	608	6	45				
6	29	151430883	10769	RIO BRAVO POSO		2	136	46	1				
6	29	15143091	54626	MT POSO COGENERATION COMPANY		1	61	21	0				
6	31	161430603	10373	HANFORD L P		3	34	34	0				
6	33	170213290	50066	CALISTOGA GEOTHERMAL PARTNERS		1	0	0	1				
6	35	18081415	10777	H.L. POWER COMPANY		1	155	1	34				
6	37	191026106325	50541	HARBOR COGENERATION CO		4	118	0	7				
6	37	19102614052	356	SO CAL EDISON CO		16	428	19	240				
6	37	19102614502	7436	VERNON CITY, LIGHT & POWER DEP		9	7	0	1				
6	37	19102618763	330	SO CAL EDISON CO		9	290	6	67				
6	37	19102625638	6013	BURBANK CITY, PUB SERV DEPT		10	105	1	7				
6	37	19102642676	10677	AES PLACERITA INC		13	78	0	0				
6	37	1910264477	6704	SO CAL EDISON CO		13	521	4	113				
6	37	19102650813	50791	O'BRIEN CALIF COGEN LTD		2	31	1	7				
6	37	19102651620	50876	WHEELABRATOR NORWALK ENERGY CO		8	101	1	13				
6	37	19102675373	10478	FPB COGEN PARTNERS, L.P.		3	274	1	18				
6	37	191026800074	400	LA CITY, DWP HAYNES GENERATING		14	368	11	128				
6	37	191026800075	404	LA CITY, DWP SCATTERGOOD GENER		12	431	13	73				
6	37	191026800125	315	SO CAL EDISON CO		20	1,036	27	336				
6	37	191026800168	420	PASADENA CITY, DWP (EIS USE)		14	46	1	9				
6	37	191026800170	399	LA CITY, DWP HARBOR GENERATING		12	136	4	0				
6	37	191026800193	408	LA CITY, DWP VALLEY GENERATING		17	53	1	7				
6	37	191026800327	377	GLENDALE CITY, PUBLIC SERVICE		28	166	5	15				
6	37	19102694079	10169	CARSON COGENERATION CO, CALIF		8	45	1	2				
6	51	2601091316	10480	MAMMOTH-PACIFIC		2	0	0	0				

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6	53	27071525	260	DUKE ENERGY MOSS LANDING LLC		2	1,936	23	297				
6	53	2707152501	50864	SARGENT CANYON COGENERATION C		1	21	0	0				
6	53	2707152502	50865	SALINAS RIVER COGENERATION COM		1	31	0	0				
6	53	27071564	10294	CALPINE KING CITY COGEN, LLC		4	79	1	22				
6	59	301026800126	335	SO CAL EDISON CO		8	432	4	56				
6	63	32042235	6524	SIERRA PACIFIC POWER		1	3	0	0				
6	67	341624193	7527	CARSON ENERGY/SMUD		4	29	2	11				
6	67	341624194	7552	SACRAMENTO POWER AUTHORITY		2	42	3	7				
6	67	341624195	7551	SACRAMENTO COGENERATION AUTHOY		3	42	2	25				
6	67	341624196	55766	KIEFER LANDFILL		3	17	4	4				
6	71	36051850001051	10002	ACE COGENERATION		6	319	359	15				
6	71	3605186900004	329	RELIANT ENERGY		11	1,356	9	104				
6	71	360518900002	10684	IMC CHEMICALS, INC.	yes	1	905	88	8	117	1,149	73	278
6	71	3610261026	358	SO CAL EDISON CO		2	16	0	2				
6	71	36102615872	334	SO CAL EDISON CO		4	28	0	1				
6	71	36102642577	10427	ONTARIO COGENERATION INC		4	168	0	8				
6	71	36102647781	50850	OLS ENERGY-CHINO C/O GPU INT'L		4	32	1	14				
6	71	361026800224	331	SO CAL EDISON CO (EIS USE)		11	603	6	76				
6	73	371227546	300	CABRILLO POWER II LLC DIVISION		2	3	1	1				
6	73	3712275924	10386	LANDFILL GEN. - SAN MARCOS L.F		1	37	1	5				
6	73	3712276257	10387	LANDFILL GEN. - SYCAMORE L.F.		1	26	1	5				
6	73	37122772	310	DUKE ENERGY-SOUTH BAY POWER PL		4	271	84	86				
6	73	37122773	302	CABRILLO POWER I LLC ENCINA PO		7	1,143	120	183				
6	73	3712278469	54749	GOAL LINE LP - ESCONDIDO		2	28	1	66				
6	75	38130324	247	PG & E CO, HUNTERS POINT POWER		13	373	13	34				
6	75	38130326	273	SOUTHERN ENERGY CALIFORNIA, PO		10	529	160	55				
6	77	3914301027	50062	SAN JOAQUIN COGEN		1	18	1	10				
6	77	391430802	10640	STOCKTON COGEN COMPANY		7	113	233	2				
6	79	40113174	6099	PG&E DIABLO CANYON PP		3	28	0	1				
6	79	4011318	259	DUKE ENERGY MORRO BAY		6	858	13	157				
6	83	4211251021	10733	SANTA MARIA COGEN, INC.		1	8	0	2				
6	83	4211252381	8076	ELLWOOD GENERATING STATION		2	21	0	1				
6	85	43130311180	10034	CALPINE GILROY COGEN, L P		3	324	2	13				
6	85	4313031629	10168	CARDINAL COGEN A JOINT VENTURE		6	112	1	35				
6	85	4313031771	7231	CITY OF SANTA CLARA		3	26	0	1				
6	85	431303732	54561	JEFFERSON SMURFIT CORPORATION	yes	2	43	0	13	6	32	0	1

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6	89	45162842	54219	BURNEY MOUNTAIN POWER		1	37	5	14				
6	89	45162843	50881	WHEELABRATOR ENERGY SYSTEM		4	880	9	77				
6	91	46042212	234	P.G. & E		1	0	0	0				
6	97	49062110006009	286	PG&E UNIT 10		1	0	0	5				
6	97	49062110006017	7368	NCPA UNIT 1		1	0	0	1				
6	97	49062110006019	7369	NCPA UNIT 3		1	0	0	1				
6	97	49062110006024	52158	AIDLIN GEOTHERMAL PROJECT		2	2	2	13				
6	99	5014302045	50294	MODESTO ENERGY LIMITED PARTNER		2	62	31	3				
6	99	5014302052	151	MODESTO IRRIGATION DISTRICT		3	19	0	1				
6	99	5014302246	7315	TURLOCK IRRIGATION DISTRICT		2	8	0	0				
6	99	5014303233	7266	MODESTO IRRIGATION DISTRICT		1	6	0	5				
6	101	51160813003	10350	CALPINE GREENLEAF I		2	204	0	20				
6	101	51160813004	10349	CALPINE GREENLEAF II		1	29	1	12				
6	111	5611341267	50851	O.L.S. ENERGY		5	26	1	7				
6	111	56113413	345	MANDALAY POWER GENERATION		3	93	6	75				
6	111	56113465	350	SCE-ORMOND BEACH GEN STATION		4	234	18	225				
6	113	571635257	10836	WOODLAND BIOMASS POWER LTD		9	79	39	97				
6	113	571635259	54567	MM YOLO POWER LLC		6	34	5	2				
8	1	0001	469	PUBLIC SERVICE CO CHEROKEE PLT		11	10,208	17,994	602				
8	3	0007	464	PUBLIC SERVICE CO ALAMOSA PLT		2	60	2	6				
8	11	0005	507	LAS ANIMAS MUNI P&L		2	2	0	0				
8	13	0001	477	PUBLIC SERVICE CO - VALMONT		7	2,062	5,050	120				
8	13	0553	54372	UNIV OF COLO - BOULDER BUFFALO POWER		9	124	3	15				
8	31	0007	478	PUBLIC SERVICE CO ZUNI PLT		3	183	3	6				
8	31	0008	465	PUBLIC SERVICE CO - ARAPAHOE		9	5,059	4,652	172				
8	41	0003	493	COLORADO SPRINGS UTILITIES-BIRDSALL PLT		5	248	5	13				
8	41	0004	492	COLORADO SPRINGS UTILITIES-DRAKE PLT		9	4,567	8,800	424				
8	41	0030	8219	COLORADO SPRINGS UTILITIES - NIXON PLT		8	2,689	4,114	283				
8	43	0003	462	WEST PLAINS ENERGY - W.N. CLARK STATION		7	1,474	1,419	58				
8	63	0003	6619	TRI STATE GENERATION BURLINGTON		2	97	30	9				
8	69	0053	6761	PLATTE RIVER POWER AUTHORITY - RAWHIDE		21	4,298	954	293				
8	71	0005	511	TRINIDAD MUNI P&L		2	0	0	0				
8	77	0002	468	PUBLIC SERVICE CO CAMEO PLT		6	1,545	3,039	93				
8	81	0018	6021	TRI STATE GENERATION CRAIG		16	18,924	9,670	1,445				
8	85	0001	527	TRI STATE GENERATION NUCLA		11	1,176	1,421	150				
8	87	0011	6248	PUBLIC SERVICE CO PAWNEE PLT		8	5,846	17,031	360				

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8	87	0027	10683	BRUSH COGENERATION PARTNERS/COLO POWER		9	386	10	136				
8	89	0003	506	LA JUNTA MUNI UTILITIES		9	6	0	0				
8	89	0004	6516	WEST PLAINS ENERGY - ROCKY FORD STATION		1	36	2	1				
8	99	0006	508	LAMAR UTILITIES BOARD		1	74	1	3				
8	99	0063	502	TOWN OF HOLLY		1	0	0	0				
8	101	0003	470	PUBLIC SERVICE CO COMANCHE PLT		7	6,843	15,910	364				
8	101	0008	460	WEST PLAINS ENERGY - PUEBLO STATION		2	121	3	4				
8	107	0001	525	PUBLIC SERVICE CO HAYDEN PLT		9	8,182	2,709	520				
8	123	0023	6112	PUBLIC SERVICE CO FORT SAINT VRAIN PLT		4	412	7	75				
8	123	0126	50676	THERMO POWER & ELEC INC		5	386	2	47				
8	123	0250	50708	THERMO COGEN PARTNERSHIP FT LUPTON		4	600	11	120				
8	123	0412	50709	THERMO GREELEY INC		1	102	1	8				
9	1	0195	568	WISVEST-CONNECTICUT, LLC		5	3,388	10,864	355				
9	1	0915	50883	BRIDGEPORT RESCO CO LP		3	1,689	275	132				
9	1	1012	55042	BRIDGEPORT ENERGY LLC		2	142	5	54				
9	1	4214	548	NRG NORWALK HARBOR OPERATIONS		6	1,071	4,393	52				
9	1	4491	6598	SOUTH NORWALK ELECTRIC WORKS		6	24	3	3				
9	3	3059	54945	C R R A / MID-CONNECTICUT		3	910	221	208				
9	3	3666	50498	CAPITOL DISTRICT ENERGY CENTER		3	2	3	0				
9	3	8601	10567	DEXTER CORP /COGENERATION DIV		3	2	2	0				
9	7	0874	562	NRG MIDDLETOWN OPERATIONS, INC		12	2,922	3,539	173				
9	9	2514	544	DEVON		18	1,034	3,000	69				
9	9	3851	6156	WISVEST-CONNECTICUT, LLC		5	1,820	9,545	101				
9	11	1314	54758	RILEY ENERGY SYS-LISBON CORP	yes	2	323	68	18	1	0	0	56
9	11	1505	546	NRG MONTVILLE OPERATIONS, INC		9	895	3,002	145				
9	11	1544	10675	A E S THAMES INC		6	369	2,788	775				
9	11	2912	10646	AMERICAN REF FUEL CO OF SE CT	yes	2	507	87	80	1	0	0	0
9	15	2305	50736	EXETER ENERGY L.P.		4	162	353	4				
10	1	1000100002	599	CITY OF DOVER - MCKEE RUN GENERATING STA		8	468	842	20				
10	1	1000100076	7318	CITY OF DOVER, VAN SANT GENERATING STA.		2	6	14	3				
10	3	1000300005	592	CONECTIV DELMARVA GENERATION-DEL CITY		1	6	1	0				
10	3	1000300006	597	CONECTIV DELMARVA GENERATION-WEST_SUBST		1	9	2	1				
10	3	1000300007	593	CONECTIV DELMARVA GENERATION-EDGE MOOR		16	4,516	11,174	432				
10	3	1000300046	596	CONECTIV DELMARVA GENERATION-MADISON ST.		1	6	1	0				
10	3	1000300317	591	CONECTIV DELMARVA GENERATION-CHRISTIANA		2	35	8	2				
10	3	1000300388	7153	CONECTIV DELMARVA GENERATION-HAY ROAD		6	382	5	102				

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10	5	1000500001	594	INDIAN RIVER POWER LLC		10	5,610	22,974	1,933				
10	5	1000500029	600	CITY OF LEWES POWER PLANT		2	3	0	0				
10	5	1000500108	601	CITY OF SEAFORD-ELECTRIC POWER PLANT		5	59	4	4				
11	1	0001	603	BENNING		4	235	754	11				
11	1	0040	604	PEPCO-BUZZARD PT GEN STN		2	105	169	10				
12	1	0010001	7345	FLORIDA POWER CORPORATION		5	135	3	13				
12	1	0010005	664	GAINESVILLE REGIONAL UTILITIES		4	171	203	8				
12	1	0010006	663	CITY OF GAINESVILLE, GRU		9	4,025	8,161	363				
12	5	0050014	643	GULF POWER COMPANY		6	5,603	16,307	885				
12	9	0090006	609	FLORIDA POWER & LIGHT (PCC)		4	12,324	13,048	267				
12	9	0090008	683	RELIANT ENERGY / ORLANDO UTLITIES		9	306	4	120				
12	11	0110036	617	FLORIDA POWER & LIGHT (PPE)		10	10,480	22,221	434				
12	11	0110037	613	FLORIDA POWER & LIGHT (PFL)		13	3,449	22	181				
12	11	0112119	50887	WHEELABRATOR SOUTH BROWARD, INC	yes	3	1,531	48	3	2	0	0	0
12	11	0112120	54033	WHEELABRATOR NORTH BROWARD, INC.	yes	3	1,477	8	12	2	0	0	0
12	17	0170004	628	FLORIDA POWER CORPORATION		18	34,716	94,852	4,647				
12	31	0310010	10008	BAPTIST MEDICAL CENTER		13	225	29	23				
12	31	0310045	207	JEA		14	26,680	22,732	2,219				
12	31	0310045A	667	JEA B		6	5,531	22,488	857				
12	31	0310046	668	JEA		5	1,359	2,207	114				
12	31	0310047	666	JEA		6	1,852	2,030	54				
12	31	0310337	10672	CEDAR BAY COGENERATION INC.		24	1,816	2,006	136				
12	33	0330040	10416	SOLUTIA INC.	yes	5	1,047	2	35	49	1,585	132	297
12	33	0330045	641	GULF POWER COMPANY		16	12,352	45,235	3,046				
12	49	0490015	50949	HARDEE POWER PARTNERS,LTD		6	757	9	31				
12	53	0530021	10333	FLORIDA CRUSHED STONE CO., INC.	yes	2	3,187	2,751	3	26	570	3	7
12	57	0570038	647	TAMPA ELECTRIC COMPANY		8	191	551	11				
12	57	0570039	645	TAMPA ELECTRIC COMPANY		26	30,126	13,671	1,711				
12	57	0570040	646	TAMPA ELECTRIC COMPANY		23	25,349	55,050	5,459				
12	57	0570261	50858	HILLSBOROUGH CTY. RESOURCE RECOVERY FAC.	yes	3	815	420	15	3	0	0	2
12	61	0610029	693	CITY OF VERO BEACH		8	113	3	7				
12	63	0630014	642	GULF POWER COMPANY		5	1,096	2,657	228				
12	69	0694801	54423	LAKE INVESTMENT, L.P.		1	162	5	11				
12	71	0710002	612	FLORIDA POWER & LIGHT (PFM)		5	8,582	18,673	333				
12	71	0710119	52010	LEE COUNTY DEPT. OF SOLID WASTE MGT.	yes	4	600	90	3	1	0	0	0
12	73	0730003	688	CITY OF TALLAHASSEE		8	1,043	368	57				

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12	77	0770009	50774	TIMBER ENERGY RESOURCES		1	105	5	1				
12	81	0810010	6042	FLORIDA POWER & LIGHT (PMT)		8	9,143	34,595	601				
12	85	0850001	6043	FLORIDA POWER & LIGHT (PMR)		10	7,621	17,608	562				
12	85	0850102	50976	INDIANTOWN COGENERATION, L.P.		7	2,011	1,427	76				
12	86	0250001	610	FLORIDA POWER & LIGHT (PCU)		2	127	1	9				
12	86	0250003	621	FLORIDA POWER & LIGHT (PTF)		10	6,928	9,974	215				
12	86	0250013	665	HOMESTEAD CITY UTILITIES		14	927	26	0				
12	95	0950111	7294	WALT DISNEY WORLD COMPANY	yes	6	71	0	2	16	251	1	26
12	95	0950137	564	ORLANDO UTILITIES COMMISSION		4	10,286	9,929	942				
12	95	0950203	54466	ORLANDO COGEN LIMITED, L.P.		2	240	2	25				
12	97	0970001	672	KISSIMMEE UTILITY AUTHORITY		4	49	1	11				
12	97	0970002	685	ST CLOUD CITY POWER PLANT		12	8	1	0				
12	97	0970014	8049	FLORIDA POWER CORPORATION		21	1,403	424	85				
12	97	0970043	7238	KISSIMMEE UTILITY AUTHORITY		4	142	19	39				
12	99	0990042	619	FLORIDA POWER & LIGHT (PRV)		6	6,785	21,973	298				
12	99	0990045	673	CITY OF LAKE WORTH UTILITIES		9	614	53	16				
12	99	0990332	54627	OKEELANTA POWER L.P.		9	717	50	128				
12	101	1010017	8048	FLORIDA POWER CORP.		8	8,578	29,991	1,279				
12	101	1010056	50666	PASCO COUNTY	yes	6	959	15	17	1	0	0	0
12	103	1030011	634	FLORIDA POWER CORPORATION		17	4,731	25,889	732				
12	103	1030013	627	FLORIDA POWER CORPORATION		6	437	278	29				
12	103	1030117	50884	PINELLAS CO. BOARD OF CO. COMMISSIONERS	yes	7	1,314	305	54	1	0	0	0
12	105	1050003	675	LAKELAND ELECTRIC		11	529	531	57				
12	105	1050004	676	LAKELAND ELECTRIC		28	9,301	12,706	584				
12	105	1050216	54529	RIDGE GENERATING STATION, L.P.		1	339	254	16				
12	105	1050221	54658	CALPINE/AUBURNDALE POWER PARTNERS, LP		1	211	6	28				
12	105	1050223	7699	FLORIDA POWER CORPORATION		1	187	3	35				
12	105	1050231	54365	ORANGE COGENERATION LIMITED PARTNERSHIP		3	122	2	2				
12	105	1050233	7242	TAMPA ELECTRIC COMPANY		3	504	819	2,410				
12	105	1050234	7302	FLORIDA POWER CORPORATION		5	336	5	59				
12	107	1070014	6246	FLORIDA POWER & LIGHT (PPN)		13	3,325	29	68				
12	107	1070025	136	SEMINOLE ELECTRIC COOPERATIVE, INC.		8	25,038	29,848	1,412				
12	111	1110003	658	FT PIERCE UTILITIES AUTHORITY		8	176	1	24				
12	121	1210003	638	FLORIDA POWER CORPORATION		15	1,003	4,806	167				
12	127	1270009	620	FLORIDA POWER & LIGHT (PSN)		7	11,460	22,544	423				
12	127	1270020	629	FLORIDA POWER CORPORATION		4	321	176	9				

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12	127	1270028	6046	FLORIDA POWER CORPORATION		17	1,408	518	73				
12	129	1290001	689	TALLAHASSEE CITY PURDOM GENERATING STA.		10	282	26	5				
13	15	00011	703	BOWEN STEAM ELECTRIC GENERATING PLANT		12	37,407	154,108	7,758				
13	51	0006	733	KRAFT		8	3,157	6,893	474				
13	51	0018	734	RIVERSIDE		4	12	0	0				
13	67	00004	710	MCDONOUGH/ATKINSON STEAM ELECTRIC GENERA		17	4,463	23,595	1,175				
13	77	00001	728	YATES STEAM LELECTRIC GENERATING PLANT		23	9,317	44,496	2,394				
13	95	0002	727	MITCHELL		6	1,763	4,277	243				
13	103	0003	6124	MCINTOSH		2	4,463	7,468	609				
13	115	00003	708	HAMMOND STEAM ELECTRIC GENERATING PLANT		8	14,186	27,016	1,303				
13	127	0004	715	MCMANUS		4	200	1,750	26				
13	135	00185	54392	B.J. SANITARY LANDFILL AND RECYCLING CEN		2	36	0	0				
13	147	0001	54538	HARTWELL ENERGY FACILITY		2	139	3	20				
13	149	00001	6052	WANSLEY STEAM ELECTRIC GENERATION PLANT		7	21,043	75,695	3,823				
13	207	00008	6257	SCHERER STEAM ELECTRIC GENERATING PLANT		8	31,274	75,423	2,938				
13	237	0008	709	HARLLEE BRANCH		8	33,439	65,517	3,356				
13	321	0004	753	CRISP		2	1	0	0				
16	55	05500040	7456	Avista Corporation		3	50	1	12				
17	11	011085AAA	957	PRINCETON MUNCIPAL ELECTRIC UTILITY		11	10	0	0				
17	19	019065AAN	958	RANTOUL ELECTRIC GENERATING PLANT		8	120	9	0				
17	21	021814AAB	876	KINCAID GENERATION, L.L.C.		10	22,650	17,805	473				
17	27	027025AAB	934	BREESE MUNICIPAL POWER PLANT		6	48	8	0				
17	31	031270AAA	52045	ROBBINS RESOURCE RECOVERY PARTNER, L.P.		2	466	5	10				
17	31	031333AAD	972	WINNETKA ELECTRIC PLANT		7	27	1	0				
17	31	031600AIN	867	MIDWEST GENERATION L.L.C.		15	2,450	5,668	249				
17	31	031600AMI	886	MIDWEST GENERATION L.L.C.		8	2,483	3,537	119				
17	31	031801AAE	55174	NEW HEIGHTS RECOVERY AND POWER, LLC		2	0	0	3				
17	31	031812AAQ	50575	LAKE LANDFILL	yes	1	0	0	0	3	0	0	0
17	33	033801AAA	863	AMEREN CIPS		4	1,804	15,102	818				
17	43	043448AAB	54836	BROWNING-FERRIS GAS SERVICE-MALLARD LAKE	yes	1	15	0	12	2	0	0	0
17	57	057801AAA	6016	CENTRAL ILLINOIS LIGHT CO.-DUCK CREEK		16	6,616	11,089	383				
17	63	063800AAJ	55216	COGEN AMERICA (MORRIS), LLC		12	1,199	52	115				
17	63	063806AAF	6025	MIDWEST GENERATION L.L.C.		12	2,931	5,549	379				
17	65	065020AAW	948	MCLEANSBORO POWER PLANT		4	5	1	0				
17	73	073050AAA	944	GENESEO MUNICIPAL UTILITIES		8	114	5	2				
17	77	077806AAA	862	AMEREN CIPS		5	2,319	13,214	741				

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17	79	079808AAA	6017	AMEREN CIPS		9	5,019	15,458	595				
17	89	089808AAA	50563	SETTLERS HILL RDF/MIDWAY LANDFILL	yes	2	39	3	0	1	49	45	2
17	91	091809AAF	54659	KANKAKEE REYCLYING AND DISPOSAL	yes	3	70	10	1	1	0	0	1
17	97	097190AAC	883	MIDWEST GENERATION L.L.C.		12	6,395	11,033	446				
17	99	099085AAH	955	CITY OF PERU GENERATING STATION		3	3	1	0				
17	99	099816AAB	894	ILLINOIS POWER CO.-OGLESBY TURBINE FAC.		3	46	1	0				
17	109	109015AAH	935	BUSHNELL MUNICIPAL ELECTRIC LIGHT AND PO		4	1	0	0				
17	119	119020AAE	898	ILLINOIS POWER CO.-WOOD RIVER POWER STA.		12	6,079	17,796	987				
17	119	119055AAD	946	HIGHLAND ELECTRIC LIGHT PLANT		4	35	0	0				
17	119	119105AAA	913	UNION ELECTRIC - VENICE POWER STATION		18	146	3	4				
17	119	119813AAC	895	ILLINOIS POWER CO.-STALLINGS TURB. FAC.		3	6	0	0				
17	125	125804AAB	891	ILLINOIS POWER CO.-HAVANA POWER PLANT		11	3,727	8,126	346				
17	127	127855AAC	887	ELECTRIC ENERGY, INC.		10	6,898	22,180	893				
17	133	133030AAO	971	WATERLOO CITY LIGHT PLANT		11	7	0	0				
17	135	135803AAA	861	AMEREN CIPS		12	15,276	37,687	1,571				
17	137	137805AAA	864	AMEREN CIPS		8	3,482	22,421	1,143				
17	139	139030AAE	969	SULLIVAN POWER PLANT		11	135	67	2				
17	141	141050AAH	961	ROCHELLE MUNICIPAL UTILITIES STEAM PLANT		8	353	3	0				
17	141	141050AAV	960	ROCHELLE MUNICIPAL DIESEL PLANT		15	94	2	3				
17	141	141820AAA	6023	COM ED - BYRON GENERATING STATION		5	2	0	0				
17	143	143065AMW	860	CENTRAL ILLINOIS LIGHT CO.-STERLING AVE.		1	1	0	0				
17	143	143805AAG	856	CENTRAL ILLINOIS LIGHT CO.-E.D. EDWARDS		4	9,612	50,126	2,577				
17	149	149817AAB	6238	SOYLAND POWER COOP, INC.-PEARL STATION		4	1,125	5,852	47				
17	155	155010AAA	892	ILLINOIS POWER CO - HENNEPIN POWER STATI		8	3,092	4,173	159				
17	157	157851AAA	889	ILLINOIS POWER CO. - BALDWIN		19	28,389	23,131	924				
17	161	161025ABU	55764	UPPER ROCK ENERGY PARTNERS, LLC		1	31	0	0				
17	161	161045AAV	899	MIDAMERICAN ENERGY CO-MOLINE COMBUSTION		6	7	0	0				
17	161	161807AAB	880	COM ED - QUAD CITIES STATION - CORDOVA		3	7	0	1				
17	163	163080AAC	950	MASCOUTAH POWER PLANT		6	14	0	0				
17	167	167120AAO	963	CITY WATER LIGHT AND POWER		5	7,656	12,132	333				
17	167	167120AAOA	964	CITY WATER LIGHT AND POWER B		2	1,626	2,907	510				
17	167	167120AGQ	7425	CITY WATER LIGHT AND POWER		1	107	1	1				
17	179	179060ADB	7384	CENTRAL ILLINOIS LIGHT CO.		2	238	4	10				
17	179	179801AAA	879	MIDWEST GENERATION L.L.C.		16	35,626	20,536	621				
17	179	179806AAB	50721	TAZEWELL RECYCLING AND DISPOSAL FACILITY	yes	3	97	58	2	1	0	0	18
17	183	183020AIF	55762	BRICKYARD DISPOSAL AND RECYCLING INC		1	11	0	0				

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17	183	183814AAA	897	ILLINOIS POWER CO.-VERMILLION POWER STA.		10	1,939	15,115	791				
17	191	191010AAI	940	FAIRFIELD MUNICIPAL LIGHT		2	18	1	1				
17	197	197809AAO	384	MIDWEST GENERATION L.L.C.		13	4,058	16,131	538				
17	197	197809AAOA	874	MIDWEST GENERATION L.L.C. B		7	2,979	4,077	87				
17	197	197810AAK	884	MIDWEST GENERATION L.L.C.		17	10,806	10,933	435				
17	197	197816AAB	6022	COM ED - BRAIDWOOD GENERATING STATION		2	4	0	0				
17	199	199856AAC	976	SOUTHERN ILLINOIS POWER COOP-MARION		10	7,718	15,376	739				
18	17	00006	1032	LOGANSPORT MUNICIPAL LIGHT & POWER		3	1,232	2,847	154				
18	29	00002	988	AMERICAN ELECTRIC POWER-TANNERS CREEK		9	25,775	55,431	2,680				
18	37	00002	6225	JASPER MUNICIPAL ELECTRIC UTILITY		3	469	1,165	92				
18	43	00004	1008	PSI ENERGY - GALLAGHER		10	6,663	47,511	2,955				
18	51	00013	6113	PSI ENERGY - GIBSON		11	44,060	148,331	8,642				
18	57	00004	1007	PSI ENERGY-NOBLESVILLE		8	1,579	4,689	281				
18	73	00008	6085	NIPSCO - R.M. SCHAHFER		13	19,629	34,068	1,143				
18	77	00001	983	IKEC - CLIFTY CREEK STATION		12	31,233	39,164	1,689				
18	83	00003	1004	PSI ENERGY-EDWARDSPORT		8	2,600	9,125	465				
18	89	00117	996	NIPSCO - D. H. MITCHELL STATION		14	2,979	6,797	199				
18	89	00210	981	STATE LINE ENERGY LLC		13	7,873	7,863	203				
18	91	00021	997	NIPSCO - MICHIGAN CITY		7	10,697	10,279	160				
18	91	00067	54956	DEERCROFT RECYCLING & DISPOSAL FACIL.		6	75	7	5				
18	97	00033	990	IPALCO - STOUT		19	6,822	43,089	2,240				
18	97	00034	992	IPALCO - PERRY K		16	1,433	1,817	87				
18	103	00001	1037	PERU ELECTRIC LIGHT & POWER		2	79	306	18				
18	107	00003	1024	CRAWFORDSVILLE ELECTRIC LIGHT & POWER		11	211	574	42				
18	109	00004	991	IPALCO-PRITCHARD STATION		14	4,481	16,438	659				
18	125	00001	1043	HOOSIER ENERGY - RATTS STATION		4	4,631	21,423	1,075				
18	125	00002	994	IPALCO-PETERSBURG		17	22,728	42,003	2,040				
18	127	00002	995	NIPSCO - BAILLY STATION		16	18,639	6,091	457				
18	129	00010	6137	SIGECO - A. B. BROWN		8	7,259	7,602	540				
18	147	00020	6166	INDIANA MICHIGAN POWER-ROCKPORT		10	35,013	57,404	4,003				
18	153	00005	6213	HOOSIER ENERGY RURAL ELEC MEROM STATION		9	16,050	15,491	1,196				
18	165	00001	1001	PSI ENERGY - CAYUGA		11	10,291	58,828	3,229				
18	167	00021	1010	PSI ENERGY - WABASH RIVER		17	10,842	52,778	3,212				
18	173	00001	1012	SIGECO - F.B.CULLEY GENERATING STATION		13	6,543	9,803	561				
18	173	00002	6705	SIGECO-WARRICK PWR PLANT-ALCOA GENERATNG		17	17,228	87,885	4,518				
18	177	00009	1040	RICHMOND POWER & LIGHT		10	1,587	13,432	769				

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19	5	0005	1047	LANSING		8	3,441	5,042	230				
19	13	0010	1131	STREETER STATION		3	339	834	59				
19	41	0010	1217	EARL F WISDOM		2	183	539	27				
19	45	0075	1048	MILTON L KAPP		3	1,106	4,269	122				
19	57	0025	1104	BURLINGTON		3	1,269	4,968	122				
19	61	0060	1046	DUBUQUE		5	1,907	2,758	110				
19	87	U116	1166	MT PLEASANT		1	0	0	0				
19	113	0120	1058	SIXTH STREET		11	1,616	1,792	55				
19	113	0125	1073	PRAIRIE CREEK		10	3,649	5,751	348				
19	115	0005	6664	LOUISA		2	7,350	14,304	453				
19	125	0030	1175	PELLA		3	274	456	12				
19	127	0090	1077	SUTHERLAND		9	3,345	4,244	85				
19	139	0020	1218	FAIR STATION		3	1,297	9,848	500				
19	139	0055	1167	MUSCATINE		6	4,781	4,481	243				
19	155	0115	1082	COUNCIL BLUFFS		6	14,328	20,771	613				
19	163	0090	1081	RIVERSIDE		8	1,700	2,441	66				
19	169	0015	1122	AMES MUNICIPAL ELECTRIC SYSTEM 5TH & CAR		7	1,214	985	139				
19	179	0027	6254	OTTUMWA		2	9,117	17,276	496				
19	193	0190	1091	GEORGE NEAL NORTH		6	16,640	23,112	1,110				
19	193	1091	7343	GEORGE NEAL SOUTH		11	7,687	16,105	556				
20	1	00011	1291	CITY OF IOLA POWER PLANT		3	20	0	1,284				
20	3	00001	1278	GARNETT-MUNICIPAL POWER PLANT		6	39	2	1				
20	9	00002	1235	UTILICORP UNITED, INC.		1	84	0	3				
20	9	00025	1274	ELLINWOOD-MUNICIPAL POWER PLANT		2	34	0	0				
20	9	00026	1286	HOISINGTON-MUNICIPAL POWER PLANT		2	21	0	0				
20	15	00009	1261	AUGUSTA-MUNICIPAL POWER PLANT (#1)		5	10	0	0				
20	15	00010	6791	AUGUSTA-MUNICIPAL POWER PLANT (#2)		1	107	0	0				
20	21	00002	1239	EMPIRE DISTRICT ELECTRIC COMPANY (THE)		12	1,478	2,817	89				
20	23	00009	1321	ST. FRANCIS POWER PLANT		2	8	0	0				
20	25	00001	1259	ASHLAND-MUNICIPAL POWER PLANT		2	5	0	0				
20	27	00007	1270	CLAY CENTER PUBLIC UTILITIES		3	123	0	0				
20	31	00006	1266	BURLINGTON-MUNICIPAL POWER PLANT		2	38	1	1				
20	31	00021	210	WOLF CREEK NUCLEAR OPERATING CORP.		2	31	0	0				
20	35	00012	7013	WINFIELD MUNICIPAL POWER PLANT (NEW)		2	32	0	1				
20	37	00006	1279	GIRARD-MUNICIPAL POWER PLANT		4	44	14	1				
20	39	00009	1312	OBERLIN-MUNICIPAL POWER PLANT		2	3	0	0				

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20	41	00034	1283	HERINGTON-MUNICIPAL POWER PLANT		2	40	2	2				
20	45	00011	1262	BALDWIN CITY-MUNICIPAL POWER PLANT		2	37	2	2				
20	45	00014	1250	WESTERN RESOURCES, INC.		14	7,380	6,501	734				
20	55	00023	108	SUNFLOWER ELECTRIC POWER CORPORATION		3	3,874	2,123	292				
20	55	00026	1336	SUNFLOWER ELECTRIC POWER CORPORATION		7	266	1	12				
20	57	00001	1233	UTILICORP UNITED, INC.		1	435	1	15				
20	59	00006	1316	OTTAWA-MUNICIPAL POWER PLANT		3	110	0	2				
20	65	00009	1285	HILL CITY-MUNICIPAL POWER PLANT		2	22	0	0				
20	77	00002	1258	ANTHONY-MUNICIPAL POWER PLANT		3	91	0	0				
20	77	00013	1260	ATTICA-MUNICIPAL POWER PLANT		2	9	0	0				
20	85	00011	1287	HOLTON-MUNICIPAL POWER PLANT		1	157	3	3				
20	91	00065	7281	GARDNER ENERGY CENTER		1	72	0	3				
20	95	00004	1296	KINGMAN-MUNICIPAL POWER PLANT		6	389	0	13				
20	97	00007	1281	GREENSBURG-MUNICIPAL POWER PLANT		2	24	0	0				
20	105	00013	1300	LINCOLN-MUNICIPAL POWER PLANT		1	14	1	1				
20	107	00005	1241	KANSAS CITY POWER & LIGHT CO.		15	25,521	24,756	1,098				
20	109	00009	1311	OAKLEY-MUNICIPAL POWER PLANT		1	18	0	0				
20	113	00014	1305	MCPHERSON BOARD OF PUBLIC UTILITIES #2		3	97	0	4				
20	113	00046	7515	BOARD OF PUBLIC UTILITIES - #3		2	35	0	5				
20	119	00013	1306	MEADE-MUNICIPAL POWER PLANT		2	82	1	0				
20	121	00001	1314	OSAWATOMIE-MUNICIPAL POWER PLANT		1	13	1	1				
20	123	00012	1264	BELOIT-MUNICIPAL POWER PLANT		1	29	10	1				
20	125	00002	1271	COFFEYVILLE-MUNICIPAL POWER PLANT		2	32	0	2				
20	131	00009	1320	SABETHA-MUNICIPAL POWER PLANT		2	82	2	2				
20	133	00028	7018	CITY OF CHANUTE ELEC. DEPT., PLANT #3		10	184	3	3				
20	133	00030	1268	CITY OF CHANUTE ELEC. DEPT., PLANT #2		2	14	0	0				
20	137	00005	1310	NORTON-MUNICIPAL POWER PLANT		2	25	0	0				
20	139	00012	1265	BURLINGAME-MUNICIPAL POWER PLANT		2	17	0	0				
20	139	00014	1313	OSAGE CITY-MUNICIPAL POWER PLANT		2	0	0	0				
20	141	00009	1315	OSBORNE-MUNICIPAL POWER PLANT		1	3	0	0				
20	143	00013	1307	MINNEAPOLIS-MUNICIPAL POWER PLANT		2	57	1	1				
20	145	00010	1299	LARNED-MUNICIPAL POWER PLANT		3	33	1	1				
20	149	00001	6068	WESTERN RESOURCES, INC. (JEC)		14	30,887	60,924	1,649				
20	149	00012	1328	WAMEGO-MUNICIPAL POWER PLANT		16	94	1	1				
20	151	00005	1317	PRATT-MUNICIPAL POWER PLANT		2	28	0	1				
20	155	00033	1248	WESTERN RESOURCES, INC. (HEC)		9	412	1,504	61				

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20	157	00016	1263	BELLEVILLE-MUNICIPAL POWER PLANT		2	57	1	1				
20	159	00024	1326	STERLING MUNICIPAL POWER PLANT		1	25	1	2				
20	163	00014	1327	STOCKTON-MUNICIPAL POWER PLANT		2	11	0	0				
20	165	00001	1297	LACROSSE MUNICIPAL POWER PLANT		1	2	0	0				
20	167	00005	1319	RUSSELL-MUNICIPAL POWER PLANT		2	1,027	34	94				
20	173	00012	1240	WESTERN RESOURCES, INC. (GORDON EVANS)		5	2,441	1,905	91				
20	173	00014	1242	WESTERN RESOURCES, INC.-MURRY GILL		7	808	2,586	100				
20	175	00001	1230	UTILICORP UNITED, INC.		3	157	0	9				
20	177	00030	1252	WESTERN RESOURCES, INC. (TEC)		17	3,770	5,468	177				
20	181	00005	1280	GOODLAND-MUNICIPAL POWER PLANT		14	53	0	0				
20	185	00017	1325	STAFFORD-MUNICIPAL POWER PLANT		1	0	0	0				
20	187	00009	6579	JOHNSON CITY MUNICIPAL POWER PLANT		2	40	1	1				
20	189	00020	1289	HUGOTON-MUNICIPAL POWER PLANT (#1)		2	0	0	0				
20	189	00021	7011	HUGOTON-MUNICIPAL POWER PLANT (#2)		7	236	12	51				
20	191	00019	1330	WELLINGTON-MUNICIPAL POWER PLANT		3	25	0	2				
20	191	00055	7432	CITY OF OXFORD, MUNICIPAL POWER PLANT		1	11	1	1				
20	191	00056	7339	WELLINGTON CITY POWER PLANT, GAS TURBINE		2	31	0	1				
20	199	00005	1324	SHARON SPRINGS MUNICIPAL POWER PLANT		1	0	0	0				
20	201	00024	1329	WASHINGTON-MUNICIPAL POWER PLANT		2	13	0	0				
20	205	00014	1309	NEODESHA-MUNICIPAL POWER PLANT		1	10	1	1				
20	205	00018	1277	FREDONIA MUNICIPAL POWER PLANT		2	10	0	0				
20	209	00008	6064	BOARD OF PUBLIC UTILITIES - NEARMAN		7	4,732	8,390	227				
20	209	00048	1295	BOARD OF PUBLIC UTILITIES - QUINDARO		12	2,869	3,183	95				
20	209	00049	1294	BOARD OF PUBLIC UTILITIES - KAW		4	58	0	1				
21	13	2101300001	1360	KENTUCKY UTILITIES		4	576	1,144	55				
21	15	2101500029	6018	CINCINNATI GAS & ELECTRIC		12	8,161	13,107	659				
21	41	2104100010	1356	KENTUCKY UTILITIES CO		18	22,430	52,235	3,003				
21	49	2104900003	1385	EAST KY POWER COOP		9	3,318	8,830	426				
21	59	2105900027	1374	OWENSBORO MUNICIPAL UTILITIES		18	14,187	6,370	493				
21	91	2109100003	1381	WESTERN KY ENERGY CORP		4	7,411	49,120	4,132				
21	101	2110100012	1372	HENDERSON MUN POW & LIGHT		6	180	1,136	43				
21	111	0126	1363	CANE RUN		6	7,188	16,121	571				
21	111	0127	1364	MILL CREEK		8	17,576	22,515	1,626				
21	127	2112700003	1353	KENTUCKY POWER CO		5	19,904	55,859	2,584				
21	145	2114500006	1379	TVA-ENVIRONMENTAL AFFAIRS		47	18,657	32,091	652				
21	161	2116100009	6041	EAST KY POWER COOP		10	11,729	37,383	1,807				

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21	167	2116700001	1355	KENTUCKY UTILITIES CO		14	7,719	49,101	2,762				
21	177	2117700001	1357	KENTUCKY UTILITIES CO		7	3,257	19,353	978				
21	177	2117700006	1378	TVA		37	54,550	111,233	4,136				
21	183	2118300069	6823	WESTERN KY ENERGY CORP		29	9,556	10,613	1,113				
21	199	2119900005	1384	EAST KY POWER COOP		10	4,590	23,389	1,251				
21	223	2122300002	6071	LOUISVILLE GAS & ELECTRIC		11	6,895	7,723	620				
21	233	2123300001	1382	WESTERN KY ENERGY CORP		11	5,628	6,431	657				
21	233	2123300001A	1383	WESTERN KY ENERGY CORP B		1	1,119	9,897	528				
21	233	2123300052	6639	WESTERN KY ENERGY CORP		21	7,737	2,755	1,353				
21	239	2123900001	1361	KENTUCKY UTILITIES		6	1,195	2,353	109				
22	17	0007	1417	AMERICAN ELECTRIC POWER/LIEBERMAN UNITS		4	267	188	12				
22	17	0008	1416	AMERICAN ELECTRIC PWR/ARSENAL HILL #5		1	116	1	7				
22	19	0013	10593	AGRILECTRIC POWER PARTNERS LTD/PLANT 1		2	193	61	0				
22	19	0014	7363	ENTERGY GSI/NELSON		24	9,165	68,677	703				
22	19	0161	50030	ENTERGY GSI/NISCO		4	2,023	3,971	44				
22	31	0001	51	CLECO CORP/DOLET HILLS POWER STATION		3	9,860	20,033	567				
22	33	0002	54518	FORMOSA PLASTICS CORPORATION, LA	yes	4	508	12	159	16	111	0	68
22	33	0181	1391	ENTERGY GSI/LA STN 2 B		6	2,329	31	137				
22	39	0002	55305	CLECO EVANGELINE LLC/EVANGELINE PWR STN		9	1,623	6	71				
22	47	0002	55051	GEORGIA GULF CHEM & VINYLS LLC/PLAQUEMIN	yes	4	1,174	9	393	43	182	0	77
22	47	0010	1394	ENTERGY GSI/WILLOW GLEN		11	4,566	2,121	247				
22	47	0044	1455	LA ENERGY & POWER AUTHORITY/PLAQUEMINE S		2	25	0	1				
22	51	0006	1403	ENTERGY LA/NINEMILE		11	9,153	187	198				
22	55	0002	1443	CITY OF LAFAYETTE/BONIN STATION		3	576	1	18				
22	61	0007	1458	RUSTON ELECTRICAL GENERATING STN./UNITS		3	70	0	4				
22	69	U145	1450	NATCHITOCHES		1	2	0	0				
22	71	0014	1409	ENTERGY NO/MICHOUD		5	5,203	3,458	207				
22	71	0015	1407	ENTERGY NO/A.B.PATERSON		4	333	7	11				
22	73	0004	1404	ENTERGY LA/STERLINGTON		5	2,245	6	45				
22	73	0005	1448	ENTERGY LA/MONROE		3	42	0	3				
22	75	0005	1401	ENTERGY LA/BURAS		1	7	0	1				
22	77	0005	6055	LA GENERATING LLC/BIG CAJUN 2 PWR PLNT		5	21,158	50,217	1,272				
22	77	0010	1464	LA GENERATING LLC/BIG CAJUN 1 PWR PLNT		3	110	0	2				
22	77	0057	1453	LA ENERGY & POWER AUTHORITY/NEW ROADS DI		1	0	1	0				
22	79	0003	6558	CITY OF ALEXANDRIA/D.G. HUNTER GEN. STN		2	25	0	1				
22	79	0010	6190	CLECO CORP/RODEMACHER POWER STATION		4	6,455	12,596	383				

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22	89	0009	1402	ENTERGY LA/LITTLE GYPSY		7	5,925	201	133				
22	89	0014	8056	ENTERGY LA/WATERFORD 1 & 2		4	3,556	6,979	298				
22	101	0007	1400	CLECO CORP/TECHE POWER STATION		6	1,369	75	58				
22	101	0043	1435	CLECO-FRANKLIN ELECTRIC PLANT		1	1	0	0				
22	101	0069	1449	LA ENERGY & POWER AUTHORITY/MORGAN CITY		2	46	0	3				
22	109	0019	1439	TERREBONNE PAR CONSOLIDATED GOVT/HOUMA M		7	166	2	32				
22	119	0013	1447	LA ENERGY & POWER AUTHORITY/MINDEN STEAM		3	17	5	1				
23	3	2300300001	1513	WPS NEW ENGLAND GENERATION INC - CARIBOU		5	6	0	0				
23	3	2300300051	7513	AROOSTOOK VALLEY ELECTRIC COMPANY		4	398	1	9				
23	5	2300500135	1507	FPL ENERGY WYMAN LLC		7	1,594	6,907	98				
23	5	2300500142	50225	REGIONAL WASTE SYSTEMS INC		2	352	79	27				
23	7	2300700023	50650	BORALEX STRATTON ENERGY INC		3	628	53	4				
23	15	2301500010	1496	FPL ENERGY MASON LLC		4	9	14	0				
23	17	2301700045	10495	MEAD PUBLISHING PAPER DIVISION	yes	3	723	510	15	14	1,362	583	501
23	19	2301900086	10766	INDECK WEST ENFIELD ENERGY CENTER		4	6	0	0				
23	19	2301900093	50051	PENOBSCOT ENERGY RECOVERY CO		6	333	40	1				
23	21	2302100014	54852	GREENVILLE STEAM CO		2	228	12	3				
23	31	2303100078	10338	MAINE ENERGY RECOVERY COMPANY		4	531	70	3				
24	1	0203	10678	AES WARRIOR RUN		5	188	0	0				
24	3	0014	1554	B G E - WAGNER STATION		5	6,912	20,410	897				
24	3	0468	602	B G E - BRANDON SHORES		2	13,746	46,766	2,242				
24	5	0076	1555	B G E - NOTCH CLIFF		11	127	0	0				
24	5	0078	1559	B G E - RIVERSIDE		4	178	0	2				
24	5	0079	1552	B G E - CRANE		6	12,657	32,056	1,936				
24	17	0014	1573	PEPCO - MORGANTOWN		10	16,952	75,395	6,730				
24	19	0013	1564	DELMARVA POWER VIENNA		3	377	1,995	26				
24	25	0024	1556	B G E - PERRYMAN		5	133	0	0				
24	31	0019	1572	PEPCO - DICKERSON		5	7,452	33,644	2,992				
24	31	1718	50657	MONTGOMERY COUNTY RRF		3	817	0	0				
24	31	1822	1572	PEPCO - STATION H		2	87	24	4				
24	33	0014	1571	PEPCO - CHALK POINT		14	12,211	38,386	3,337				
24	39	0017	1563	DELMARVA POWER & LIGHT		4	163	0	0				
24	41	0029	1580	EASTON UTILITIES		10	348	0	0				
24	41	0069	4257	EASTON UTILITIES - AIRPORT PARK		6	411	0	0				
24	43	0005	1570	POTOMAC EDISON - R. PAUL SMITH		3	1,297	4,532	246				
24	510	0006	1560	B G E - WESTPORT		1	41	0	0				

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24	510	0007	1553	B G E - GOULD STREET		1	377	1,208	12				
24	510	0265	1557	B G E - PHILADELPHIA ROAD		4	38	0	0				
24	510	1886	10629	BALTIMORE RESCO		3	1,131	916	0				
25	1	1200054	1599	SOUTHERN ENERGY-CANAL		15	6,005	23,227	248				
25	3	1170006	50002	PITTSFIELD GENERATIN		32	148	3	50				
25	3	1170167	1631	CEEMI-DOREEN ST		1	9	0	1				
25	5	1200025	52026	DARTMOUTH POWER ASSO		3	60	1	9				
25	5	1200060	1613	SOMERSET OPERATIONS INC (NRG ENERGY)		11	1,441	4,532	184				
25	5	1200061	1619	USGEN NEW ENGLAND IN		19	12,329	40,454	1,642				
25	5	1200067	1682	TAUNTON MUNICIPAL LI		8	324	234	23				
25	5	1200217	55093	TAUNTON LANDFILL GAS		3	11	9	7				
25	5	1200276	55026	DIGHTON POWER ASSOC		2	26	1	6				
25	5	1200866	55589	BFI FALL RIVER LANDF		2	30	6	5				
25	9	1190194	1626	USGEN NEW ENGLAND SA		11	5,311	18,300	635				
25	9	1190915	6585	COMMERCIAL GEN STATI		5	1	0	0				
25	9	1210261	50877	MASS REFUSETECH INC	yes	2	1,097	337	1	4	0	0	0
25	13	0420001	6081	STONY BROOK ENERGY C		15	532	326	82				
25	13	0420007	10726	MASSPOWER		18	236	10	41				
25	13	0420038	9864	HOLYOKE GAS & ELECTRIC DEPT		4	107	201	12				
25	13	0420040	1606	HOLYOKE WATER POWER CO		2	2,486	7,917	373				
25	13	0420067	55041	BERKSHIRE POWER LLC		3	7	0	0				
25	13	0420117	1642	CEEMI-W SPFLD STA		8	214	743	18				
25	13	0420232	54614	CHICOPEE MUNICIPLE LIGHT		6	3	3	0				
25	17	1190092	1594	CAMBRIDGE ELECTRIC BLACKSTONE		9	16	224	17				
25	17	1190093	1595	SOUTHERN ENERGY KEND		12	404	288	36				
25	17	1190128	1588	EXELONG MYSTIC LLC		9	1,675	7,265	217				
25	17	1214040	10522	INDECK PEPPERELL POW		3	112	11	4				
25	19	1200284	1615	NANTUCKET ELECTRIC C		8	6	0	0				
25	21	1190491	1660	BRAINTREE ELECTRIC		3	180	6	20				
25	21	1190913	55585	BFI RANDOLPH LANDFILL		1	11	7	2				
25	21	1201550	10307	BELLINGHAM COGENERAT		3	805	18	57				
25	23	1200001	50290	SEMASS PARTNERSHIP	yes	6	1,565	775	45	9	4	0	3
25	25	1190012	1589	SITHE NEW BOSTON LLC		6	683	7	46				
25	27	1180061	54620	PINETREE POWER FITCH		1	146	2	0				
25	27	1180419	50878	WHEELABRATOR MILLBUR	yes	5	1,076	221	0	3	0	0	0
25	27	1180664	6125	SHREWSBURY ELECTRIC		5	20	0	0				

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25	27	1201504	54805	AMERICAN NATIONAL POWER- MILFORD		13	124	1	17				
26	1	N0890	50772	VIKING ENERGY OF LINCOLN, INC.		4	222	83	13				
26	5	B5421	1880	VANDYKE GENERATING PLANT		3	36	0	3				
26	5	N2586	7268	HOLLAND BPW, 48TH STREET PEAKING STATION		4	39	2	12				
26	7	B1477	50305	LAFARGE MIDWEST INC. ALPENA	yes	1	1,451	895	14	95	10,760	20,134	454
26	13	B4260	1772	UPPER PENINSULA POWER CO - JOHN WARDEN S		1	14	0	1				
26	17	B2840	1702	KARN - WEADOCK FACILITY		18	8,797	20,946	1,054				
26	17	B2840A	1720	J C WEADOCK		4	3,746	9,567	561				
26	17	B7529	7398	BAY CITY ELECTRIC LIGHT & POWER		4	37	0	0				
26	17	N3195	7399	BAY CITY ELECTRIC LIGHT & POWER		4	43	0	0				
26	21	B4252	6000	AEP COOK NUCLEAR PLANT		4	25	3	0				
26	23	B1525	1819	COLDWATER BOARD OF PUBLIC UTILITIES		5	150	1	2				
26	25	C6230	1844	MARSHALL CITY, ELECTRIC POWERPLANT		4	82	1	1				
26	31	N6171	1873	WOLVERINE POWER, TOWER POWER PLANT		4	14	8	1				
26	33	N6033	1868	DAFTER SANITARY LANDFILL INC		1	0	0	0				
26	39	N2388	10822	GRAYLING GENERATING STATION LTD PTNR		4	166	2	18				
26	41	B1573	1771	ESCANABA POWER PLANT		2	836	1,906	105				
26	45	B4001	1832	LANSING BOARD OF WATER & LIGHT ERICKSON		3	1,471	4,950	269				
26	49	B2918	1719	THETFORD COMBUSTION TURBINE PLANT		1	261	0	25				
26	49	N3570	54751	GENESEE POWER STATION LIMITED PARTNERSHI		1	202	7	10				
26	49	N5888	54911	GRANGER SEYMOUR ROAD GENERATING STATION		1	17	1	0				
26	49	N5987	54910	BRENT RUN LANDFILL		3	16	1	1				
26	55	B4257	1859	TRAVERSE CITY LIGHT AND POWER BAYSIDE PO		6	24	34	2				
26	59	B6611	4259	MICHIGAN SOUTH CENTRAL POWER AGENCY		3	757	972	71				
26	59	B7536	1829	CITY OF HILLSDALE BOARD OF PUBLIC UTIL.		8	129	1	2				
26	61	B6553	8019	UPPER PENINSULA POWER CO - PORTAGE STATI		1	20	8	2				
26	63	B2802	1735	OLIVER PEAKING STATION		5	43	1	1				
26	63	B2815	1731	HARBOR BEACH POWER PLANT		8	1,056	1,496	75				
26	65	B2647	1831	ECKERT & MOORES PARK STATION		7	4,251	8,353	224				
26	75	N1125	10722	JACKSON COUNTY RESOURCE RECOVERY FACILIT	yes	2	70	2	0	21	0	0	1
26	77	N6252	1696	MORROW COMBUSTION TURBINE PLANT		2	16	0	2				
26	77	N6731	55101	KALAMAZOO RIVER GENERATION STATION		1	3	0	3				
26	81	N1604	50860	KENT COUNTY WASTE TO ENERGY FACILITY	yes	2	284	15	2	2	0	0	0
26	81	N1784	10819	ADA COGENERATION		3	172	15	10				
26	91	B6508	1818	VILLAGE OF CLINTON		3	3	0	0				
26	93	B2795	1725	DETROIT EDISON COLFAX PEAKERS		5	48	2	1				

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26	99	B2808	1734	DETROIT EDISON NORTHEAST STATION		7	61	9	6				
26	99	N5984	54989	PINE TREE ACRES, INC.	yes	1	61	3	4	1	0	0	0
26	101	N1685	50835	TES FILER CITY STATION		5	1,302	390	8				
26	103	B1833	1843	MARQUETTE BOARD OF LIGHT & POWER		2	380	508	51				
26	103	B4261	1769	WISCONSIN ELECTRIC PRESQUE ISLE POWER PL		18	12,331	18,639	798				
26	105	N4975	54915	MICHIGAN POWER LIMITED PARTNERSHIP		5	176	3	28				
26	105	N6017	1879	SCOTTVILLE POWER PLANT		3	4	1	0				
26	111	B6527	10745	MIDLAND COGENERATION VENTURE		6	4,530	10	27				
26	113	N1160	50770	VIKING ENERGY OF MCBAIN		4	212	99	32				
26	115	B2816	1733	DETROIT EDISON - MONROE POWER PLANT		45	45,970	102,754	3,614				
26	115	B2846	1723	J. R. WHITING PLANT		9	3,741	11,588	696				
26	115	B4321	1729	FERMI ENERGY CENTER		9	73	24	5				
26	117	N6249	1881	WOLVERINE POWER SUPPLY COOP- VESTABURG P		7	36	2	2				
26	119	N1266	10346	HILLMAN POWER CO		3	241	50	22				
26	121	B2836	1695	B. C. COBB PLANT		12	3,166	12,837	858				
26	125	B2803	1737	DETROIT EDISON PLACID STATION		5	45	2	1				
26	125	B2805	1730	DETROIT EDISON HANCOCK STATION		8	79	0	8				
26	125	N2803	54613	LYON DEVELOPMENT, INC.		3	48	4	5				
26	133	N5760	1877	GEORGE W. JOHNSON - HERSEY POWER PLANT		8	33	0	2				
26	137	B2942	1706	CMS ENERGY, GAYLORD COMBUSTION TURBINE P		1	52	0	5				
26	137	N6526	55102	CMS GENERATION, LIVINGSTON GENERATING ST		1	41	0	7				
26	139	B1976	1825	J. B. SIMS GENERATING STATION		4	882	717	64				
26	139	B2357	1830	HOLLAND BPW, GENERATING STATION & WWTP		6	1,519	2,803	130				
26	139	B2835	1710	J. H. CAMPBELL PLANT		12	15,379	43,525	2,413				
26	139	B7977	1867	ZEELAND BOARD OF PUBLIC WORKS		1	145	5	12				
26	139	N6000	6356	HOLLAND BOARD OF PUBLIC WORKS		1	5	3	0				
26	139	N6524	1826	GRAND HAVEN BOARD OF LIGHT AND POWER		10	10	1	1				
26	145	N5397	54890	PEOPLES LANDFILL, INC.	yes	1	38	2	2	1	0	0	0
26	147	B2796	1743	ST. CLAIR / BELLE RIVER POWER PLANT		75	12,184	38,489	1,336				
26	147	B2796A	6034	BELLE RIVER		4	13,868	28,651	771				
26	147	B2813	1732	DETROIT EDISON, MARYSVILLE POWER PLANT		14	504	1,133	57				
26	147	B6145	6035	DETROIT EDISON GREENWOOD ENERGY CENTER		12	813	849	83				
26	155	N5910	54539	VENICE PARK RDF	yes	2	1	0	0	1	0	0	0
26	157	B2804	1746	DETROIT EDISON WILMOT PEAK		5	42	3	1				
26	157	B2807	1739	PUTNAM PEAKERS		5	43	2	1				
26	161	B2806	1744	DETROIT EDISON SUPERIOR		4	38	8	3				

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26	163	B2132	1866	CITY OF WYANDOTTE MUNICIPAL POWER PLANT		18	754	1,620	84				
26	163	B2185	1822	MISTERSKY POWER STATION		4	924	34	33				
26	163	B2798	1728	DETROIT EDISON COMPANY, DELRAY POWER PLA		2	13	0	3				
26	163	B2809	1727	DETROIT EDISON DAYTON PEAKERS		5	38	3	1				
26	163	B2810	1740	DETROIT EDISON - RIVER ROUGE POWER PLANT		36	4,638	11,878	338				
26	163	B2811	1745	TRENTON CHANNEL POWER PLANT		36	6,461	28,669	1,125				
26	163	B2812	1726	CONNORS CREEK POWER PLANT		7	92	3	5				
26	163	B2814	1724	BEACON HEATING PLANT		4	228	4	9				
26	163	B4281	54804	CENTRAL WAYNE ENERGY RECOVERY, L.P.	yes	3	21	8	1	4	0	0	0
26	163	M4148	10033	GREATER DETROIT RESOURCE RECOVERY FACILI	yes	6	1,515	179	3	6	0	0	0
26	163	M4469	54057	RIVERVIEW LAND PRESERVE	yes	1	28	5	15	1	0	0	0
26	163	M4782	50077	EQ-SITE #2	yes	5	174	1	0	3	11	0	2
26	165	N1395	54415	CADILLAC RENEWABLE ENERGY FACILITY		1	224	32	0				
27	1	2700100014	1957	Aitkin Public Utilities Commission Gener		1	1	0	0				
27	9	2700900021	1910	NSP - Granite City		8	9	1	1				
27	13	2701300015	1934	NSP - Key City/ Wilmarth		10	607	22	26				
27	13	2701300078	1985	Lake Crystal Utilities Commission		2	2	0	0				
27	15	2701500008	2011	Sleepy Eye Public Utility		3	10	1	1				
27	15	2701500010	2001	New Ulm Public Utilities-Municipal Power		4	56	2	3				
27	15	2701500014	2012	Springfield Power Plant		2	1	0	0				
27	17	2701700037	1996	Moose Lake Power Plant		1	3	0	0				
27	19	2701900010	6824	Great River Energy - St Bonifacius		2	28	12	2				
27	23	2702300012	1918	NSP - Minnesota Valley		6	238	5	28				
27	25	2702500031	2002	North Branch Water & Light Commission		2	0	0	0				
27	31	2703100001	10075	LTV Steel Mining - Schroeder		11	2,801	3,118	253				
27	31	2703100007	1976	Grand Marais Public Utilities Commission		2	3	0	0				
27	33	2703300006	2023	Windom city of Municipal Utility		1	2	0	0				
27	33	2703300019	1998	Mountain Lake Municipal Utilities		4	10	1	1				
27	37	2703700003	1904	NSP - Black Dog		18	4,967	2,301	129				
27	37	2703700015	1913	NSP - Inver Hills Generating Plant		14	253	1	24				
27	41	2704100004	1958	Alexandria Light & Power		2	6	0	0				
27	43	2704300002	1967	Blue Earth Light & Water		9	18	1	1				
27	43	2704300045	2020	Wells Public Utilities		3	9	0	0				
27	45	2704500001	2013	Spring Valley Utilities		2	1	0	0				
27	45	2704500029	2004	Preston Public Utilities		2	3	0	0				
27	49	2704900005	1926	NSP - Red Wing		6	551	47	22				

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27	49	2704900028	1983	Kenyon Municipal Utility		1	9	1	1				
27	49	2704900030	1925	NSP - Prairie Island Nuclear Plant		13	22	1	1				
27	53	2705300015	1927	Xcel Energy - Riverside Generating Plant		31	13,535	12,709	853				
27	53	2705300400	10013	Hennepin Energy Resource Co	yes	2	618	48	40	4	1	0	0
27	53	2705300697	7376	NSP - Alliant Techsystems		1	2	0	0				
27	53	2705300698	7377	NSP - United Health Care		2	2	0	0				
27	59	2705900014	2038	United Power Association - Cambridge		1	7	5	1				
27	61	2706100004	1893	Minnesota Power Inc - Boswell Energy Ctr		17	14,298	18,745	1,323				
27	65	2706500006	1997	Mora Municipal Utilities		2	7	0	0				
27	67	2706700005	2022	Willmar Municipal Utilities		4	534	579	16				
27	75	2707500003	10849	Northshore Mining Co - Silver Bay	yes	2	2,479	1,808	13	77	716	129	383
27	79	2707900037	1999	New Prague Water - Light - Power & Bldg		3	38	1	1				
27	85	2708500002	1980	Hutchinson Utilities Commission -Plant 1		7	75	1	7				
27	85	2708500013	1975	Glencoe Light and Power Commission		10	71	3	7				
27	85	2708500034	6358	Hutchinson Utilities Commission -Plant 2		1	59	0	28				
27	91	2709100007	1888	Interstate Power Co - Fox Lake Station		11	137	260	12				
27	91	2709100009	1973	Fairmont Power Plant		8	63	2	6				
27	91	2709100046	2015	Truman Public Utilities		3	7	0	0				
27	93	2709300001	1989	Litchfield Public Utilities Commission		3	8	0	0				
27	95	2709500011	2005	Princeton Public Utilities Commission		2	9	1	1				
27	99	2709900001	1961	Austin Utilities - NE Power Station		4	424	2,205	125				
27	99	2709900011	1960	Austin Utilities - 4th Ave Plant		3	25	0	0				
27	105	2710500046	1956	Adrian Public Utilities		1	0	0	0				
27	107	2710700018	8105	Halstad Municipal Utilities		1	0	0	0				
27	109	2710900005	50413	Olmsted Waste-to-Energy Facility	yes	2	116	73	9	5	1	0	0
27	109	2710900011	2008	Rochester Public Utilities - Silver Lake		15	1,078	2,727	128				
27	109	2710900020	6058	Rochester Public Utility - Cascade Creek		1	14	9	1				
27	111	2711100002	1943	Otter Tail Power Co - Hoot Lake Plant		19	1,819	2,869	102				
27	111	2711100058	7505	Fergus Control Center		2	1	0	0				
27	113	2711300016	2014	Municipal Power Plant		1	5	0	0				
27	115	2711500011	6741	United Power Association - Rock Lake		1	7	5	1				
27	123	2712300012	1912	NSP - High Bridge Generator		17	5,675	3,616	507				
27	127	2712700023	2009	Redwood Falls Public Utilities -Mill Lot		2	35	2	2				
27	131	2713100003	1932	NSP - West Faribault		2	11	0	1				
27	133	2713300016	1990	Luverne Municipal Power Plant		1	2	0	0				
27	137	2713700013	1891	Minnesota Power Inc - Laskin Energy Ctr		7	1,995	1,624	143				

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27	137	2713700015	1897	Minnesota Power Inc - ML Hibbard		8	502	190	85				
27	137	2713700027	1979	Hibbing Public Utilities Commission		9	402	389	13				
27	137	2713700028	2018	City of Virginia Dept Public Utilities		7	551	460	11				
27	139	2713900010	8027	NSP - Blue Lake		6	168	12	15				
27	141	2714100003	2039	United Power Association - Elk River		6	780	86	27				
27	141	2714100004	6090	NSP - Sherburne Generating Plant		57	25,490	23,599	9,478				
27	141	2714100047	1971	Elk River Municipal Utilites		1	5	0	0				
27	145	2714500002	1994	Melrose Public Utilities		1	23	1	1				
27	147	2714700001	1966	Blooming Prairie Public Utilities		1	6	0	0				
27	147	2714700002	2003	Owatonna Public Utilities - Power Plant		1	11	0	0				
27	151	2715100006	1964	Benson Municipal Utilities		2	2	0	0				
27	161	2716100027	1982	Janesville Municipal Utilities		2	3	0	0				
27	163	2716300005	1915	NSP - Allen S King Generating Plant		28	11,835	22,343	275				
27	163	2716300087	55010	LSP Cottage Grove Cogeneration Facility		10	71	3	15				
27	165	2716500019	30	Madelia Light & Power Standby Generation		2	20	1	1				
27	171	2717100016	1969	Delano Municipal Utilities		2	43	1	1				
27	171	2717100019	1922	NSP - Monticello Nuclear Plant		6	13	1	0				
27	171	2717100020	2042	United Power Association - Maple Lake		1	7	5	1				
28	1	2800100022	2052	ENTERGY MISSISSIPPI, INC, NATCHEZ SES		1	49	0	1				
28	11	2801100031	2051	ENTERGY MISSISSIPPI INC, DELTA SES		7	794	2,792	124				
28	21	2802100023	6072	ENTERGY OPERATIONS INC - GRAND GULF		22	50	9	28				
28	27	2802700054	2060	CLARKSDALE PUBLIC UTILITIES/OLD PLANT		2	86	77	48				
28	27	2802700063	2059	CITY OF CLARKSDALE-PUBLIC UTILITIES		3	310	24	15				
28	35	2803500038	2046	MS POWER CO-PLANT EATON		3	7	0	0				
28	47	2804700055	2049	MS POWER CO- WATSON PLANT		9	14,619	31,753	1,532				
28	49	2804900112	2053	ENTERGY MISSISSIPPI INC, REX BROWN SES		7	1,011	3	31				
28	59	2805900048	2047	MISSISSIPPI POWER CO, CHEVRON PLANT		6	2,628	13	89				
28	59	2805900090	6073	MISSISSIPPI POWER CO -DANIEL PLANT		13	11,508	28,813	1,409				
28	67	2806700035	2070	SOUTH MS ELECTRIC POWER ASSOCIATION		5	907	44	68				
28	73	2807300021	6061	SOUTH MS ELECTRIC POWER ASSOCIATION		9	6,052	8,148	401				
28	75	2807500032	2048	MS POWER CO PLANT- SWEATT ELECTRIC		3	32	0	1				
28	83	2808300048	2062	GREENWOOD UTILITIES-HENDERSON		2	360	946	53				
28	83	2808300052	2063	GREENWOOD UTILITIES-WRIGHT		2	3	0	0				
28	87	2808700053	55082	CALEDONIA POWER, LLC		10	17	0	3				
28	149	2814900027	2050	ENTERGY MISSISSIPPI INC,BAXTER WILSON		10	21,834	44,942	2,118				
28	151	2815100048	8054	ENTERGY MISSISSIPPI INC GERALD ANDRUS		6	10,225	38,621	1,463				

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28	163	2816300005	2067	YAZOO CITY PUBLIC SERVICE COMMISSION		2	2	0	0				
29	1	0006	2083	AMERENUE		1	4	0	0				
29	7	0012	6650	AMERENUE		1	34	24	2				
29	7	0041	2165	VANDALIA POWER PLANT		1	17	1	1				
29	13	0029	2115	BUTLER MUNICIPAL POWER PLANT		4	33	5	2				
29	19	0002	2123	COLUMBIA MUNICIPAL POWER PLANT		8	209	520	19				
29	21	0004	2098	ST. JOSEPH LIGHT & POWER CO		19	4,118	2,919	67				
29	23	0050	7392	POPLAR BLUFF MUNICIPAL UTILITIES		4	65	1	1				
29	27	0007	2126	FULTON MUNICIPAL UTILITIES		9	22	0	1				
29	27	0026	6153	AMERENUE		7	21	6	1				
29	31	0061	2137	JACKSON MUNICIPAL UTILITIES		9	24	0	0				
29	31	0090	2096	AMERENUE		1	10	0	0				
29	33	0022	2120	CARROLLTON MUNICIPAL UTILITIES		9	79	1	1				
29	37	0003	2092	UTILICORP UNITED INC		1	58	0	6				
29	41	0032	7400	SALISBURY MUNICIPAL UTILITIES		1	18	1	1				
29	45	0026	2138	KAHOKA ELECTRIC GENERATING PLANT		3	2	0	0				
29	47	0096	2171	INDEPENDENCE POWER AND LIGHT		7	433	2,628	157				
29	51	0008	6652	AMERENUE		1	38	27	2				
29	51	0049	2082	AMERENUE		1	48	34	3				
29	61	0023	2127	GALLATIN POWER PLANT		3	8	0	0				
29	69	0034	2142	MALDEN MUNICIPAL POWER & LIGHT		3	13	1	1				
29	69	0063	2139	KENNETT GENERATING PLANT		2	57	1	1				
29	69	0066	7604	ASSOCIATED ELECTRIC COOPERATIVE INC		1	15	0	2				
29	71	0003	2103	AMERENUE		16	8,617	44,229	1,566				
29	73	0043	2149	OWENSVILLE POWER PLANT		5	52	1	1				
29	75	0023	2113	ALBANY MUNICIPAL POWER PLANT		1	9	1	1				
29	77	0005	2161	CITY UTILITIES OF SPRINGFIELD MISSOURI		26	4,902	6,191	427				
29	77	0039	6195	CITY UTILITIES OF SPRINGFIELD MISSOURI		29	2,965	3,632	197				
29	77	0145	2162	CITY UTILITIES OF SPRINGFIELD		3	3	0	0				
29	79	0010	2163	TRENTON MUNICIPAL UTILITIES		1	0	0	0				
29	79	0027	698	TRENTON MUNICIPAL UTILITIES		5	32	1	2				
29	81	0015	2114	BETHANY MUNICIPAL POWER PLANT		1	20	0	1				
29	83	0001	2080	KANSAS CITY POWER & LIGHT CO		8	5,873	15,174	339				
29	95	0021	2078	TRIGEN ENERGY CORPORATION		10	535	4,461	11				
29	95	0022	2079	KANSAS CITY POWER & LIGHT CO		12	630	874	92				
29	95	0023	2081	KANSAS CITY POWER & LIGHT CO		10	833	337	73				

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29	95	0031	2094	MISSOURI PUBLIC SERVICE CO		18	11,756	10,530	196				
29	95	0050	2132	INDEPENDENCE POWER AND LIGHT		14	679	7,192	401				
29	95	0139	6074	UTILICORP UNITED INC		6	474	1	17				
29	97	0001	2076	EMPIRE DISTRICT ELECTRIC CO		7	4,769	2,216	122				
29	97	0062	6223	EMPIRE DISTRICT ELECTRIC CO		6	180	0	28				
29	97	0104	7296	EMPIRE DISTRICT ELECTRIC CO		6	221	0	112				
29	97	0110	2121	CARTHAGE WATER & ELECTRIC		3	116	2	2				
29	99	0016	6155	AMERENUE		10	4,118	19,875	683				
29	107	0038	2131	HIGGINSVILLE MUNICIPAL POWER FACILITY		7	43	0	2				
29	117	0002	2122	CHILLICOTHE MUNICIPAL UTILITIES		13	83	175	12				
29	121	0004	2141	MACON MUNICIPAL UTILITIES		4	19	1	1				
29	137	0028	2146	MONROE CITY POWER PLANT		3	25	2	2				
29	143	0004	2167	ASSOCIATED ELECTRIC COOPERATIVE INC		19	37,782	14,509	732				
29	147	0032	7754	ASSOCIATED ELECTRIC COOPERATIVE INC		2	48	0	10				
29	151	0002	2169	CENTRAL ELECTRIC POWER COOPERATIVE		15	2,552	4,164	181				
29	165	0007	6065	KANSAS CITY POWER & LIGHT CO		10	6,897	16,283	477				
29	171	0015	6563	ASSOCIATED ELECTRIC COOPERATIVE INC		2	33	14	3				
29	175	0001	2168	ASSOCIATED ELECTRIC COOPERATIVE INC		25	22,497	18,924	673				
29	175	0010	6651	AMERENUE		1	32	23	2				
29	183	0001	2107	AMERENUE		13	15,404	39,741	528				
29	189	0010	2104	AMERENUE		19	9,609	22,657	1,089				
29	189	0023	2102	AMERENUE		1	25	18	1				
29	195	0010	2144	MARSHALL MUNICIPAL UTILITIES		6	271	1,565	81				
29	201	0017	6768	SIKESTON POWER STATION		7	2,367	6,796	218				
29	205	0011	7405	SHELBINA POWER PLANT		6	25	2	2				
29	207	0064	7749	ASSOCIATED ELECTRIC COOPERATIVE INC		1	28	0	6				
29	217	0034	2090	MISSOURI PUBLIC SERVICE, UTILICORP U INC		1	9	3	1				
29	510	0038	2101	TRIGEN-ST. LOUIS ENERGY CORP		10	210	779	43				
30	17	0002	2177	MDU - MILES CITY		2	16	0	2				
30	21	0005	2176	MDU - GLENDIVE		2	44	0	4				
30	83	0003	6089	MDU - LEWIS & CLARK STATION		3	929	1,247	145				
30	87	0007	10784	COLSTRIP ENERGY LTD. PARTNERSHIP		7	879	1,340	13				
30	87	0008	6076	PPL, MONTANA COLSTRIP UNITS #1 & #2		3	11,709	14,673	1,364				
30	87	0014	6076	MPC - COLSTRIP UNITS #3 & #4		3	25,412	5,791	3,281				
30	111	0015	2187	PPL, MONTANA - J.E. CORETTE PLANT		6	1,385	2,691	102				
30	111	0023	50931	YELLOWSTONE ENERGY LIMITED PARTNERSHIP		7	476	2,201	17				

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31	1	00040	2244	NORTH DENVER STATION		4	13	3	1				
31	1	00042	60	WHELAN ENERGY CENTER		8	983	2,008	86				
31	1	00061	2243	DON HENRY POWER CENTER		4	5	0	0				
31	19	00021	2268	UNIVERSITY OF NEBRASKA KEARNEY		2	23	0	1				
31	21	00013	2253	LYONS MUNICIPAL POWER PLANT		1	5	0	0				
31	23	00019	2233	DAVID CITY MUNICIPAL POWER PLT		4	37	0	0				
31	27	00016	2249	LAUREL MUNICIPAL PLANT		3	0	0	0				
31	33	00016	2302	SIDNEY POWER PLANT		5	14	2	0				
31	39	00014	2313	WEST POINT POWER PLANT		4	22	1	2				
31	39	00024	2316	WISNER MUNICIPAL POWER PLANT		2	0	0	0				
31	41	00003	2221	BROKEN BOW POWER PLANT		6	40	2	4				
31	41	00018	2214	ANSLEY LIGHT PLANT - STANDBY		2	1	0	0				
31	41	00019	2300	SARGENT MUNICIPAL UTILITIES		3	1	0	0				
31	41	00022	2216	ARNOLD WASTE TREAT		3	1	0	0				
31	41	00023	2211	CALLAWAY MUNICIPAL POWER PLANT		3	1	0	0				
31	49	00006	2230	CHAPPELL MUNICIPAL POWER PLANT		2	0	0	0				
31	51	00006	2311	WAKEFIELD MUNICIPAL POWER		2	15	0	0				
31	53	00001	2240	LON D WRIGHT POWER PLANT		15	1,477	1,280	55				
31	55	0002	2291	OMAHA PUBLIC POWER DISTRICT		29	5,991	11,799	387				
31	55	0003	2290	OPPD-JONES STREET		2	29	2	2				
31	57	00008	2218	BENKELMAN MUNICIPAL POWER		1	0	0	0				
31	61	00010	2238	FRANKLIN MUNICIPAL POWER PLANT		2	1	0	13				
31	63	00010	2232	CURTIS POWER PLANT		3	5	0	0				
31	65	00013	2223	CAMBRIDGE LIGHT PLANT		6	2	1	0				
31	65	00014	2295	OXFORD LIGHT PLANT		4	3	0	0				
31	71	00003	2222	BURWELL LIGHT PLANT		4	6	1	0				
31	73	00035	2226	NPPD CANADAY STATION		6	185	6	7				
31	79	00001	2241	C W BURDICK GENERATING STATION		7	39	1	1				
31	79	00606	59	PLATTE GENERATING STATION		5	1,485	2,436	68				
31	87	00009	2318	SWPPD PALISADE PLANT		1	0	0	0				
31	87	00010	2309	TRENTON POWER PLANT		1	0	0	0				
31	89	00023	2305	STUART MUNICIPAL POWER PLANT		5	1	0	0				
31	91	00001	2280	MULLEN LIGHT PLANT		1	1	0	0				
31	95	00002	2236	FAIRBURY MUNICIPAL POWER PLANT		2	6	0	0				
31	97	00009	2308	TECUMSEH PLANT		5	6	0	1				
31	105	00008	2248	KIMBALL MUNICIPAL POWER PLANT		6	9	0	1				

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31	109	0005	2277	NPPD SHELDON STATION		2	7,229	5,410	91				
31	109	0010	2250	EIGHTH & J STREET POWER PLANT		1	4	0	0				
31	109	0130	6373	LES ROKEBY PEAKING UNIT		1	19	6	2				
31	111	00019	6077	NPPD GERALD GENTLEMAN STATION		25	22,044	31,298	904				
31	111	00077	2306	SUTHERLAND LIGHT PLANT		1	8	1	0				
31	119	00016	2254	MADISON LIGHT		2	9	0	0				
31	127	00014	2215	AUBURN GENERATING PLANT		6	53	2	5				
31	131	00003	2255	NEBRASKA CITY POWER PLANT NO 1		7	91	3	9				
31	131	00008	7555	NEBRASKA CITY POWER PLANT NO 2		2	4	0	0				
31	131	00036	6096	OPPD NEBRASKA CITY STATION		17	9,483	16,206	534				
31	137	00018	2246	HOLDREGE POWER PLANT		11	11	1	1				
31	139	00012	2297	PLAINVIEW MUNICIPAL POWER		1	1	0	0				
31	145	00013	2271	NPPD MC COOK PEAKING UNIT		1	10	4	1				
31	151	00001	2231	CRETE MUNICIPAL PLANT		7	75	2	7				
31	151	00020	2315	WILBER MUNICIPAL POWER PLANT		3	4	0	0				
31	153	00005	2292	OPPD SARPY COUNTY STATION		8	74	1	17				
31	155	00034	2310	WAHOO POWER PLANT		6	32	1	3				
31	169	00022	2234	DESHLER MUNICIPAL UTILITIES		1	2	0	0				
31	173	02005	2296	PENDER MUNICIPAL POWER PLANT		5	5	0	0				
31	177	00034	2289	OPPD FORT CALHOUN STATION		1	1	0	0				
31	179	00001	2312	WAYNE MUNICIPAL POWER PLANT		2	87	4	1				
31	181	00008	2299	RED CLOUD MUNICIPAL PLANT		4	6	0	0				
31	181	00012	7481	CITY LIGHT		2	2	1	0				
32	1	0197	50765	AMOR IV CORP & STILLWATER GEOTHERMAL		2	6	0	0				
32	1	0756	52015	CAITHNESS DIXIE VALLEY LLC		2	6	1	1				
32	3	0398	2322	CLARK STATION		3	915	2	26				
32	3	0399	2326	SUNRISE STATION		2	1,017	1	20				
32	3	0400	2324	REID GARDNER STATION		4	9,038	2,181	1,068				
32	3	0466	2341	MOHAVE GENERATING STATION		4	19,430	41,299	1,666				
32	13	0457	8224	VALMY GENERATING STATION		3	7,025	6,461	359				
32	19	0091	2330	SIERRA PACIFIC POWER COMPANY		2	3,655	2,716	49				
32	29	0194	2336	SIERRA PACIFIC POWER		6	3,045	2,037	221				
32	31	A01176A	50760	EMPIRE ENERGY, LLC (FRMLY AMOR II)		1	0	0	0				
32	31	A90A	52138	STEAMBOAT ENVIROSYSTEMS, LLC, UNITS 1,1A		1	0	0	0				
33	3	3300300014	2369	PSNH/WHITE LAKE		1	6	2	0				
33	3	3300300019	50739	PINETREE POWER/TAMWORTH		2	266	13	9				

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33	7	3300700010	10839	WHITEFIELD POWER & LIGHT		2	219	8	4				
33	7	3300700087	2362	PSNH/LOST NATION		2	6	2	0				
33	9	3300900021	10290	BRIDGEWATER POWER COMPANY		2	188	10	21				
33	9	3300900026	50208	PINETREE POWER/BETHLEHEM		2	246	9	4				
33	9	3300900115	54803	PLYMOUTH COGENERATION, LP		5	53	37	4				
33	11	3301100004	50347	DUNBARTON ENERGY, LP		1	7	0	1				
33	11	3301100191	55006	FOUR HILLS LANDFILL		3	22	8	7				
33	13	3301300026	2364	PSNH/MERRIMACK STATION		7	4,263	38,404	2,259				
33	13	3301300032	50873	CONCORD STEAM		10	54	191	71				
33	13	3301300101	52041	BIO-ENERGY CORPORATION		2	151	6	36				
33	15	3301500012	2367	PSNH/SCHILLER STATION		8	1,870	6,340	214				
33	15	3301500054	8002	PSNH/NEWINGTON STATION		5	693	3,398	52				
33	19	3301900029	50872	WHEELABRATOR/CLAREMONT	yes	2	195	85	1	2	0	0	0
33	19	3301900031	10838	HEMPHILL POWER & LIGHT COMPANY		3	197	8	13				
34	1	70525	2383	Missouri Avenue Generating Station		8	52	5	3				
34	3	02488	2398	Bergen Generating Station		10	175	3	13				
34	3	02624	50852	Prime Energy Limited Partnership		3	291	37	166				
34	3	02736	55159	MM Hackensack Energy LLC - Balefill Land		6	23	6	5				
34	3	02737	55604	MM Hackensack Energy LLC - Kingsland Lan		4	17	22	8				
34	5	45979	2399	Burlington Generating Station		11	318	59	7				
34	7	51608	10751	Camden Cogen, L.P.		4	144	4	3				
34	7	51614	10435	Camden County Energy Recovery Associates	yes	3	499	24	38	1	0	0	0
34	9	73242	2378	B.L. England Generating Station		11	4,167	13,954	879				
34	9	73243	2382	Middle Generating Station		6	87	28	6				
34	11	75476	7288	Sherman Avenue Generating Station		4	32	0	12				
34	11	75483	54807	Vineland Cogeneration Plant		4	8	1	2				
34	11	75507	2434	Vineland Municipal Electric Utility - Do		11	105	441	20				
34	11	75508	5083	Cumberland Generating Station		5	31	0	11				
34	11	75512	2379	Carll's Corner Generating Station		5	58	22	3				
34	13	07524	54708	Montclair Cogeneration Limited Partnersh		1	47	2	4				
34	13	07617	50385	Newark Bay Cogeneration Partnership, L.P		6	101	9	28				
34	13	07627	2401	Essex Generating Station		6	564	1	54				
34	13	07731	50797	Calpine Newark Inc.		7	118	2	11				
34	13	07736	10643	American Ref-Fuel Company of Essex Count		12	720	151	112				
34	15	55778	2409	PSE&G - National Park Generating Station		2	11	2	1				
34	15	55784	8008	Mickleton Generating Station		4	82	2	2				

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34	15	55793	50885	Wheelabrator Gloucester Company, L.P.	yes	5	346	26	7	2	0	0	2
34	15	55834	10043	Logan Generating Plant, L.P.		15	715	627	19				
34	17	11421	50497	COGEN TECH. NJ VENTURE- BAYONNE		3	3	0	0				
34	17	12048	2397	Bayonne Generating Station		3	18	4	1				
34	17	12200	2404	Kearny Generating Station		12	276	125	15				
34	17	12202	2403	Hudson Generating Station		17	8,275	19,165	1,068				
34	19	80002	2393	Gilbert Generating Station		17	305	9	16				
34	19	80293	54707	Hunterdon Cogeneration Limited Partnersh		3	52	0	4				
34	19	80341	8227	Glen Gardner Combustion Turbine Site		10	92	0	10				
34	19	80350	10616	MILFORD POWER LIMITED PARTNERSHIP		3	3	0	0				
34	21	61015	50094	Trigen - Trenton Energy Co., L.P.		4	845	11	38				
34	21	61057	2408	Mercer Generating Station		13	11,726	13,445	693				
34	23	17823	2385	Werner Generating Station		7	31	12	3				
34	23	17824	2400	Edison Generating Station		5	591	1	41				
34	23	17884	2390	Sayreville Generating Station (JCP&L)		10	150	6	3				
34	23	17901	55092	O'Brien Biogas IV LLC		5	34	24	6				
34	23	18061	50799	Calpine Parlin Inc.		5	44	2	3				
34	23	18068	2411	Sewaren Generating Station		11	471	496	54				
34	23	18072	10308	North Jersey Energy Associates, L.P.		5	856	16	50				
34	29	78080	2388	OYSTER CREEK NUCLEAR GENERATING STATION		11	10	0	0				
34	29	78896	54640	Lakewood Cogeneration, L.P.		11	67	1	2				
34	29	78912	7138	Forked River Combustion Turbine Site		4	41	19	6				
34	29	78931	54980	Ocean County Landfill Corporation	yes	3	17	5	2	2	0	0	0
34	29	78932	2380	Cedar Generating Station		6	98	42	8				
34	33	65495	2384	Deepwater Generating Station		10	1,100	2,945	146				
34	33	65496	6118	Hope Creek Generating Station		21	42	40	37				
34	33	65497	10099	Pedricktown Cogeneration Plant		4	57	1	3				
34	33	65498	10566	CARNEYS POINT GENERATING PLANT		11	714	738	84				
34	33	65500	2410	Salem Generating Station		26	64	14	2				
34	39	41741	10805	EF KENILWORTH, INC.		3	122	4	17				
34	39	41810	2406	Linden Generating Station		8	260	149	17				
34	39	41814	50960	Union County Resource Recovery Facility	yes	5	788	102	14	1	0	0	1
34	41	85455	10012	Warren Energy Resource Co. L.P.	yes	5	232	6	4	2	0	0	1
35	1	3500100011	2450	REEVES GENERATING STATION		10	701	2	56				
35	7	0001	2468	RATON POWER PLANT		2	224	203	6				
35	13	0002	2444	RIO GRANDE GENERATING STATION		4	944	3	33				

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35	25	0034	2446	MADDOX STATION		3	674	2	29				
35	25	0054	2454	CUNNINGHAM		7	1,611	5	66				
35	31	0032	87	ESCALANTE		5	3,595	1,297	275				
35	37	0002	2469	TUCUMCARI		5	3	0	0				
35	45	0002	2442	FOUR CORNERS		10	47,300	39,564	3,872				
35	45	0029	2465	ANIMAS PLANT		2	104	1	2				
35	45	0902	2451	SAN JUAN GENERATING STATION		18	28,438	21,403	5,406				
35	47	0004	2447	LAS VEGAS TURBINE		1	3	0	0				
36	1	4010100171	55155	ALBANY LANDFILL	yes	3	3	0	1	5	21	0	1
36	1	4012200044	2539	ALBANY STEAM STATION		12	453	2,549	39				
36	1	4012200078	10725	SELKIRK COGENERATION PROJECT		16	469	6	3				
36	3	9025800018	7784	RG&E ALLEGANY STATION #133		5	10	0	1				
36	7	7034600045	2526	AES WESTOVER		6	2,448	15,661	917				
36	9	9041200042	54076	INDECK OLEAN ENERGY CENTER		4	20	0	0				
36	9	9043600022	10403	LAIDLAW ENERGY AND ENVIRONMENTAL INC		2	56	0	7				
36	13	9060300021	2554	DUNKIRK STEAM GENERATING STATION		7	5,754	51,308	3,364				
36	13	9060800053	2682	SAMUEL A CARLSON GENERATING STATION		5	505	3,223	188				
36	17	7082200014	2531	AES JENNISON		9	371	1,938	92				
36	19	5094200106	54574	SARANAC POWER PARTNERS COGENERATION FAC.		13	242	5	55				
36	27	3134600019	10305	DUTCHESS CO RESOURCE RECOVERY FACILITY		1	125	149	1				
36	29	9146400130	2549	HUNTLEY STEAM GENERATING STATION		6	9,192	43,856	2,324				
36	29	9146400153	50451	INDECK-YERKES ENERGY SERVICES		6	117	2	3				
36	43	6212800041	50459	INDECK-ILION ENERGY CENTER		3	41	0	1				
36	45	6224000009	10464	ELECTRICAL GENERATING FACILITY		12	340	791	76				
36	45	6226000024	10620	CARTHAGE ENERGY COGEN FACILITY		6	27	1	0				
36	47	2610100042	2496	CON EDISON - HUDSON AVE STATION		3	1,148	913	61				
36	47	2610100185	54914	BROOKLYN NAVY YARD COGENERATION PLANT		12	87	11	20				
36	47	2610200086	2499	ASTORIA GENERATING NARROWS GAS TURBINE		3	654	108	67				
36	47	2610200116	2494	ASTORIA GENERATING GOWANUS GAS TURBINE P		2	789	194	78				
36	47	2610700141	50405	WARBASSE HOUSES & POWER PLANT		6	18	0	3				
36	55	8261400448	2640	R G & E BEEBEE STATION		5	362	2,321	138				
36	55	8262800068	2642	R G & E RUSSELL STATION		13	3,205	27,331	1,698				
36	55	8264400048	50568	HIGH ACRES LANDFILL AND RECYCLING CENTER	yes	6	87	20	2	2	0	0	0
36	55	8265600008	50565	MONROE LIVINGSTON SANITARY LANDFILL		4	63	8	2				
36	59	1282000357	2679	FREEPORT POWER PLANT #1		4	39	3	3				
36	59	1282000358	2678	FREEPORT POWER PLANT #2		3	47	3	3				

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36	59	1282000553	2511	EF BARRETT POWER STATION		41	1,407	788	115				
36	59	1282000753	2695	ROCKVILLE CENTRE POWER PLANT		4	253	29	18				
36	59	1282001015	52056	TRIGEN CENTRL UTILITY PLT - MITCHL FIELD		4	274	3	3				
36	59	1282001727	10642	HEMPSTEAD RESOURCE RECOVERY FACILITY	yes	1	1,733	197	5	1	4	1	0
36	59	1282002479	50348	OCEANSIDE LANDFILL GAS RECOVERY FAC		4	29	2	0				
36	59	1282200481	2514	GLENWOOD MAIN POWER STATION		6	528	5	45				
36	59	1282400947	50292	TBG COGEN		5	313	7	29				
36	61	2620200032	2503	CON ED-59TH ST STA		5	524	384	38				
36	61	2620400019	2504	CON ED-74TH STREET STA		3	829	1,084	75				
36	61	2620600012	2493	CON ED-EAST RIVER GENERATING STATION		6	1,692	678	102				
36	61	2620600038	2502	CON ED-WATERSIDE STATION		6	722	10	69				
36	63	9291100113	50472	AMERICAN REF-FUEL CO NIAGARA,PL	yes	1	1,037	91	2	6	148	8	6
36	63	9291100152	50202	CH RESOURCES - NIAGARA FALLS		3	61	87	2				
36	63	9291200059	54131	NORTH TONAWANDA COGENERATION FACILITY		6	136	5	2				
36	63	9292600016	54041	LOCKPORT COGENERATION FACILITY		7	811	194	14				
36	63	9293800003	6082	AES SOMERSET LLC		2	7,659	6,685	728				
36	65	6301400011	50744	STERLING ENERGY FACILITY		6	37	0	14				
36	67	7311500229	54425	POA COGEN FAC/SYRACUSE UNIV STEAM STA		6	154	1	2				
36	67	7312600127	50978	CARR STREET GENERATING STATION		2	20	0	2				
36	67	7313200042	50855	ONONDAGA COGENERATION FACILITY		4	34	1	0				
36	67	7313200052	50651	TRIGEN SYRACUSE ENERGY CORPORATION		9	1,106	2,260	2				
36	67	7314200028	50662	ONONDAGA CO RESOURCE RECOVERY FACILITY	yes	3	521	22	0	11	0	0	0
36	71	3330900040	2632	SHOEMAKER GAS TURBINE FACILITY		2	74	0	9				
36	71	3333000037	10047	ORANGE COUNTY SANITARY LANDFILL		1	0	0	0				
36	71	3333000084	10549	J-W OPERATING COMPANY		11	128	35	7				
36	71	3334600011	2480	DANSKAMMER GENERATING STATION		12	5,072	12,388	534				
36	71	3334600075	8006	ROSETON GENERATING STATION		7	3,644	15,591	270				
36	75	7350400023	54138	FULTON COGENERATION ASSOC COGEN PROJECT		5	48	1	3				
36	75	7351200005	50450	INDECK-OSWEGO LIMITED PARTNERSHIP		2	111	0	6				
36	75	7351200030	2594	OSWEGO HARBOR POWER		8	653	2,997	33				
36	75	7355600040	54547	INDEPENDENCE STATION		9	426	18	19				
36	81	2630100084	2491	POLETTI POWER PROJECT		3	2,586	2,207	279				
36	81	2630100185	8906	ASTORIA (ORION) GENERATING STATION		6	3,469	2,241	333				
36	81	2630400024	2500	RAVENSWOOD GENERATING STATION		2	3,803	2,646	439				
36	81	2630800040	2513	KEYSPAN GENERATION-FAR ROCKAWAY STATION		2	121	1	13				
36	81	2630800096	54114	KIAC COGENERATION PLANT-JFK AIRPORT		4	77	1	16				

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36	83	4381400029	54034	RENSSELAER COGEN FACILITY		11	46	1	3				
36	83	4384400008	10190	TRANSCANADA POWER CASTLETON		4	94	1	2				
36	85	2640300014	2490	ARTHUR KILL GENERATING STATION		5	1,421	8	101				
36	87	3392200003	2625	BOWLINE POINT GENERATING STATION		4	2,242	1,992	201				
36	87	3392600059	2628	HILLBURN GAS TURBINE FACILITY		1	45	0	2				
36	87	3392800010	2629	LOVETT GENERATING STATION		7	2,439	5,370	260				
36	89	6405800046	54592	MASSENA ENERGY FACILITY		4	11	0	1				
36	91	5412600028	50458	INDECK CORINTH ENERGY CENTER		4	82	10	2				
36	91	5414400031	10618	SOUTH GLENS FALLS ENERGY, LLC		12	79	2	2				
36	99	8453200075	54782	SENECA ENERGY LFGTE FACILITY		2	96	2	0				
36	101	8463800011	2529	AES HICKLING LLC		2	774	2,804	171				
36	103	1472000777	50649	BABYLON RESOURCE RECOVERY FACILITY		2	439	73	1				
36	103	1472001046	2521	WEST BABYLON INTERNAL COMBUSTION FAC.		1	32	10	1				
36	103	1472200105	8007	HOLTSVILLE FACILITY		25	1,065	44	17				
36	103	1472200107	2517	PORT JEFFERSON POWER STATION		6	1,298	4,906	131				
36	103	1472200108	7146	WADING RIVER I.C. FACILITY		5	268	189	13				
36	103	1472200926	7314	RICHARD M FLYNN POWER PLANT		4	178	49	31				
36	103	1472202441	54149	NISSEQUOGUE COGEN PARTNERS PLANT		2	160	1	13				
36	103	1472400345	2512	EAST HAMPTON INTERNAL COMBUSTION FAC.		4	168	21	6				
36	103	1472600130	2516	NORTHPORT POWER STATION		18	7,629	25,491	547				
36	103	1472600790	50656	HUNTINGTON RESOURCE RECOVERY FACILITY	yes	1	492	55	7	1	0	0	0
36	103	1472800185	51038	ISLIP MCARTHUR RESOURCE RECOVERY FACIL		1	115	48	1				
36	103	1473400169	50344	SMITHTOWN WEST ENERGY GEN		2	17	0	0				
36	103	1473601438	2519	SOUTHAMPTON INTERNAL COMBUSTION FACILITY		2	39	8	4				
36	103	1473800455	2520	SOUTHOLD INTERNAL COMBUSTION FACILITY		2	33	7	4				
36	109	7503200019	2535	AES CAYUGA		4	3,577	2,497	332				
36	115	5534400001	10503	ADIRONDACK RESOURCE RECOVERY FAC	yes	2	313	3	2	1	0	0	0
36	119	3552200011	2497	INDIAN PT GENERATING & SERVICE STATION		9	56	21	2				
36	121	9563200010	50449	INDECK-SILVER SPRINGS COGENERATION		4	147	1	1				
36	123	8573600004	2527	AES GREENIDGE LLC		2	2,713	18,484	901				
37	7	3700700032	2707	CP&L - BLEWETT HYDROELECTRIC PLANT		1	76	21	3				
37	17	3701700043	10380	ELIZABETHTOWN POWER, LLC		1	145	359	0				
37	19	3701900051	6014	CP&L - BRUNSWICK PLANT		2	6	0	0				
37	19	3701900067	10378	COGENTRIX OF NORTH CAROLINA INC - SOUTHP		6	548	1,425	6				
37	21	0628	2706	ASHEVILLE		4	4,997	17,129	862				
37	25	3702500113	10626	KANNAPOLIS ENERGY PARTNERS LLC-KANNAPOL		7	697	2,103	25				

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37	31	3703100116	2711	CP&L - MOREHEAD CITY ELECTRIC PLANT		1	9	3	0				
37	35	3703500073	2727	DUKE POWER MARSHALL PLT		10	20,124	77,291	3,611				
37	37	3703700063	2708	CP&L - CAPE FEAR PLANT		10	3,183	10,938	590				
37	49	3704900158	10525	CRAVEN COUNTY WOOD ENERGY		6	557	2	25				
37	51	3705100094	1016	PUBLIC WORKS COMMISSION BUTLER-WARNER GE		2	143	0	46				
37	55	3705500021	2783	N C ELECTRICAL MEMBERSHIP CORPORATION		5	56	3	2				
37	61	3706100116	10381	COGENTRIX EASTERN CAROLINA LLC - KENANSV		7	144	465	5				
37	65	3706500146	10384	COGENTRIX OF ROCKY MOUNT		8	2,128	288	28				
37	67	00745	50221	R. J. R. TOBACCO CO. - T-VILLE	yes	2	1,163	2,621	7	3	10	3	12
37	71	3707100039	2718	DUKE POWER ALLEN PLT		11	10,673	37,027	1,921				
37	71	3707100040	2732	DUKE POWER RIVERBEND PLT		12	5,096	17,438	902				
37	83	3708300170	50555	PANDA-ROSEMARY COGENERATION FACILITY		5	143	13	6				
37	83	3708300174	54035	ROANOKE VALLEY PROJECT		10	2,209	898	21				
37	109	3710900082	7277	DUKE POWER CO LCTS		2	284	19	19				
37	119	0269	6038	DUKE ENERGY MCGUIRE NUCLEAR STATION		7	21	0	0				
37	129	3712900036	2713	CP&L - SUTTON PLANT		8	7,502	20,223	1,026				
37	129	3712900263	50271	NEW HANOVER COUNTY WASTEC	yes	3	176	46	47	1	0	0	0
37	145	3714500029	2712	CP&L - ROXBORO STEAM ELECTRIC PLANT		11	25,470	94,214	4,662				
37	145	3714500045	6250	CP&L - MAYO FACILITY		10	9,349	25,943	1,190				
37	145	3714500056	10379	COGENTRIX OF NORTH CAROLINA INC		5	304	607	6				
37	155	3715500147	2716	CP&L - WEATHERSPOON PLT		11	2,687	6,814	364				
37	155	3715500166	10382	LUMBERTON POWER, LLC		1	134	354	0				
37	157	3715700015	2723	DUKE POWER CO - DAN RIVER STEAM STATION		13	2,025	4,416	211				
37	159	3715900004	2720	DUKE POWER BUCK PLT		13	3,790	9,208	464				
37	159	3715900144	52178	KANNAPOLIS ENERGY PARTNERS **INACTIVE**		3	310	685	3				
37	161	3716100028	2721	DUKE ENERGY CORPORATION - CLIFFSIDE STEA		11	9,140	29,560	1,474				
37	169	3716900004	8042	DUKE POWER CO - BELEWS CREEK STEAM STATI		6	34,213	83,112	4,263				
37	183	3718300599	6015	CP&L - HARRIS NUCLEAR PLANT		2	9	3	0				
37	191	3719100017	2709	CP&L - F LEE PLANT		12	5,353	15,750	786				
38	55	0017	6030	COAL CREEK		4	10,733	26,313	2,398				
38	57	0001	2817	LELAND OLDS		4	14,780	51,456	1,307				
38	57	0004	2824	STANTON		4	2,970	10,659	356				
38	57	0011	6469	ANTELOPE VALLEY		4	12,847	12,070	890				
38	57	0012	8222	COYOTE		2	14,259	16,255	379				
38	59	0001	2790	R M HESKETT		3	1,240	3,789	75				
38	65	0001	2823	MILTON R YOUNG		4	22,582	35,557	1,064				

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39	1	0701000007	2850	DP&L, J.M. STUART GENERATING STATION		18	39,034	100,566	4,913				
39	1	0701000060	6031	DP&L, KILLEN GENERATING STATION		9	10,008	24,021	1,072				
39	7	0204010000	2835	CLEVELAND ELECTRIC ILLUMINATING CO., ASH		8	3,085	11,882	440				
39	11	0306010010	2942	CITY OF ST. MARYS POWER PLANT		3	279	1,449	87				
39	13	0607130015	2864	R. E. BURGER PLANT		13	7,946	50,657	2,174				
39	17	1409010078	2831	CINCINNATI GAS & ELECTRIC CO., DICKS CRE		5	176	0	8				
39	17	1409040243	2917	CITY OF HAMILTON DEPARTMENT OF PUBLIC UT		8	1,207	2,182	66				
39	17	1409120656	7158	CINCINNATI GAS & ELECTRIC CO., WOODSDALE		12	269	0	4				
39	23	0812790035	2860	OHIO EDISON CO. MAD RIVER PLANT		2	29	13	2				
39	25	1413090154	6019	CINCINNATI GAS & ELECTRIC CO., WM. H. ZI		8	20,895	21,652	1,387				
39	25	1413100008	2830	CINCINNATI GAS & ELECTRIC, W. C. BECKJOR		20	17,012	61,797	3,413				
39	31	0616000000	2840	CONESVILLE POWER PLANT		21	22,096	96,741	5,221				
39	35	1318000132	2906	CLEVELAND PUBLIC POWER - COLLINWOOD SUBS		2	7	0	0				
39	35	1318000245	2838	CLEVELAND ELECTRIC ILLUMINATING CO., LAK		5	1,088	1,762	68				
39	35	1318247813	55605	CUYAHOGA REGIONAL SANITARY LANDFILL		1	36	0	1				
39	51	0326000079	54974	SAUDER WOODWORKING COGENERATION FACILITY		2	59	0	2				
39	53	0627000003	2876	OHIO VALLEY ELECTRIC CORP., KYGER CREEK		15	26,757	118,307	6,807				
39	53	0627010056	8102	GAVIN POWER PLANT		8	32,236	46,300	2,806				
39	61	1431350093	2832	CINCINNATI GAS & ELECTRIC, MIAMI FORT ST		18	17,433	73,539	4,481				
39	81	0641050002	2828	CARDINAL POWER PLANT (CARDINAL OPERATING		11	24,983	100,182	5,421				
39	81	0641160017	2866	W. H. SAMMIS PLANT		15	29,816	115,479	5,988				
39	85	0243110008	2936	PAINESVILLE MUNICIPAL ELECTRIC PLANT		6	926	4,001	243				
39	85	0243160009	2837	CLEVELAND ELECTRIC ILLUMINATING CO., EA		8	13,573	46,852	1,541				
39	93	0247030013	2836	CLEVELAND ELECTRIC ILLUMINATING, AVON LA		9	15,779	33,493	1,290				
39	93	0247080049	2857	EDGEWATER PLANT		7	83	12	6				
39	93	0247080487	2869	WEST LORAIN PLANT		2	82	0	4				
39	93	0247100320	2933	OBERLIN MUNICIPAL LIGHT & POWER SYSTEM		8	118	0	8				
39	95	0448020006	2878	TOLEDO EDISON CO., BAY SHORE POWER PLANT		11	9,968	12,585	591				
39	109	0855100041	2937	PIQUA MUNICIPAL POWER SYSTEM		5	18	21	1				
39	113	0857040926	2851	DP&L MONUMENT SUBSTATION		5	55	5	1				
39	113	0857042072	2847	DP&L F.M. TAIT PEAKING		7	129	2	1				
39	113	0857780013	2848	DP&L O H HUTCHINGS ELECTRIC GENERATING P		6	3,004	6,506	322				
39	113	0857810015	2854	DP&L YANKEE STREET GENERATING STATION		7	60	0	0				
39	129	0165000006	2843	PICWAY POWER PLANT		3	884	9,183	491				
39	139	0370020002	2943	SHELBY MUNICIPAL LIGHT PLANT		6	963	6,153	399				
39	149	0575010008	2852	DP&L, SIDNEY GENERATING STATION		5	59	0	1				

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39	155	0278060023	2861	NILES PLANT		4	6,881	25,901	173				
39	157	0679010146	2914	DOVER MUNICIPAL LIGHT PLANT		3	480	2,182	130				
39	167	0684000000	2872	MUSKINGUM RIVER POWER PLANT		12	26,811	135,935	7,643				
39	167	0684020037	7286	R. H. GORSUCH STATION		9	3,223	30,633	1,578				
39	169	0285010188	2935	DEPARTMENT OF PUBLIC UTILITIES, CITY OF		6	2,070	15,181	895				
39	171	0386010036	2903	BRYAN MUNICIPAL LIGHT & WATER UTILITIES		1	8	0	1				
39	171	0386010200	7779	BRYAN MUNICIPAL LIGHT & WATER UTILITIES		3	14	1	2				
40	15	1214	2964	CENTRAL AND SOUTH WEST SERVICES, INC.		6	1,963	37	35				
40	15	2699	3006	WESTERN FARMERS ELECTRIC COOP		6	72	0	1				
40	17	2205	2953	OKLAHOMA GAS & ELECTRIC		4	2,455	3	42				
40	23	2700	6772	WESTERN FARMERS ELECTRIC COOP		2	2,902	7,605	246				
40	31	1211	8059	CENTRAL AND SOUTH WEST SERVICES, INC.		2	2,678	3	42				
40	71	2929	7185	OKLAHOMA GAS & ELECTRIC		4	946	28	38				
40	79	1011	10671	AES SHADY POINT, INC.		9	882	5,601	176				
40	97	1799	165	GRAND RIVER DAM AUTHORITY		7	14,384	16,725	936				
40	101	2209	2952	OKLAHOMA GAS & ELECTRIC		5	18,842	28,082	974				
40	103	2211	6095	OKLAHOMA GAS & ELECTRIC		3	11,192	19,025	689				
40	109	2208	2951	OKLAHOMA GAS & ELECTRIC		4	1,602	4	46				
40	109	2407	50558	POWERSMITH COGENERATION PROJECT, L.P.		5	544	3	55				
40	119	1247	3000	STILLWATER POWER		2	1	0	0				
40	131	1212	2963	CENTRAL AND SOUTH WEST SERVICES, INC.		12	18,072	29,677	726				
40	133	2210	2956	OKLAHOMA GAS & ELECTRIC		4	4,312	13	142				
40	143	1213	2965	CENTRAL AND SOUTH WEST SERVICES, INC.		5	510	1	12				
40	143	1215	4940	CENTRAL AND SOUTH WEST SERVICES, INC.		5	4,471	258	114				
40	153	2701	3008	WESTERN FARMERS ELECTRIC COOP		4	398	1	16				
41	9	52520	8073	PORTLAND GENERAL ELECTRIC		8	1,223	20	21				
41	19	100002	50993	CO-GEN II		4	159	6	92				
41	23	120001	50921	CO-GEN CO. LLC		5	155	7	75				
41	29	150159	10869	BIOMASS ONE, L.P.		12	221	14	15				
41	49	250016	6106	PORTLAND GENERAL ELECTRIC COMPANY		4	10,769	17,823	466				
41	49	250031	7350	PORTLAND GENERAL ELECTRIC COMPANY		4	84	3	13				
41	59	300113	54761	HERMISTON GENERATING COMPANY, L.P. AND P		2	190	8	0				
42	1	52-2154847-11	3109	RELIANT ENERGY MID A/HAMILTON ELECTRIC G		1	29	7	3				
42	1	52-2154847-12	3112	RELIANT ENERGY MID A/ORTANNA ELECTRIC GE		1	28	7	3				
42	1	52-2154847-8	3110	RELIANT ENERGY MID A/HUNTERSTOWN ELECTRI		6	52	1	8				
42	3	4200300133	55196	ALLEGHENY DEV. CORP. ENERGY FACILITY		4	8	0	7				

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42	3	4200300157	8226	DUQUESNE LIGHT COMPANY, CHESWICK STATION		26	6,751	49,004	2,945				
42	3	4200300158	3096	DUQUESNE LIGHT CO. - BRUNOT ISLAND		3	167	34	15				
42	3	4200300297	3099	DUQUESNE LIGHT COMPANY, PHILLIPS STATION		1	2	1	0				
42	5	23-3020481-3	3178	ALLEGHENY ENERGY SUP/ARMSTRONG POWER STA		3	3,775	30,876	1,850				
42	5	25-1753949-4	3136	KEYSTONE STATION OWN/KEYSTONE POWER PLT		11	19,296	159,732	9,512				
42	7	22-2370906-2	50130	ZINC CORP AMER/MONACA SMELTER	yes	2	807	1,430	26	46	972	7,972	717
42	7	25-0718810-3	6094	PA POWER CO/BRUCE MANSFIELD PLT		12	24,411	25,580	2,628				
42	7	54-1163725-1	10676	AES BEAVER VALLEY PA/POTTER		8	4,481	3,949	87				
42	11	52-2154847-4	3115	RELIANT ENERGY MID A/TITUS ELECTRIC GEN		15	1,402	10,483	700				
42	17	04-3024782-1	54746	WHEELABRATOR FALLS I/FALLS TWP	yes	2	741	137	1	2	0	0	1
42	17	23-3064219-12	8012	EXELON GENERATION CO/CROYDON GEN STA		16	254	14	22				
42	17	23-3064219-18	3162	EXELON GENERATION CO/FALLS TWP PEAK PWR		3	26	5	2				
42	17	23-3064219-27	7690	EXELON GENERATION CO/PENNSBURY POWER PLT		2	3	1	0				
42	21	23-2639463-1	10641	CAMBRIA COGEN CO/CAMBRIA COGEN		8	1,045	2,773	42				
42	21	25-1692995-1	10143	INTER POWER AHLCON L/COLVER POWER PROJ		3	724	2,108	71				
42	21	72-1085863-1	10603	EBENSBURG POWER CO/EBENSBURG COGENERATIO		4	446	1,821	50				
42	25	52-1666131-1	50776	PANTHER CREEK PARTNE/NESQUEHONING PLT		4	577	594	11				
42	29	23-3064219-4	3159	EXELON GENERATION CO/CROMBY GENERATION S		16	2,215	5,685	204				
42	31	25-1691604-1	54144	PINEY CREEK LTD PART/PINEY CREEK POWER P		10	231	1,045	76				
42	33	52-2154847-3	3131	RELIANT ENERGY MID A/SHAWVILLE GENERATIN		14	6,712	42,017	2,394				
42	35	23-3022600-28	3147	PPL MARTINS CREEK LL/LOCK HAVEN CTS		1	1	0	0				
42	39	52-2154847-17	3134	RELIANT ENERGY MID A/WAYNE COMBUSTION TU		1	58	32	4				
42	41	52-2154847-9	3111	RELIANT ENERGY MID A/MOUNTAIN ELECTRIC G		4	49	4	7				
42	45	23-3064219-1	3161	EXELON GENERATION CO/EDDYSTONE		29	7,383	10,240	556				
42	45	23-3064219-2	3157	EXELON GENERATION CO/CHESTER		3	14	3	1				
42	45	76-0531017-1	10746	AMER REF FUEL CO OF /DELAWARE VALLEY RES	yes	6	1,483	426	18	1	0	0	2
42	49	25-1232336-1	55074	WASTE MGMT PA/LAKE VIEW LANDFILL	yes	3	7	0	12	5	50	3	1
42	49	76-0354084-1	54571	NORCON POWER PARTNER/NORCON COGEN PLT		7	190	1	41				
42	55	23-6002979-1	7397	CHAMBERSBURG BORO/DIESEL POWER PLT		4	21	0	0				
42	59	23-3020481-1	3179	ALLEGHENY ENERGY SUP/HATFIELDS FERRY POW		4	27,402	185,496	10,999				
42	63	25-1753949-19	3118	KEYSTONE STATION OWN/CONEMAUGH PLT		11	20,893	6,453	1,455				
42	63	33-0826938-1	3122	EDISON MISSION ENERG/EME HOMER CITY GENE		6	24,991	137,575	7,763				
42	63	52-2154847-18	3130	RELIANT ENERGY MID A/SEWARD POWER PLT		6	2,212	13,395	725				
42	65	16-1226257-1	10383	COGENTRIX PA INC/RINGGOLD		9	559	4	13				
42	69	23-1933626-1	50782	ENVIRONMENTAL & RECY/AMITY LANDFILL-TAYL		1	292	243	47				
42	69	34-1746531-1	54934	KEYSTONE RECOVERY IN/KEYSTONE RECOVERY I		1	117	16	0				

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42	71	23-0959590-4	3145	PP&L INC/HOLTWOOD		6	1,492	4,844	242				
42	71	23-6006036-3	50859	LANCASTER CNTY SOLID/LANCASTER RRF	yes	3	1,019	33	2	3	0	0	2
42	73	52-2201498-3	3138	ORION POWER MIDWEST /NEW CASTLE PLT		10	4,137	28,851	1,646				
42	77	23-3022600-8	3139	PPL MARTINS CREEK LL/ALLENTOWN CTG SITE		4	38	9	3				
42	79	23-1650159-1	3176	UGI DEVELOPMENT CO/HUNLOCK CREEK		7	635	3,249	175				
42	79	23-3022600-11	3146	PPL MARTINS CREEK LL/JENKINS CTG		2	17	5	1				
42	79	73-1524087-1	10870	WILLIAMS GENERATION /HAZLETON COGEN FAC		1	16	0	3				
42	81	23-3022600-9	3155	PPL MARTINS CREEK LL/WILLIAMSPORT CTS		2	9	2	1				
42	91	23-3064219-21	6105	EXELON GENERATION CO/LIMERICK GENERATING		14	61	4	45				
42	91	23-3064219-25	3163	EXELON GENERATION CO/MOSER GENERATING ST		3	30	5	1				
42	91	65-0314688-1	54625	MONTENAY MONTGOMERY /PLYMOUTH		2	686	28	5				
42	93	23-3022599-18	3149	PPL MONTOUR LLC/MONTOUR SES		6	12,391	111,508	6,531				
42	95	23-2683633-1	50888	NORTHAMPTON GEN CO/NORTHAMPTON		16	386	579	17				
42	95	23-3022600-16	3148	PPL MARTINS CREEK LL/MARTINS CREEK		18	6,735	25,205	1,459				
42	95	52-2154847-6	3113	RELIANT ENERGY MID A/PORTLAND GENERATING		11	1,941	16,620	984				
42	97	22-2763306-1	10343	FOSTER WHEELER MT CA/COGEN PLT		2	214	450	22				
42	97	38-2720480-1	50771	VIKING ENERGY NORTHU/COGEN PLT		2	202	8	21				
42	101	4210104901	3160	PECO ENERGY CO - DELAWARE STATION		10	286	348	25				
42	101	4210104903	3168	P E C O ENERGY CO - RICHMOND		2	52	13	6				
42	101	4210104904	3169	PECO ENERGY CO. - SCHUYLKILL		5	59	128	11				
42	101	4210104905	3170	PECO ENERGY CO - SOUTHWARK		4	35	8	4				
42	101	4210104942	50607	TRIGEN - PHILADELPHIA ENERGY CORP.		4	327	447	40				
42	101	4210104944	54785	GRAYS FERRY COGENERATION PTNR		6	137	5	25				
42	107	02-0393452-1	50879	WHEELABRATOR FRACKVI/MOREA PLT		2	373	507	7				
42	107	23-1596648-1	54634	SCHUYLKILL ENERGY RE/READING ANTHRACITE		2	287	2,066	34				
42	107	23-2366929-1	50039	NORTHEASTERN POWER C/MCADOO CO GEN		2	187	875	40				
42	107	23-2387116-1	10113	GILBERTON POWER CO/JOHN B RICH MEMO POWE		5	240	1,601	21				
42	109	23-0959590-10	3152	PP&L INC/SUNBURY SES		24	7,508	28,788	1,418				
42	117	52-2154847-20	3120	RELIANT ENERGY MID A/BLOSSBURG COMBUSTIO		2	8	0	1				
42	121	04-2975595-1	50974	SCRUBGRASS POWER COR/KENNERDELL PLT		25	803	990	40				
42	123	52-2154847-2	3132	RELIANT ENERGY MID A/WARREN STATION		10	600	2,732	152				
42	125	23-3020481-2	3181	ALLEGHENY ENERGY SUP/MITCHELL POWER STAT		4	3,151	1,112	250				
42	125	52-2201498-1	3098	ORION POWER MIDWEST /ELRAMA		4	7,721	5,367	479				
42	133	23-1920928-1	50215	YORK CNTY SOLID WAST/YORK COUNTY RESOURC		3	498	50	8				
42	133	23-3022596-5	3140	PPL BRUNNER ISLAND L/BRUNNER ISLAND		12	10,408	44,273	2,429				
42	133	23-3064219-5	3166	EXELON GENERATION CO/PEACH BOTTOM NUCLEA		6	24	3	1				

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42	133	33-0058470-1	54693	STI CAPITAL CO/SPRINGETTSBURY TWP		6	64	0	9				
42	133	52-2154847-7	3116	RELIANT ENERGY MID A/TOLNA ELECTRIC GEN		2	40	14	4				
42	133	65-0872409-2	55142	REPUBLIC SVC GROUP O/MODERN LANDFILL	yes	4	22	22	8	3	29	2	1
44	7	00039	3236	USGEN NEW ENGLAND INC.		5	668	13	58				
44	7	00545	51030	OCEAN STATE POWER		2	415	4	0				
44	7	00555	50365	RIDGEWOOD PROVIDENCE POWER PARTNERS LP		2	51	0	0				
44	7	90069	54056	PAWTUCKET POWER ASSOCIATED		4	69	8	2				
45	3	0080-0011	3295	SCE&G:URQUHART		17	2,869	12,870	974				
45	3	0080-0044	7652	SCE&G:SRS AREA D		13	2,931	4,527	412				
45	7	0200-0004	3264	DUKE ENERGY:LEE		15	2,326	8,005	399				
45	13	0360-0048	3277	SCE&G:BURTON		4	20	0	0				
45	15	0420-0003	3319	SANTEE COOPER:JEFFERIES		12	3,762	17,986	966				
45	15	0420-0006	3298	SCE&G:WILLIAMS		6	9,549	22,789	1,150				
45	15	0420-0030	130	SANTEE COOPER:CROSS		4	15,720	13,877	1,207				
45	19	0560-0029	3285	SCE&G:HAGOOD		2	30	11	1				
45	19	0560-0305	3284	SCE&G:FABER PLACE		1	1	0	0				
45	21	0600-0060	55043	CHEROKEE COUNTY COGENERATION		1	93	2	1				
45	29	0740-0002	3280	SCE&G:CANADYS		4	4,453	22,038	1,563				
45	31	0820-0002	3251	CP&L:ROBINSON		8	4,046	8,371	491				
45	39	1000-0012	6127	SCE&G:SUMMER		2	5	4	0				
45	39	1000-0021	3291	SCE&G:PARR (JENKINSVILLE)		8	66	2	0				
45	43	1140-0005	6249	SANTEE COOPER:WINYAH		8	20,782	37,872	1,675				
45	47	1240-0075	3254	DUKE ENERGY:BUZZARD ROOST		20	107	23	1				
45	51	1340-0003	3317	SANTEE COOPER:GRAINGER		4	3,259	9,553	520				
45	51	1340-0021	3320	SANTEE COOPER:MYRTLE BEACH		1	24	9	2				
45	53	1360-0019	3286	SCE&G:HARDEEVILLE		1	15	2	0				
45	63	1560-0003	3287	SCE&G:MCMEEKIN		6	3,178	12,773	646				
45	73	1820-0041	3265	DUKE ENERGY:OCONEE		4	1	0	0				
45	75	1860-0044	7210	SCE&G:COPE		2	3,288	1,464	313				
45	75	1860-0073	7479	ORANGEBURG DPU:NORTH ROAD		2	56	9	1				
45	75	1860-0085	7480	ORANGEBURG DPU:ROWESVILLE ROAD		7	7	0	2				
45	79	1900-0013	3297	SCE&G:WATEREE		4	9,319	34,925	2,828				
45	79	1900-0132	3281	SCE&G:COIT		4	6	1	0				
45	79	1900-0161	3283	SC GENERAL SERVICES:COLUMBIA MILLS		2	2	0	0				
45	91	2440-0070	6036	DUKE ENERGY:CATAWBA		4	29	0	1				
46	51	1001	6098	BIG STONE		3	16,454	13,618	198				

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46	99	U333	3334	PATHFINDER		3	0	0	0				
46	103	0001	3325	BLACK HILLS POWER AND LIGHT COMPANY		4	825	821	16				
47	1	0009	3396	TVA BULL RUN FOSSIL PLANT		8	17,323	43,052	2,018				
47	1	0170	50570	Chestnut Ridge Landfill / Curtis Sexton		7	160	17	1				
47	65	4150	6152	TENNESSEE VALLEY AUTHORITY -- SEQUOYAH N		6	15	0	4				
47	73	0007	3405	TVA JOHN SEVIER FOSSIL PLANT		9	10,185	41,884	1,973				
47	75	0068	55081	BROWNSVILLE POWER I. L.L.C.		4	15	0	0				
47	85	0011	3406	TVA JOHNSONVILLE FOSSIL PLANT		16	21,424	94,506	4,572				
47	145	0013	3407	TVA Kingston Fossil Plant		6	26,166	90,291	4,368				
47	157	528	3393	Allen Fossil Plant		47	19,384	15,510	334				
47	161	0011	3399	TVA CUMBERLAND FOSSIL PLANT		18	51,190	15,573	2,784				
47	165	0025	3403	TVA-GALLATIN FOSSIL PLANT		6	10,987	56,171	2,073				
48	13	AG0007G	6183	SAN MIGUEL ELCTRC COOPERATIVE INC		5	7,283	13,932	1,563				
48	21	BC0015L	3601	LOWER COLORADO RIVER AUTHORITY		8	1,311	18	58				
48	29	BG0057U	3611	CITY PUBLICSERVICE		22	1,120	9	67				
48	29	BG0057UA	6181	CITY PUBLICSERVICE B		2	7,508	21,835	1,520				
48	29	BG0057UB	7097	CITY PUBLICSERVICE B		1	3,670	3,767	507				
48	29	BG0059Q	3609	CITY PUBLICSERVICE BOARD		4	61	0	6				
48	29	BG0186I	3612	CITY PUBLICSERVICE		7	790	3	41				
48	29	BG0187G	3613	CITY PUBLICSERVICE		9	184	0	34				
48	29	BG0188E	3610	CITY PUBLICSERVICE BOARD		2	33	0	4				
48	39	BL0622F	55015	SWEENY COGENERATION LTD PARTNERSHIPS		7	2,299	11	139				
48	41	BM0009Q	6243	CITY OF BRYAN		1	114	7	9				
48	41	BM0010I	3561	BRYAN MUNICIPAL ELECTRIC SYSTEM		7	147	1	4				
48	57	CB0008C	3436	CENTRAL POWER AND LIGHT CO		1	792	10	25				
48	57	CB0038Q	10554	FORMOSA PLASTICS CORP	yes	6	1,503	3	90	155	953	14	10
48	61	CD0009B	3559	BROWNSVILLEPUBLIC UTILITIES BOARD		6	109	1	11				
48	61	CD0013K	3442	CENTRAL POWER AND LIGHT CO		4	1,053	135	33				
48	71	CI0012D	3460	RELIANT ENERGY INC		13	2,628	205	217				
48	73	CJ0026J	3504	TXU ELECTRIC CO		9	1,913	265	75				
48	81	CN0005T	3523	WEST TEXAS UTILITIES CO		1	379	14	14				
48	83	CO0003M	3566	CITY OF COLEMAN		8	83	1	0				
48	85	CP0026M	3576	GARLAND MUNICIPAL POWER AND LIGHT		5	769	8	38				
48	85	CP0065C	3500	TXU ELECTRIC CO		3	67	2	9				
48	105	CZ0017A	3526	W TX UTILITIES CO		3	699	2	20				
48	113	DB0249H	3452	TXU ELECTRIC CO		8	1,635	135	86				

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48	113	DB0251U	3454	TXU ELECTRIC CO		12	1,216	100	58				
48	113	DB0252S	3453	TXU ELECTRIC CO		11	1,229	118	73				
48	113	DB0253Q	3455	TXU ELECTRIC CO		7	394	1	11				
48	113	DB0384A	3574	GARLAND MUNICIPAL POWER AND LIGHT		8	23	0	1				
48	121	DF0012T	4266	DENTON MUNICIPAL UTILITIES		7	147	10	9				
48	141	EE0029T	3456	EL PASO ELECTRIC CO		5	2,347	7	87				
48	147	FB0025U	3508	TX UTILITIES ELECTRIC CO		11	3,179	61	97				
48	149	FC0018G	6179	LOWER COLORADO RIVER AUTHORITY		43	19,865	31,707	3,384				
48	157	FG0020V	3470	RELIANT ENERGY INC		50	14,091	52,534	1,325				
48	161	FI0020W	3497	TXU ELECTRIC CO		28	12,537	70,594	1,539				
48	163	FJ0012P	3630	MEDINA ELECTRIC COOPERATIVE INC		3	201	367	12				
48	167	GB0037T	3466	RELIANT ENERGY INC		16	4,509	18	327				
48	167	GB0153Q	52088	TEXAS CITY COGENERATION LP		4	3,188	10	35				
48	175	GF0002R	6178	CENTRAL SOUTH WEST SERVICES INC		6	5,412	13,712	412				
48	183	GJ0043K	3476	SOUTHWESTERN ELECTRIC POWER CO		6	1,197	90	42				
48	185	GK0012K	6136	TEXAS MUNICIPAL POWER AGENCY		5	3,707	11,284	307				
48	197	HE0013G	3521	WEST TEXAS UTILITIES CO		1	11	0	0				
48	201	HG0071Q	10298	AIR LIQUIDEAMERICA CORP	yes	1	1,149	1	6	7	3,567	3	24
48	201	HG0353D	3464	RELIANT ENERGY INC		13	445	54	52				
48	201	HG0355W	3471	RELIANT ENERGY INC		3	331	2	20				
48	201	HG0356U	3461	RELIANT ENERGY INC		2	77	0	5				
48	201	HG0357S	3469	RELIANT ENERGY INC		25	1,037	19	157				
48	201	HG0358Q	3468	RELIANT ENERGY INC		15	796	9	49				
48	201	HG1169O	10741	CALPINE CORPORATION		4	1,618	12	71				
48	201	HG1495V	10670	AES DEEPWATER INC		5	3,267	4,165	1				
48	201	HG4955K	7325	RELIANT ENERGY INC		4	324	5	53				
48	201	HG9954A	55047	CALPINE CORPORATION		3	179	6	44				
48	203	HH0037F	7902	SOUTHWESTERN ELECTRIC POWER CO		8	8,534	16,090	974				
48	207	HJ0022B	3524	WEST TEXAS UTILITIES CO		4	497	90	17				
48	213	HM0017H	3507	TXU ELECTRIC CO		3	451	22	18				
48	215	HN0013E	3438	CENTRAL POWER AND LIGHT CO		3	1,806	39	23				
48	215	HN0403K	55098	FRONTERA GENERATION LTD PARTNERSHIP		2	58	1	13				
48	221	HQ0012T	8063	TXU ELECTRIC CO		9	6,843	69	137				
48	227	HT0065Q	52176	POWER RESOURCES LTD		8	838	10	41				
48	231	HV0023K	4195	GREENVILLE ELECTRIC SYSTEM		3	30	3	2				
48	233	HW0081I	55064	SOUTHWESTERN PUBLIC SERVICE CO		2	927	9	73				

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48	251	JH0230L	54817	TENASKA IV TEXAS PARTNERS LTD		2	210	4	44				
48	253	JI0030K	4938	CENTRAL & SOUTH WEST SERVICES INC		2	1,210	56	58				
48	277	LA0045F	50109	TENASKA IIITEXAS PARTNERS		7	1,310	2	36				
48	279	LB0046P	3485	SOUTHWESTERN PUBLIC SERVICE		9	1,088	7	43				
48	279	LB0047N	6194	SOUTHWESTERN PUBLIC SERVICE CO		11	12,305	25,436	523				
48	293	LI0027L	298	RELIANT ENERGY INC		51	14,640	24,559	2,839				
48	299	LL0006O	4937	LOWER COLORADO RIVER AUTHORITY		8	889	3	40				
48	303	LN0057V	3602	LUBBOCK POWER & LIGHT		5	239	1	13				
48	303	LN0081B	3482	SOUTHWESTERN PUBLIC SERVICE CO		9	3,456	37	103				
48	303	LN0206F	7131	LUBBOCK POWER AND LIGHT		1	84	1	9				
48	303	LN3604A	3604	J.R. MASSENGALE		5	102	4	9				
48	309	MB0116C	3506	TXU ELECTRIC CO		11	12,633	171	189				
48	309	MB0117A	3502	TXU ELECTRIC CO		9	1,017	2	23				
48	315	ME0006A	3478	SOUTHWESTERN ELECTRIC POWER CO		4	1,814	19	82				
48	331	MM0023J	6648	TXU ELECTRIC CO		24	8,538	24,912	1,344				
48	335	MO0014L	3492	TXU ELECTRIC CO		15	7,435	82	108				
48	339	MQ0009F	3457	ENTERGY GULF STATES INC		4	2,301	8	104				
48	343	MS0011T	3477	SOUTHWESTERN ELECTRIC POWER CO		1	22	0	1				
48	353	ND0054G	50615	EEX POWER SYSTEMS		5	1,174	12	46				
48	355	NE0024E	4939	CENTRAL POWER AND LIGHT CO		3	2,747	284	137				
48	355	NE0025C	3440	CENTRAL POWER AND LIGHT CO		5	1,507	37	49				
48	355	NE0026A	3441	CENTRAL POWER AND LIGHT CO		3	1,581	242	73				
48	355	NE0035W	3608	ROBSTOWN UTILITY SYSTEMS		6	367	1	6				
48	361	OC0013O	3459	ENTERGY GULF STATES INC		9	6,358	25	311				
48	363	PA0003W	3628	BRAZOS ELECTRIC POWER COOPERATIVE IN		5	1,123	5	57				
48	367	PC0005T	3627	BRAZOS ELECTRIC POWER COO		3	11	0	0				
48	375	PG0040T	3484	SOUTHWESTERN PUBLIC SERVICE CO		6	1,277	3	44				
48	375	PG0041R	6193	SOUTHWESTERN PUBLIC SERVICE CO		13	12,604	24,700	623				
48	387	RE0012M	3503	TXU ELECTRIC CO		2	22	0	1				
48	395	RI0035C	7030	TEXAS NEW MEXICO POWER CO		37	2,407	5,176	239				
48	401	RL0020K	6146	TXU ELECTRIC CO		47	22,084	66,138	3,872				
48	409	SD0092F	55313	OCCIDENTAL CHEMICAL CORP	yes	2	185	0	24	28	452	2	27
48	439	TA0352I	3489	TXU ELECTRIC CO		4	859	41	36				
48	439	TA0353G	3491	TXU ELECTRIC CO		14	2,009	48	98				
48	439	TA0354E	3493	TXU ELECTRIC CO		1	16	0	1				
48	441	TB0056E	3517	WEST TEXAS UTILITIES CO		1	1	0	0				

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48	449	TF0012D	6139	SOUTHWESTERN ELECTRIC POWER CO		9	17,204	39,541	1,141				
48	449	TF0013B	6147	TXU ELECTRIC CO		44	19,107	87,264	2,458				
48	451	TG0044C	3527	WEST TEXAS UTILITIES CO		2	668	3	37				
48	453	TH0004D	3548	CITY OF AUSTIN		15	1,267	19	81				
48	453	TH0006W	3549	CITY OF AUSTIN		6	609	3	32				
48	469	VC0003D	3443	CENTRAL POWER AND LIGHT CO		3	884	83	36				
48	469	VC0026O	3631	SOUTH TEXASELECTRIC COOPERATIVE INC		9	47	5	3				
48	475	WC0028Q	3494	TXU ELECTRIC CO		10	10,349	186	111				
48	479	WE0005G	3439	CENTRAL & SOUTHWEST SERVICES INC		3	526	25	26				
48	481	WF0175P	50137	NEWGULF POWER VENTURE INC		1	13	0	0				
48	485	WH0083W	50127	MIRANT WICHITA FALLS LP		4	427	1	8				
48	487	WI0025C	127	WEST TEXAS UTILITIES CO		1	6,187	3,971	562				
48	503	YB0017V	3490	TXU ELECTRIC CO		4	3,032	1,288	51				
49	1	10319	7370	BONNETT-GEOTHERMAL POWER PLANT		2	0	0	0				
49	7	10081	3644	CARBON POWER PLANT		15	3,130	5,188	180				
49	7	10096	50951	SUNNYSIDE COGENERATION FACILITY		28	517	1,189	35				
49	11	11974	3665	BOUNTIFUL SANITARY LANDFILL	yes	2	0	0	17	7	8	1	1
49	15	10237	6165	HUNTER POWER PLANT		29	17,575	5,654	1,294				
49	15	10238	8069	HUNTINGTON POWER PLANT		21	12,183	12,070	880				
49	27	10327	6481	INTERMOUNTAIN GENERATION STATION		18	31,041	4,200	1,721				
49	35	10355	3648	GADSBY POWER PLANT		7	619	4	56				
49	47	107790	7790	BONANZA		2	6,983	1,207	526				
49	49	10819	7028	WHITEHEAD POWER PLANT		2	161	0	0				
49	49	10823	7408	PAYSON CITY POWER		5	65	2	13				
49	57	10973	6553	LITTLE MOUNTAIN POWER PLANT		3	272	0	24				
50	5	601	51026	RYEGATE ASSOCIATES		2	190	10	1				
50	7	43	589	BURLINGTON ELECTRIC DEPT. (MCNEIL STATIO		5	229	5	27				
51	1	00006	3785	CONECTIV DELMARVA GENERATION INC - TASLE		1	54	17	4				
51	5	00024	3799	VIRGINIA POWER LOW MOOR		4	58	17	5				
51	31	00156	10773	ALTAVISTA POWER STATION		8	109	11	3				
51	41	00002	3797	VIRGINIA POWER CHESTERFIELD POWER STATIO		21	17,072	65,996	4,449				
51	53	00077	54045	WYTHE PARK POWER INC PETERSBURG		3	36	5	0				
51	65	00001	3796	DOMINION - BREMO POWER STATION		6	3,634	9,844	508				
51	71	00002	3776	AMERICAN ELECTRIC POWER GLEN LYN		8	3,750	9,926	494				
51	83	00046	7213	VIRGINIA POWER CLOVER POWER STATION		5	10,841	2,074	858				
51	85	00061	52019	DOSWELL LIMITED PARTNERSHIP		12	223	1	150				

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51	87	00156	7212	VIRGINIA POWER DARBYTOWN		2	120	21	5				
51	99	00012	54304	BIRCHWOOD POWER PARTNERS, L.P.		7	386	411	57				
51	109	00040	54844	GORDONSVILLE ENERGY		23	86	24	25				
51	117	00051	52007	MECKLENBURG COGENERATION FACILITY		3	1,017	363	17				
51	131	00008	3782	CONECTIV DELMARVA GENERATION INC - BAYVI		6	200	13	13				
51	143	00123	52118	MULTITRADE OF PITTSYLVANIA CO LP		6	90	4	19				
51	153	00002	3804	VIRGINIA POWER POSSUM POINT		20	6,101	21,687	1,001				
51	153	00139	55156	PRINCE WILLIAM COUNTY SANITARY LANDFILL		3	36	13	6				
51	167	00003	3775	AMERICAN ELECTRIC POWER/CLINCH RIVER PLA		8	12,160	22,440	1,093				
51	175	00051	10774	VIRGINIA POWER - SOUTHAMPTON POWER STATI		11	251	18	3				
51	181	00002	7032	VIRGINIA POWER SURRY/GRAVEL NECK POWER S		15	144	73	7				
51	199	00001	3809	VIRGINIA POWER YORKTOWN POWER STATION		10	9,604	39,365	1,686				
51	510	00003	3788	POTOMAC RIVER GENERATING STATION		10	5,918	15,162	726				
51	510	00139	50663	OGDEN MARTIN SYSTEMS - ARLINGTON/ALEXAND		3	705	101	20				
51	550	00026	3803	VIRGINIA POWER CHESAPEAKE		23	9,708	30,178	1,529				
51	550	00161	52087	COMMONWEALTH ATLANTIC LIMITED PARTNERSHI		2	119	0	0				
51	670	00003	50813	STONE CONTAINER CORPORATION HOPEWELL	yes	1	365	767	19	33	1,948	1,307	326
51	670	00055	10377	JAMES RIVER COGENERATION COMPANY		4	859	1,756	8				
51	670	00058	10633	HOPEWELL COGENERATION LTD PARTNERSHIP		13	341	46	13				
51	670	00063	10771	HOPEWELL POWER CO		17	110	15	4				
51	740	00081	10071	COGENTRIX VIRGINIA LEASING CORP		8	585	1,667	6				
51	760	00399	54081	COGENTRIX OF RICHMOND		9	2,617	704	21				
51	800	00109	54781	POW.GEN.(SUFFOLK) & SUFF ENERGY PARTNERS		1	51	0	5				
53	11	0155	7605	CLARK PUBLIC UTILITIES / RIVER ROAD GENE		1	75	4	14				
53	39	0024	7832	ROOSEVELT REGIONAL LANDFILL	yes	5	12	37	41	1	7	0	0
53	41	0010	3845	TRANSALTA CENTRALIA GENERATION		8	18,268	67,001	2,682				
53	53	10028	99	PUGET SOUND ENERGY (FREDERICKSON)		4	203	1	4				
53	53	28780	3920	TACOMA STEAM PLANT NO. 2		13	391	336	24				
53	57	0040	607	PSE FREDONIA		1	218	1	11				
53	57	0045	54268	MARCH POINT COGENERATION		3	245	26	6				
53	65	0033	550	AVISTA		3	463	66	112				
53	73	0028	6120	PSE WHITEHORN		5	120	11	5				
53	73	0032	54542	ENCOGEN NW COGENERATION PLANT		3	103	3	11				
53	73	0033	54476	SUMAS COGENERATION CALPINE		2	47	6	6				
54	23	0003	3954	MOUNT STORM POWER PLANT		21	27,832	73,453	4,751				
54	23	0014	7537	NORTH BRANCH POWER STATION		14	987	721	41				

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54	33	0015	3944	MONONGAHELA POWER CO-HARRISON		17	30,669	7,137	1,637				
54	39	0006	3936	APPALACHIAN POWER - KANAWHA RIVER PLANT		5	6,035	15,567	759				
54	49	0009	3945	MONONGAHELA POWER CO.-RIVESVILLE POWER		11	2,371	5,344	278				
54	49	0026	10151	AMERICAN BITUMINOUS POWER-GRANT TOWN PLT		9	1,526	2,250	23				
54	51	0005	3948	OHIO POWER - MITCHELL PLANT		5	21,708	49,905	2,459				
54	51	0006	3947	OHIO POWER - KAMMER PLANT		7	13,285	38,905	2,125				
54	53	0001	3938	APPALACHIAN POWER CO.-PHILIP SPORN PLANT		11	14,405	39,294	1,930				
54	53	0009	6264	APPALACHIAN POWER - MOUNTAINEER PLANT		3	13,503	29,279	1,153				
54	61	0001	3943	MONONGAHELA POWER CO.- FORT MARTIN POWER		15	12,340	79,672	4,754				
54	61	0027	10743	MORGANTOWN ENERGY ASSOCIATES		16	779	1,029	0				
54	73	0004	3946	MONONGAHELA POWER CO.-WILLOW ISLAND		7	5,914	13,586	748				
54	73	0005	6004	MONONGAHELA POWER CO-PLEASANTS POWER STA		17	14,564	44,817	1,446				
54	77	0001	3942	MONONGAHELA POWER CO-ALBRIGHT		13	4,325	21,540	1,324				
54	79	0006	3935	APPALACHIAN POWER - JOHN E AMOS PLANT		8	36,374	78,865	3,672				
55	3	802033320	3982	NORTHERN STATES POWER CO-BAY FRONT GEN S		19	1,390	776	458				
55	5	603012520	4102	BARRON LIGHT & WATER DEPT		8	0	1	0				
55	5	603058610	4112	CUMBERLAND MUNICIPAL UTILITY		7	14	2	0				
55	9	405031990	4072	WI PUBLIC SERVICE CORP - JP PULLIAM PLAN		20	7,841	6,475	279				
55	9	405170920	55029	DE PERE ENERGY CENTER		2	26	4	4				
55	11	606034110	4140	DAIRYLAND POWER COOP ALMA STATION		11	2,533	5,351	309				
55	11	606034110A	4271	DAIRYLAND POWER COOP ALMA STATION B		2	5,299	4,974	221				
55	13	807057350	4021	NORTHWESTERN WISCONSIN ELECTRIC COMPANY		4	3	0	0				
55	17	609042720	4014	NORTHERN STATES POWER CO WHEATON GEN PLA		8	204	54	7				
55	21	111003090	8023	WIS PWR & LIGHT COLUMBIA GEN STATION		12	15,923	28,304	797				
55	25	113004430	3992	MADISON GAS & ELECTRIC CO BLOUNT ST STN		26	1,459	6,795	340				
55	25	113016090	9674	MADISON GAS & ELECTRIC CO NINE SPRINGS S		2	6	0	1				
55	25	113016200	3991	MADISON GAS & ELEC FITCHBURG GENERATING		4	64	0	6				
55	25	113017850	3993	MADISON GAS & ELECTRIC CO SYCAMORE STATI		4	39	0	4				
55	31	816010910	3976	GORDON DIESEL PLANT		2	0	0	0				
55	39	420101660	7203	ALLIANT ENERGY (FKA WISC. POWER & LIGHT)		8	103	69	8				
55	43	122014530	4054	WIS PWR & LIGHT-NELSON DEWEY GEN STATION		8	4,780	11,323	90				
55	55	128085210	55011	LSP WHITEWATER COGENERATION FACILITY		5	73	3	19				
55	57	729011580	4130	NEW LISBON ELECTRIC & WATER DEPT		7	7	0	0				
55	59	230006260	6170	WIS ELECTRIC POWER PLEASANT PRAIRIE STAT		10	21,389	32,131	941				
55	59	230052240	54661	PHEASANT RUN RDF GAS POWER PLT		3	24	1	3				
55	59	230094810	7270	WIS ELECTRIC POWER CO - PARIS		8	606	1	58				

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55	61	431022790	8024	WI PUBLIC SERVICE CORP KEWAUNEE PLANT		4	0	0	0				
55	63	632022820	4005	NORTHERN STATES PWR CO FRENCH ISLAND GEN		4	279	103	193				
55	71	436034500	4046	WIS ELECTRIC POWER POINT BEACH STATION		1	14	1	1				
55	71	436035930	4125	MANITOWOC PUBLIC UTILITIES		15	855	3,096	102				
55	73	737009020	4078	WIS PUBLIC SERVICE CORP - WESTON PLANT		25	6,640	12,427	347				
55	75	438089190	4076	WIS PUBLIC SERVICE CORP		7	333	4	19				
55	79	241007690	4041	WIS ELECTRIC POWER OAK CREEK STATION		10	9,769	19,997	685				
55	79	241007800	4042	WIS ELECTRIC POWER VALLEY STATION		8	3,664	14,635	728				
55	79	241027050	7549	MILWAUKEE COUNTY POWER PLANT		5	405	863	2				
55	79	241168620	50576	WASTE MANAGEMENT OF WIS.INC. METRO RDF	yes	2	42	0	17	1	0	0	0
55	87	445012370	54842	OUTAGAMIE CO LANDFILL COGENERATION FACIL	yes	3	22	1	1	1	0	0	0
55	89	246004000	4040	WIS ELECTRIC POWER PT WASHINGTON STATION		9	2,267	13,378	509				
55	95	649013860	4020	NORTHWESTERN WISCONSIN ELECTRIC COMPANY		6	5	0	0				
55	99	851009280	3984	NORTHERN STATES POWER CO - FLAMBEAU GEN		1	44	0	4				
55	105	154003630	4048	WIS PWR & LIGHT BLACKHAWK GEN STATION		2	26	0	1				
55	105	154003740	4057	WIS PWR & LIGHT-ROCK RIVER GEN STATION		14	318	15	12				
55	105	154009900	4059	WIS PWR & LIGHT SHEEPSKIN		2	15	0	1				
55	117	460033090	4050	EDGEWATER		1	13,091	17,892	467				
55	123	663020930	4143	DAIRYLAND POWER COOP GENOA STATION-EOP		4	4,080	12,135	592				
55	125	764084860	4062	WIS PUBLIC SERVICE CORP-EAGLE RIVER PEAK		2	10	0	1				
55	127	265128270	55013	WASTE MANAGEMENT - MALLARD RIDGE	yes	1	26	1	0	2	0	0	3
55	131	267006190	6253	WIS ELECTRIC POWER GERMANTOWN STATION		8	262	60	14				
55	139	471013510	50936	WINNEBAGO COUNTY LANDFILL	yes	1	12	1	0	1	0	0	0
55	139	471033640	4127	MENASHA ELEC & WATER UTIL		2	58	94	5				
56	5	00002	4150	BLACK HILLS POWER & LGHT SIMPSON 1		3	640	847	16				
56	5	00046	6101	PACIFICORP_WYODAK		9	4,601	8,214	602				
56	5	00063	7504	BLACK HILLS POWER & LGT_SIMPSON 2		7	784	719	326				
56	9	00001	4158	PACIFICORP_DAVE JOHNSTON		6	13,912	18,586	1,036				
56	23	00004	4162	PACIFICORP_NAUGHTON POWER PLANT		14	12,844	21,734	1,900				
56	31	00001	6204	BASIN ELECTRIC_LARAMIE RIVER STATION		5	17,995	11,423	2,458				
56	37	01002	8066	PACIFICORP_JIM BRIDGER		28	34,131	23,834	4,658				
56	45	00005	4151	BLACK HILLS OSAGE		6	1,504	2,926	165				
				National Totals		10613	4,937,401	10,901,129	598,937	910	25,078	30,458	3,341

Appendix G
Description of VMT base and growth approach

This description is in the form of a memorandum from the data developer (E.H. Pechan and Associates) to the project work assignment manager (Jim DeMocker) at the U.S. EPA.

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MEMORANDUM

Date: March 4, 2004

To: Jim DeMocker, OAR/OPAR

From: Maureen Mullen, Pechan, and Jim Neumann, Industrial Economics, Inc.

Subject: Documentation of 2003 VMT Projection Methodology
EPA Contract No. 68-W-02-048, WA B-41

The purpose of this memorandum is to document the methods used to develop the VMT projections developed in the summer of 2003 with funding from the second prospective Section 812 analysis project. In general, the projections are based on the vehicle miles traveled (VMT) used in EPA's 1999 National Emission Inventory (NEI) Version 3, with projection year VMT growth factors developed from data in the Department of Energy/Energy Information Administration's (DOE/EIA's) Annual Energy Outlook (DOE, 2002 and DOE, 2003a) and EGAS 4.0 population growth factors. The VMT projection estimates are summarized here; the actual data files have been transmitted electronically to David Brzesinski, Harvey Michaels, and Madeleine Strum of EPA on March 1, 2004 under separate cover.

This approach was developed to be consistent with advice received as of August 2003 from the Science Advisory Board committees set up to review the methodology for the Section 812 analysis. As of that date, some preliminary meetings of the Advisory Council on Clean Air Compliance Analysis (referred to as "the Council") had occurred, and a full meeting of the Air Quality Modeling Subcommittee of the Council was completed. Since that time, however, the Council has completed a more detailed review of the proposed second prospective methodology and appears likely to recommend a re-working of the VMT projections and components of the methodology, primarily to refine and ensure more consistent application of the economic and population projections used in emissions projections. As a result, and because of an extension of the schedule for completion of the second prospective analysis, it is not likely that the VMT projection methodology outlined in this memorandum will be used in the Section 812 context. We therefore refer to these estimates in this memo as the "2003 draft" VMT estimates.

Base Year VMT

The 1999 base year VMT used in EPA's 1999 NEI Version 3 are calculated from VMT data obtained from the Federal Highway Administration (FHWA). The FHWA data used in the development of the 1999 NEI include State-level 1999 VMT by functional roadway class and urban area VMT by functional roadway class. EPA allocated these estimates to the county, roadway class, and vehicle type level based on population and roadway mileage by county. Further explanation of this procedure can be found with the NEI documentation. In 1999, EPA received State-supplied VMT data covering ten entire States and two additional counties. These data replaced the FHWA-based VMT for the corresponding States and counties

(Alabama, California, Colorado, Maine, Massachusetts, Mississippi, Utah, Oregon, Virginia, and West Virginia, and Maricopa County, Arizona and Hamilton County, Tennessee).

VMT Projection Data

The VMT projections account for vehicle class-specific growth factors and population growth factors. The data used for the vehicle class-specific growth factors are vehicle category-specific VMT projections to 2010 and 2020 for the following three vehicle classes: 1) Light-duty vehicles (under 8,500 lbs); 2) Commercial light trucks (between 8,500 and 10,000 lbs); and 3) Freight trucks (greater than 10,000 lbs). The EIA VMT projections are calculated using EIA's National Energy Modeling System (NEMS) Transportation Model (DOE, 2003b). The model documentation outlines the major factors affecting future VMT and describes how these are incorporated into the equation to calculate VMT in the future. The model consists of three separate modules that define how variables influence future VMT for three distinct types of travel: personal, light commercial truck, and freight truck travel. The personal travel model takes into account demographic effects including the aging of the population and the growth of female driving rates relative to male driving rates. Economic influences such as the fuel cost of driving and disposable personal income are also taken into account. The light commercial and freight truck models are simpler, relying upon largely economic factors such as industrial output and demand. Many of these data, particularly on annual vehicle stock, base VMT, and fuel consumption, are provided by FHWA. In the summer of 2003, Pechan reviewed several other sources of VMT projections for possible use in the Section 812 prospective analysis, including VMT projections by FHWA (Mullen and Silva, 2003). Based on that research, the Section 812 project team, with EPA consultation, at that time tentatively concluded that the DOE/EIA projections were the best available option for VMT projections. As discussed above, the project team believes these estimates will need to be updated to respond to SAB Council advice received in late 2003 at a face-to-face meeting but, as of the date of this memo, is not yet finalized.

Growth and Allocation Methodology

The EIA VMT projections, as documented in the Annual Energy Outlook 2003 (DOE, 2003a and DOE, 2001), are shown in Table 1. Table 2 shows which MOBILE6 vehicle classes are included in each of the EIA vehicle classes. The EIA VMT projections and the 1999 EIA VMT data, shown in Table 1, were allocated to the MOBILE6 vehicle categories using the default MOBILE6 VMT fractions by vehicle type in 2010 and 2020 and 1999. The result of this allocation is shown in Table 3. Overall vehicle-specific growth factors were calculated by multiplying the ratio of the 2010 (or 2020) to 1999 VMT at the MOBILE6 vehicle type level, and can be seen in Table 3. It should be noted that the VMT shown in Table 3 only represent an intermediate step, which is used to develop the vehicle-specific growth factors. These are not the final VMT developed for this analysis. The resultant VMT are summarized in Tables 4 and 5.

Different levels of population growth throughout the country were accounted for by calculating the ratio of county level population growth to national population growth. The population estimates used in these calculations are the EGAS 4.0 population projections. The EGAS 4.0 population projections derive from 1970, 1980, and 1990 Census population estimates and the REMI demographic/migration module which forecasts regional population change (REMI, 1997). These EGAS 4.0 population projections are different than the population projections used by EIA in the development of their VMT projections.

These resulting growth factors were then multiplied by the 1999 NEI Version 3 VMT at the county/roadway type/vehicle type level of detail to obtain 2010 and 2020 VMT data bases. This is illustrated in the following equation:

$$VMT_{20,C,V,R} = VMT_{99,C,V,R} * (VMT_{EIA20,V} / VMT_{EIA99,V}) * [(POP_{20,C}/POP_{99,C})/(POP_{20,US}/POP_{99,US})]$$

where: $VMT_{20,C,V,R}$ = 2020 projected VMT for county *C*, vehicle type *V*, road type *R* (million miles)
$VMT_{99,C,V,R}$ = 1999 NEI3.0 VMT for county *C*, vehicle type *V*, road type *R* (million miles)
$VMT_{EIA20,V}$ = 2020 EIA-based VMT projection for vehicle type *V* (billion miles)
$VMT_{EIA99,V}$ = 1999 EIA-based VMT for vehicle type *V* (billion miles)
$POP_{20,C}$ = 2020 EGAS 4.0 population of county *C*
$POP_{99,C}$ = 1999 EGAS 4.0 population of county *C*
$POP_{20,US}$ = 2020 EGAS 4.0 population of *US*
$POP_{99,US}$ = 1999 EGAS 4.0 population of *US*

It should be noted that this equation does not specifically account for varying growth rates by functional roadway class. Our research in 2003 did not reveal a consistent national basis on which to make roadway-class-specific projections.

Results

Table 4 shows the resulting draft 2003-vintage projected VMT estimates by the three EIA vehicle categories, compared to the starting EIA VMT projections, repeated from Table 1. The draft 2003 VMT projections do not match the EIA VMT projection data. There are several reasons for this. First, the EIA data are used only to estimate vehicle-specific growth factors. These growth factors are then applied to the NEI 1999 Version 3 VMT data. As can be seen in Table 4, the 1999 NEI VMT differs from the EIA 1999 VMT shown in Table 1. Thus, since the growth factors are applied to a different base VMT database, the resulting projection year VMT would be expected to be different than the projection year VMT data used to calculate the vehicle-specific growth factors. Secondly, the application of different population adjustment factors contributes further to the differentiation of the calculated VMT projections from the EIA projections. For example, in the 1999 NEI VMT database, the distribution of VMT by vehicle type within one of the States that supplied its own VMT data may show a very different VMT mix than the 1999 default national allocations used in other states. (The 1999 default national allocations are based on rural and urban VMT mixes by vehicle class, from calendar year-specific data in Highway Statistics. The projection year national default VMT mixes are obtained directly from MOBILE6 output.) Since this mix is not consistent throughout the country, the application of the combined vehicle-specific and population-specific growth factors will result in a change to the overall VMT mix in the projection years.

Table 4 shows a higher 1999 VMT for the light-duty vehicles category in the 1999 NEI than in the EIA data used to calculate the growth factors. However, the resulting draft 2003 VMT projections for the light-duty vehicle category are lower in both 2010 and 2020 than the EIA estimates. This is due to a combination of the lower growth factor for the LDGV subcategory (as shown in Table 3), which results from the shift in VMT mix over time leading to decreasing LDGV VMT and increasing LDGT VMT, in combination with the regional population growth factors.

Table 5 summarizes the results for 2020, comparing the resulting draft 2003 VMT at the MOBILE6 vehicle type level with the EIA 2020 VMT, allocated to the MOBILE6 vehicle type level. This table shows that the draft 2003 2020 light-duty gasoline vehicle VMT is higher than the EIA VMT allocated by vehicle category, while the light-duty gasoline truck VMT shows the reverse (higher for EIA, lower for draft Section 812). In addition, the draft 2003 VMT is about 20 percent higher than the EIA VMT for the commercial light truck category, but slightly lower than the EIA VMT for the heavier vehicle categories. In total, the draft 2003 VMT is about 4 percent lower than the EIA 2020 total VMT projection.

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Table 1. Summary of EIA VMT Projections

Vehicle Category	EIA VMT (billion miles) 1999	2010	2020
Light-Duty Vehicles	2,305	3,004	3,753
Commercial Light Trucks	67	84	107
Freight Trucks	201	263	338
Total	*2,573*	*3,351*	*4,202*

Table 2. Correspondence Between EIA and MOBILE6 Vehicle Types

EIA Vehicle Type	Corresponding MOBILE6 Vehicle Types
Light-duty vehicles	LDGV, LDDV, MC, LDGT1, LDGT2, LDGT3, LDGT4, LDDT12, LDDT34
Commercial light	HDGV2b, HDDV2b
Freight trucks	HDGV3, HDGV4, HDGV5, HDGV6, HDGV7, HDGV8a, HDGV8b, HDDV3, HDDV4, HDDV5, HDDV6, HDDV7, HDDV8a, HDDV8b, HDGV,

Table 3. EIA VMT Allocated to MOBILE6 Vehicle Categories and Corresponding Growth Factors

MOBILE6 Vehicle Type	EIA VMT Allocated to MOBILE6 Vehicle Categories (billion miles)			Growth Factor from 1999 to:	
	1999	2010	2020	2010	2020
LDGV	1,339.631	1,210.417	1,194.719	0.904	0.892
LDGT1	161.850	304.485	435.179	1.881	2.689
LDGT2	538.811	1,013.631	1,448.696	1.881	2.689
LDGT3	164.187	307.883	439.949	1.875	2.680
LDGT4	75.503	141.582	202.317	1.875	2.680
LDDV	3.877	1.078	1.073	0.278	0.277
LDDT12	1.319	0.030	0.000	0.023	0.000
LDDT34	3.210	6.543	9.450	2.038	2.944
MC	16.612	18.348	21.617	1.105	1.301
HDGV2B	49.926	64.422	82.646	1.290	1.655
HDDV2B	17.074	19.578	24.354	1.147	1.426
HDGV3	2.577	3.296	4.400	1.279	1.707
HDGV4	1.663	1.126	1.229	0.677	0.739
HDGV5	3.167	3.408	4.198	1.076	1.326
HDGV6	6.814	7.291	9.061	1.070	1.330
HDGV7	3.357	3.038	3.711	0.905	1.105
HDGV8A	0.013	0.009	0.012	0.738	0.948
HDGV8B	0.000	0.000	0.000	0.000	0.000
HDGB	1.661	0.533	0.334	0.321	0.201
HDDV3	7.156	8.909	11.342	1.245	1.585
HDDV4	5.541	9.024	12.031	1.628	2.171
HDDV5	2.333	4.234	5.790	1.815	2.482
HDDV6	14.078	20.677	26.922	1.469	1.912
HDDV7	21.497	29.867	38.562	1.389	1.794
HDDV8A	27.524	35.674	45.754	1.296	1.662
HDDV8B	98.104	127.157	163.053	1.296	1.662
HDDBT	2.343	3.025	3.900	1.291	1.664
HDDBS	3.172	5.731	7.700	1.807	2.427
Total	***2,573.000***	***3,350.996***	***4,198.001***	***1.302***	***1.632***

Table 4. Summary of Resulting Draft 2003 VMT Projections

	EIA VMT (billion miles)			Resulting Draft 2003 VMT (billion miles)		
Vehicle Category	**1999**	**2010**	**2020**	**1999**	**2010**	**2020**
Light-Duty Vehicles	**2,305**	**3,004**	**3,753**	**2,388**	**2,940**	**3,573**
Commercial Light Trucks	**67**	**84**	**107**	**81**	**102**	**129**
Freight Trucks	**201**	**263**	**338**	**197**	**257**	**329**
Total	***2,573***	***3,351***	***4,202***	***2,666***	***3,299***	***4,031***

Table 5. EIA 2020 VMT Projection Allocated to MOBILE6 Vehicle Types and Resulting Draft 2003 2020 VMT

MOBILE6 Vehicle Type	EIA 2020 VMT (billion miles)	Draft 2003 VMT (billion miles)
LDGV	1,194.72	1,394.16
LDGT1	435.18	372.84
LDGT2	1,448.70	1,241.16
LDGT3	439.95	367.75
LDGT4	202.32	169.11
LDDV	1.07	1.64
LDDT12	0.00	0.00
LDDT34	9.45	12.97
MC	21.62	13.36
HDGV2B	82.65	99.91
HDDV2B	24.35	29.33
HDGV3	4.40	4.25
HDGV4	1.23	1.19
HDGV5	4.20	4.06
HDGV6	9.06	8.76
HDGV7	3.71	3.59
HDGV8A	0.01	0.01
HDGV8B	0.00	0.00
HDGB	0.33	0.33
HDDV3	11.34	10.89
HDDV4	12.03	11.55
HDDV5	5.79	5.56
HDDV6	26.92	25.84
HDDV7	38.56	37.02
HDDV8A	45.75	44.75
HDDV8B	163.05	159.46
HDDBS	7.70	7.62
HDDBT	3.90	3.86
Total	***4,198.00***	***4,030.95***

Appendix H

State-sector emissions summary for 2010 and 2015 CAIR strategy

The following table contains the state-sector emission summaries for the 2010 CAIR strategy and 2015 CAIR strategy emissions. The emissions values in the table are the same as those in Appendix B, with the exception of the IPM sector. Please note that the non-IPM sector emissions do not reflect the revisions in Arkansas and North Dakota as described in Tables 14(a) and 14(b) in Section 4.4.3.

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		[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]
State	Sector	2010 CAIR VOC	2015 CAIR VOCc	2010 CAIR NOX	2015 CAIR NOX	2010 CAIR CO	2015 CAIR CO	2010 CAIR SO2	2015 CAIR SO2	2010 CAIR PM10	2015 CAIR PM10	2010 CAIR PM25	2015 CAIR PM25	2010 CAIR NH3	2015 CAIR NH3
Alabama	afdust	0	0	0	0	0	0	0	0	120,703	123,387	19,644	20,082	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	68,708	75,737
	fire	12,716	12,716	5,055	5,055	222,531	222,531	983	983	21,505	21,505	19,127	19,127	752	752
	IPM	1,266	1,403	64,403	49,145	15,698	20,409	320,525	253,056	25,337	22,492	20,855	17,933	10	13
	nonIPM	50,344	57,246	101,963	113,880	183,021	205,870	120,282	129,670	34,817	39,425	26,735	30,325	552	609
	nonroad	34,254	28,867	52,550	46,937	400,935	416,532	3,832	4,109	4,204	3,708	4,005	3,530	30	32
	on-road	55,869	43,194	84,467	54,049	728,039	642,034	574	634	2,787	2,403	1,718	1,296	6,259	6,802
	other area	122,611	129,788	12,309	12,971	43,532	41,948	12,827	31,442	16,049	17,013	12,564	13,013	1,422	1,635
	pfdust	0	0	0	0	0	0	0	0	337	394	217	255	0	0
Alabama Total		277,060	273,214	320,748	282,037	1,593,756	1,549,324	459,023	419,894	225,739	230,328	104,865	105,560	77,733	85,580
Arizona	afdust	0	0	0	0	0	0	0	0	151,555	161,242	27,167	28,907	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	30,750	32,450
	fire	22,458	22,458	10,983	10,983	455,825	455,825	2,888	2,888	44,570	44,570	38,716	38,716	2,020	2,020
	IPM	1,017	1,051	79,903	80,400	22,436	23,750	60,242	60,308	12,257	12,363	9,903	10,009	5	5
	nonIPM	7,026	8,435	34,567	38,755	9,273	10,246	40,360	48,351	4,159	4,773	2,557	2,952	63	78
	nonroad	31,420	28,423	40,391	35,169	552,581	588,474	603	338	3,535	3,053	3,362	2,896	33	36
	on-road	54,660	43,847	104,250	67,474	676,635	622,740	758	892	3,442	3,074	2,188	1,698	6,986	8,097
	other area	106,501	118,587	65,401	67,980	25,001	25,050	3,325	3,502	7,591	7,981	6,161	6,439	2,962	3,159
	pfdust	0	0	0	0	0	0	0	0	1,166	1,315	364	413	0	0
Arizona Total		223,082	222,801	335,495	300,761	1,741,751	1,726,085	108,176	116,279	228,275	238,372	90,418	92,029	42,819	45,845
Arkansas	afdust	0	0	0	0	0	0	0	0	212,942	212,779	37,329	37,191	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	131,580	139,678
	fire	7,523	7,523	3,305	3,305	146,745	146,745	728	728	14,466	14,466	12,754	12,754	556	556
	IPM	539	673	30,123	31,896	5,599	10,511	80,959	82,416	3,352	3,801	2,799	3,238	7	7
	nonIPM	28,649	32,374	61,100	67,799	129,664	146,780	74,089	87,106	27,180	30,800	21,413	24,254	1,428	1,601
	nonroad	25,167	20,286	50,770	45,047	242,307	248,779	3,222	3,361	3,863	3,246	3,701	3,108	27	29
	on-road	29,942	23,272	53,304	33,613	425,214	375,667	339	376	1,783	1,495	1,134	822	3,616	3,961
	other area	98,633	104,148	40,495	42,943	28,318	28,064	28,371	30,679	10,095	10,464	7,928	8,113	1,231	1,377
	pfdust	0	0	0	0	0	0	0	0	53	64	35	42	0	0
Arkansas Total		190,454	188,276	239,097	224,603	977,847	956,546	187,707	204,666	273,735	277,115	87,093	89,522	138,445	147,209
California	afdust	0	0	0	0	0	0	0	0	397,445	414,154	69,170	71,862	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	239,029	253,435
	fire	64,986	64,986	27,019	27,019	1,282,348	1,282,348	6,749	6,749	127,889	127,889	110,956	110,956	5,117	5,117
	IPM	965	1,332	20,382	22,413	35,870	50,210	5,066	5,066	3,777	4,934	3,674	4,832	1	1
	nonIPM	51,007	58,199	113,408	122,850	79,194	87,378	47,603	50,720	41,734	48,301	28,391	32,612	12,978	13,703
	nonroad	164,282	148,543	233,308	203,498	3,365,015	3,577,135	9,397	10,758	19,977	17,622	19,016	16,736	184	202
	on-road	223,836	173,023	512,250	325,324	3,286,869	2,969,975	14	14	16,411	16,058	7,676	6,772	43,514	49,451
	other area	484,144	512,272	153,383	165,175	163,908	162,327	11,028	11,921	81,940	87,571	64,126	67,791	0	0
	pfdust	0	0	0	0	0	0	0	0	498	541	39	43	0	0
California Total		989,220	958,355	1,059,750	866,279	8,213,203	8,129,373	79,857	85,228	689,670	717,071	303,048	311,603	300,822	321,909

		[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]
State	Sector	2010 CAIR VOC	2015 CAIR VOCc	2010 CAIR NOX	2015 CAIR NOX	2010 CAIR CO	2015 CAIR CO	2010 CAIR SO2	2015 CAIR SO2	2010 CAIR PM10	2015 CAIR PM10	2010 CAIR PM25	2015 CAIR PM25	2010 CAIR NH3	2015 CAIR NH3
Colorado	afdust	0	0	0	0	0	0	0	0	145,796	146,792	26,295	26,379	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	68,394	70,217
	fire	13,610	13,610	6,271	6,271	288,013	288,013	1,719	1,719	28,019	28,019	24,054	24,054	1,299	1,299
	IPM	568	605	68,415	69,237	9,027	10,475	91,817	91,817	3,820	3,937	3,289	3,405	5	5
	nonIPM	40,008	45,310	41,505	43,708	36,106	39,396	12,972	14,242	23,464	26,293	14,619	16,356	281	296
	nonroad	27,112	23,760	39,745	33,422	400,343	421,188	579	289	3,543	2,899	3,387	2,764	35	38
	on-road	44,804	35,898	79,677	55,159	747,909	704,070	511	595	2,403	2,208	1,464	1,179	5,611	6,426
	other area	64,617	67,872	13,675	15,063	35,758	33,281	2,169	2,229	7,171	7,004	6,748	6,567	89	97
	pfdust	0	0	0	0	0	0	0	0	276	315	53	61	0	0
Colorado Total		190,719	187,055	249,289	222,860	1,517,156	1,496,423	109,767	110,891	214,492	217,467	79,908	80,765	75,714	78,378
Connecticut	afdust	0	0	0	0	0	0	0	0	12,053	12,894	1,840	1,963	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	3,555	3,380
	fire	1,071	1,071	433	433	15,179	15,179	4	4	1,568	1,568	1,559	1,559	3	3
	IPM	118	113	7,231	6,916	8,790	8,622	6,437	6,437	814	800	673	659	1	1
	nonIPM	3,810	4,298	3,800	4,236	3,205	3,655	3,888	4,038	2,761	3,070	2,265	2,526	49	52
	nonroad	18,106	16,179	19,125	15,811	301,383	315,067	989	1,000	1,986	1,737	1,883	1,642	20	21
	on-road	24,224	19,574	51,630	41,416	399,311	369,720	336	376	1,587	1,403	967	750	3,702	4,078
	other area	44,691	46,604	13,533	13,538	22,815	20,928	12,544	12,067	6,032	5,798	5,592	5,353	2,063	2,258
Connecticut Total		92,020	87,839	95,752	82,350	750,684	733,171	24,198	23,922	26,801	27,270	14,778	14,453	9,393	9,792
Delaware	afdust	0	0	0	0	0	0	0	0	10,338	10,780	1,762	1,820	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	13,767	15,499
	fire	271	271	105	105	4,198	4,198	6	6	421	421	405	405	5	5
	IPM	79	90	5,427	6,617	1,076	1,043	28,181	17,902	4,909	5,909	2,788	3,162	1	1
	nonIPM	3,505	3,893	8,769	9,258	20,998	22,617	51,047	54,329	2,331	2,536	1,897	2,059	725	762
	nonroad	6,227	5,441	9,933	8,940	77,777	80,561	1,164	1,296	896	823	853	782	6	7
	on-road	7,388	5,903	15,540	12,132	107,602	98,712	99	111	493	427	306	232	1,079	1,191
	other area	12,062	12,129	4,954	5,238	10,925	10,237	15,055	16,088	3,071	3,056	2,581	2,537	348	377
Delaware Total		29,533	27,727	44,728	42,290	222,576	217,368	95,552	89,732	22,459	23,952	10,592	10,998	15,930	17,842
District of Columbia	afdust	0	0	0	0	0	0	0	0	2,055	2,206	345	367	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	fire	0	0	0	0	1	1	0	0	0	0	0	0	0	0
	IPM	1	3	35	54	26	102	0	0	2	8	2	8	0	0
	nonIPM	5	5	527	547	114	118	875	904	260	265	142	147	11	12
	nonroad	800	706	2,060	1,548	15,342	15,872	24	4	174	131	167	125	2	2
	on-road	3,206	2,664	5,834	4,925	43,633	41,975	41	47	178	167	105	88	457	517
	other area	10,059	10,689	2,880	3,079	2,256	2,149	7,101	7,450	1,321	1,380	1,127	1,173	1,054	1,133
District of Columbia Total		14,070	14,067	11,337	10,152	61,371	60,216	8,041	8,405	3,989	4,158	1,888	1,909	1,524	1,664

		[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]
State	Sector	2010 CAIR VOC	2015 CAIR VOCc	2010 CAIR NOX	2015 CAIR NOX	2010 CAIR CO	2015 CAIR CO	2010 CAIR SO2	2015 CAIR SO2	2010 CAIR PM10	2015 CAIR PM10	2010 CAIR PM25	2015 CAIR PM25	2010 CAIR NH3	2015 CAIR NH3
Florida	afdust	0	0	0	0	0	0	0	0	162,922	171,083	24,680	25,840	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	43,527	43,765
	fire	65,245	65,245	27,859	27,859	1,282,029	1,282,029	7,018	7,018	127,189	127,189	110,101	110,101	5,366	5,366
	IPM	1,629	1,866	68,730	61,434	43,363	52,594	217,697	167,154	27,402	26,249	20,985	19,834	9	9
	nonIPM	42,839	50,665	67,976	75,209	140,950	173,180	93,789	103,340	31,320	36,665	27,137	32,000	671	736
	nonroad	117,473	106,441	119,398	106,062	1,901,499	2,027,758	7,368	7,675	12,722	11,524	12,045	10,882	112	122
	on-road	162,446	125,107	228,021	146,654	1,762,577	1,530,957	1,675	1,870	7,949	6,999	4,858	3,752	18,430	20,268
	other area	318,968	344,223	34,661	36,444	92,275	88,392	58,382	62,357	25,299	25,626	22,375	22,507	4,032	4,548
	pfdust	0	0	0	0	0	0	0	0	78	88	24	26	0	0
Florida Total		708,600	693,547	546,645	453,662	5,222,693	5,154,910	385,929	349,414	394,882	405,423	222,205	224,942	72,147	74,814
Georgia	afdust	0	0	0	0	0	0	0	0	207,816	213,247	34,407	35,321	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	91,963	101,013
	fire	29,700	29,700	10,987	10,987	458,170	458,170	2,010	2,010	49,723	49,723	44,744	44,744	1,299	1,299
	IPM	1,601	1,644	72,081	66,397	19,906	21,997	452,302	248,648	33,600	25,956	26,681	19,201	13	13
	nonIPM	35,090	39,505	87,266	94,408	236,884	268,270	113,071	124,500	84,739	95,343	69,313	77,992	5,678	6,247
	nonroad	48,108	41,899	68,417	58,634	780,674	822,001	2,055	1,807	5,759	4,865	5,489	4,626	52	57
	on-road	108,020	84,484	173,987	110,646	1,395,792	1,249,372	1,209	1,375	6,003	5,277	3,734	2,860	13,135	14,720
	other area	189,365	202,196	31,021	32,806	93,772	90,212	5,664	5,993	25,670	26,145	22,557	22,784	2,804	3,180
Georgia Total		411,884	399,428	443,759	373,878	2,985,198	2,910,022	576,311	384,333	413,309	420,556	206,925	207,528	114,944	126,530
Idaho	afdust	0	0	0	0	0	0	0	0	165,009	166,122	27,295	27,458	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	70,894	74,615
	fire	73,835	73,835	14,255	14,255	980,150	980,150	3,845	3,845	130,706	130,706	118,934	118,934	2,856	2,856
	IPM	22	22	586	586	855	855	0	0	69	69	69	69	0	0
	nonIPM	4,831	5,431	12,867	14,139	31,443	35,805	20,124	23,324	11,560	13,249	8,811	10,102	1,157	1,292
	nonroad	18,662	15,332	19,788	17,170	163,158	168,498	214	66	1,869	1,524	1,780	1,449	16	17
	on-road	15,136	11,910	29,146	18,784	245,949	224,605	175	199	919	792	584	436	1,867	2,101
	other area	204,760	230,586	45,352	50,782	21,173	20,607	2,038	2,037	19,584	21,713	16,573	18,367	664	740
	pfdust	0	0	0	0	0	0	0	0	7	8	4	4	0	0
Idaho Total		317,245	337,116	121,995	115,716	1,442,728	1,430,520	26,396	29,471	329,723	334,183	174,050	176,820	77,454	81,621
Illinois	afdust	0	0	0	0	0	0	0	0	503,942	499,020	92,486	91,304	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	77,644	77,642
	fire	692	692	231	231	9,613	9,613	20	20	1,060	1,060	1,014	1,014	15	15
	IPM	1,958	2,065	69,877	65,129	13,477	14,681	243,001	241,878	14,774	15,530	12,952	13,583	14	15
	nonIPM	87,485	100,720	120,690	131,730	124,677	143,370	267,741	281,660	60,664	69,323	40,515	46,439	11,816	13,490
	nonroad	66,060	57,894	150,810	132,707	950,775	983,588	8,593	8,835	11,402	9,712	10,938	9,302	92	101
	on-road	93,394	70,494	171,305	106,306	1,491,280	1,342,947	1,168	1,308	5,596	4,916	3,433	2,640	12,820	14,144
	other area	281,275	298,585	45,411	46,413	91,365	86,931	55,234	57,013	25,690	25,553	22,699	22,478	11,035	12,272
	pfdust	0	0	0	0	0	0	0	0	440	506	223	260	0	0
Illinois Total		530,864	530,450	558,324	482,516	2,681,187	2,581,130	575,758	590,714	623,568	625,620	184,261	187,020	113,436	117,679

State	Sector	2010 CAIR VOC [tons/yr]	2015 CAIR VOCc [tons/yr]	2010 CAIR NOX [tons/yr]	2015 CAIR NOX [tons/yr]	2010 CAIR CO [tons/yr]	2015 CAIR CO [tons/yr]	2010 CAIR SO2 [tons/yr]	2015 CAIR SO2 [tons/yr]	2010 CAIR PM10 [tons/yr]	2015 CAIR PM10 [tons/yr]	2010 CAIR PM25 [tons/yr]	2015 CAIR PM25 [tons/yr]	2010 CAIR NH3 [tons/yr]	2015 CAIR NH3 [tons/yr]
Indiana	afdust	0	0	0	0	0	0	0	0	313,496	316,199	55,637	55,949	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	82,272	84,584
	fire	1,844	1,844	698	698	25,996	25,996	24	24	2,750	2,750	2,693	2,693	19	19
	IPM	2,109	2,188	124,139	86,104	17,090	19,226	454,100	375,522	48,258	42,943	37,729	32,247	18	18
	nonIPM	70,924	81,048	99,959	108,140	482,921	555,510	172,639	178,610	75,226	83,348	65,244	72,059	4,326	4,802
	nonroad	35,955	30,961	86,329	74,973	542,856	557,537	5,934	6,254	6,527	5,524	6,268	5,298	52	57
	on-road	71,969	55,409	127,561	80,820	1,087,513	974,822	809	899	4,113	3,503	2,582	1,911	8,730	9,564
	other area	224,985	233,924	47,281	48,129	145,901	136,619	9,292	9,248	38,795	38,314	26,887	26,083	3,339	3,754
	pfdust	0	0	0	0	0	0	0	0	1,481	1,644	676	744	0	0
Indiana Total		407,786	405,374	485,967	398,864	2,302,277	2,269,710	642,797	570,557	490,645	494,225	197,714	196,984	98,755	102,798
Iowa	afdust	0	0	0	0	0	0	0	0	391,365	387,686	70,861	69,945	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	219,166	226,189
	fire	619	619	233	233	9,506	9,506	25	25	999	999	941	941	19	19
	IPM	723	716	47,967	43,099	6,148	6,537	154,447	161,309	9,180	9,297	7,837	7,995	7	6
	nonIPM	7,351	8,557	30,142	32,015	9,227	11,138	86,037	87,789	10,331	11,655	6,823	7,703	4,887	5,382
	nonroad	26,711	22,530	69,205	58,605	316,933	323,041	1,560	1,154	5,853	4,618	5,635	4,441	50	55
	on-road	28,803	22,015	53,094	33,341	471,944	420,227	319	351	1,679	1,393	1,067	766	3,411	3,702
	other area	122,817	125,528	33,205	34,525	48,223	46,829	24,472	24,394	10,006	10,056	8,124	8,130	7,404	7,583
	pfdust	0	0	0	0	0	0	0	0	2	2	0	0	0	0
Iowa Total		187,024	179,966	233,847	201,818	861,981	817,278	266,860	275,022	429,413	425,706	101,288	99,921	234,944	242,937
Kansas	afdust	0	0	0	0	0	0	0	0	577,376	572,344	102,658	101,454	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	142,610	145,180
	fire	6,136	6,136	1,419	1,419	63,824	63,824	103	103	8,063	8,063	7,352	7,352	79	79
	IPM	815	818	90,167	90,270	6,179	6,284	80,071	80,071	7,149	7,157	5,914	5,922	7	7
	nonIPM	23,398	26,021	88,988	96,298	116,308	129,190	22,869	24,962	15,537	17,271	10,870	12,036	1,009	1,116
	nonroad	17,017	14,771	64,657	55,195	290,613	301,049	681	171	4,875	3,823	4,704	3,684	41	45
	on-road	27,525	21,368	49,185	31,264	422,052	376,248	313	347	1,594	1,352	1,002	737	3,369	3,692
	other area	82,463	85,765	15,857	16,402	33,512	32,750	4,108	4,379	7,533	7,549	7,042	7,033	1,773	1,895
	pfdust	0	0	0	0	0	0	0	0	1,660	1,872	254	286	0	0
Kansas Total		157,354	154,879	310,273	290,848	932,488	909,345	108,144	110,033	623,787	619,432	139,796	138,504	148,887	152,014
Kentucky	afdust	0	0	0	0	0	0	0	0	110,477	114,377	19,455	20,077	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	51,963	52,667
	fire	4,968	4,968	2,080	2,080	88,958	88,958	364	364	8,936	8,936	8,080	8,080	278	278
	IPM	1,600	1,612	110,114	72,615	16,022	16,550	318,000	266,503	33,504	28,879	26,107	21,380	13	13
	nonIPM	67,105	74,649	39,150	42,659	110,655	120,510	42,070	44,911	18,923	21,174	14,070	15,845	623	664
	nonroad	27,166	22,743	75,948	70,723	309,572	320,702	10,076	11,310	5,128	4,724	4,924	4,536	27	30
	on-road	44,449	33,987	83,213	51,705	664,674	587,047	536	594	2,766	2,335	1,746	1,279	5,757	6,293
	other area	110,521	113,645	80,916	84,657	92,704	89,177	55,012	56,673	18,098	17,969	16,295	16,113	1,371	1,521
	pfdust	0	0	0	0	0	0	0	0	551	601	298	325	0	0
Kentucky Total		255,809	251,604	391,421	324,439	1,282,584	1,222,944	426,058	380,355	198,383	198,996	90,974	87,635	60,032	61,466

		[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]
State	Sector	2010 CAIR VOC	2015 CAIR VOCc	2010 CAIR NOX	2015 CAIR NOX	2010 CAIR CO	2015 CAIR CO	2010 CAIR SO2	2015 CAIR SO2	2010 CAIR PM10	2015 CAIR PM10	2010 CAIR PM25	2015 CAIR PM25	2010 CAIR NH3	2015 CAIR NH3
Louisiana	afdust	0	0	0	0	0	0	0	0	117,319	120,673	20,641	21,202	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	28,672	28,911
	fire	13,087	13,087	4,631	4,631	207,238	207,238	892	892	48,324	48,324	43,428	43,428	682	682
	IPM	569	636	35,222	29,821	7,876	10,509	62,034	62,034	3,736	3,949	3,354	3,566	7	7
	nonIPM	50,803	55,669	254,206	275,300	214,486	233,570	201,406	222,110	72,081	78,521	65,755	71,509	13,096	14,397
	nonroad	43,825	38,231	208,992	203,485	430,539	449,416	35,173	40,231	11,668	11,669	11,238	11,244	35	38
	on-road	43,230	33,530	69,845	44,132	559,792	491,864	463	515	2,379	2,017	1,499	1,103	4,984	5,458
	other area	99,673	104,561	106,174	113,002	40,735	41,081	125,217	135,365	16,183	16,925	12,177	12,606	23,082	23,289
	pfdust	0	0	0	0	0	0	0	0	5	6	3	4	0	0
Louisiana Total		251,188	245,714	679,070	670,371	1,460,666	1,433,678	425,185	461,147	271,696	282,084	158,095	164,662	70,558	72,782
Maine	afdust	0	0	0	0	0	0	0	0	14,688	15,397	2,463	2,591	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	5,948	5,907
	fire	2,532	2,532	1,063	1,063	43,562	43,562	150	150	4,121	4,121	3,767	3,767	115	115
	IPM	45	57	1,747	1,855	3,761	4,233	5,338	5,338	225	263	212	250	0	0
	nonIPM	4,438	5,050	23,791	25,341	13,691	15,103	43,518	44,870	14,799	16,428	11,270	12,591	162	170
	nonroad	24,432	20,014	7,255	5,990	158,406	159,660	172	132	1,326	1,133	1,243	1,060	13	14
	on-road	11,195	9,115	22,348	18,441	203,416	190,419	133	147	642	565	388	301	1,518	1,638
	other area	51,266	54,276	8,022	7,902	29,999	27,352	17,055	16,769	7,482	7,211	7,005	6,722	736	797
Maine Total		93,907	91,044	64,226	60,592	452,835	440,329	66,366	67,406	43,284	45,118	26,348	27,282	8,492	8,641
Maryland	afdust	0	0	0	0	0	0	0	0	41,132	43,664	7,075	7,442	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	24,434	25,899
	fire	4,268	4,268	1,784	1,784	62,300	62,300	32	32	6,387	6,387	6,298	6,298	24	24
	IPM	470	515	16,050	12,789	7,959	11,273	62,165	23,813	9,201	6,521	7,585	4,880	4	4
	nonIPM	6,690	7,480	21,245	23,778	128,728	150,890	39,024	41,833	6,767	7,832	4,268	4,967	443	512
	nonroad	28,348	25,893	37,758	33,804	468,773	498,733	2,506	2,653	3,409	3,078	3,238	2,917	29	32
	on-road	42,727	35,380	89,988	73,128	660,592	625,121	580	662	2,788	2,495	1,713	1,341	6,348	7,140
	other area	61,893	64,024	19,936	20,846	60,461	56,011	51,406	54,854	20,297	20,228	17,273	17,099	1,394	1,570
Maryland Total		144,396	137,560	186,761	166,129	1,388,812	1,404,328	155,712	123,847	89,981	90,205	47,450	44,943	32,676	35,181
Massachusetts	afdust	0	0	0	0	0	0	0	0	69,333	71,739	10,860	11,249	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	2,515	2,189
	fire	1,280	1,280	534	534	22,858	22,858	93	93	2,300	2,300	2,080	2,080	71	71
	IPM	441	431	19,046	18,868	12,247	11,851	17,355	17,355	3,589	3,558	2,853	2,821	2	2
	nonIPM	9,188	10,563	21,076	22,510	6,264	6,763	24,700	25,473	5,045	5,484	3,792	4,119	83	89
	nonroad	33,286	29,410	52,386	41,257	525,937	544,700	1,939	1,733	5,014	4,106	4,791	3,911	52	57
	on-road	40,988	33,106	87,268	70,848	651,545	602,341	546	605	2,697	2,394	1,641	1,277	6,044	6,611
	other area	108,027	114,117	27,679	28,058	60,811	59,030	81,128	85,724	13,557	13,319	12,155	11,887	5,530	6,104
	pfdust	0	0	0	0	0	0	0	0	1	2	0	0	0	0
Massachusetts Total		193,210	188,907	207,989	182,075	1,279,662	1,247,543	125,761	130,983	101,537	102,900	38,172	37,344	14,297	15,123

		[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]
State	Sector	2010 CAIR VOC	2015 CAIR VOCc	2010 CAIR NOX	2015 CAIR NOX	2010 CAIR CO	2015 CAIR CO	2010 CAIR SO2	2015 CAIR SO2	2010 CAIR PM10	2015 CAIR PM10	2010 CAIR PM25	2015 CAIR PM25	2010 CAIR NH3	2015 CAIR NH3
Michigan	afdust	0	0	0	0	0	0	0	0	234,534	239,306	39,257	39,987	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	53,589	52,745
	fire	3,560	3,560	1,422	1,422	53,912	53,912	91	91	5,563	5,563	5,350	5,350	69	69
	IPM	1,209	1,266	91,083	87,137	11,813	13,685	392,567	390,998	26,166	26,559	21,943	22,274	11	11
	nonIPM	49,909	56,582	107,576	118,410	93,254	106,070	86,043	93,452	20,490	22,899	15,564	17,412	464	492
	nonroad	118,715	98,557	90,550	80,034	1,087,502	1,106,608	7,537	8,172	9,547	8,424	9,042	7,968	80	87
	on-road	97,869	76,146	169,852	110,114	1,629,443	1,471,237	1,072	1,197	5,267	4,569	3,263	2,471	11,679	12,847
	other area	254,661	258,056	55,497	56,909	139,123	129,640	38,198	39,113	31,664	30,690	29,599	28,563	6,159	6,912
	pfdust	0	0	0	0	0	0	0	0	461	516	39	44	0	0
Michigan Total		525,923	494,167	515,981	454,026	3,015,047	2,881,152	525,508	533,023	333,692	338,526	124,058	124,070	72,051	73,163
Minnesota	afdust	0	0	0	0	0	0	0	0	518,209	513,641	88,505	87,403	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	154,239	151,326
	fire	6,263	6,263	2,766	2,766	123,691	123,691	631	631	12,168	12,168	10,684	10,684	482	482
	IPM	655	668	38,397	39,367	5,244	5,525	81,238	84,705	19,078	19,659	14,003	14,469	6	6
	nonIPM	24,411	27,388	64,864	68,943	26,127	28,506	25,797	27,335	18,113	20,190	13,027	14,522	1,100	1,106
	nonroad	87,907	72,414	96,163	86,250	532,078	529,617	6,139	6,440	8,850	7,556	8,436	7,193	71	77
	on-road	52,220	41,053	96,807	63,578	902,748	839,341	586	663	2,959	2,570	1,852	1,399	6,336	7,062
	other area	145,463	148,527	23,638	24,232	56,547	52,853	5,965	6,135	14,610	14,343	13,506	13,206	4,001	4,237
	pfdust	0	0	0	0	0	0	0	0	926	1,018	375	413	0	0
Minnesota Total		316,919	296,313	322,635	285,136	1,646,435	1,579,533	120,356	125,909	594,913	591,145	150,387	149,289	166,235	164,295
Mississippi	afdust	0	0	0	0	0	0	0	0	148,345	149,398	25,963	26,121	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	64,689	69,589
	fire	17,239	17,239	5,942	5,942	262,748	262,748	1,051	1,051	27,980	27,980	24,944	24,944	804	804
	IPM	307	373	30,625	12,077	4,262	6,854	85,626	49,580	4,767	3,984	3,765	2,982	3	3
	nonIPM	59,133	70,027	111,455	125,920	74,892	95,426	78,408	85,920	42,501	50,528	30,108	36,522	1,426	1,714
	nonroad	24,827	20,578	60,272	55,723	230,935	237,384	7,901	8,867	4,253	3,881	4,077	3,721	23	25
	on-road	28,827	20,863	57,144	33,407	375,183	317,217	324	345	2,047	1,609	1,349	916	3,640	3,811
	other area	104,863	110,979	4,804	5,060	27,732	26,699	339	453	9,549	9,761	7,761	7,815	907	1,021
	pfdust	0	0	0	0	0	0	0	0	3	4	1	1	0	0
Mississippi Total		235,196	240,059	270,242	238,129	975,753	946,328	173,648	146,216	239,445	247,144	97,968	103,022	71,492	76,967
Missouri	afdust	0	0	0	0	0	0	0	0	537,247	541,109	86,799	87,280	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	104,940	104,847
	fire	3,435	3,435	1,397	1,397	54,047	54,047	186	186	6,188	6,188	5,681	5,681	142	142
	IPM	1,726	1,549	69,109	62,029	12,355	11,757	267,024	268,604	28,888	28,639	26,716	26,656	13	12
	nonIPM	31,628	36,204	36,621	40,196	118,177	130,250	130,542	140,420	16,003	18,123	10,588	12,025	4,651	4,918
	nonroad	40,150	34,531	95,279	86,216	539,769	563,203	6,271	6,616	6,808	5,918	6,526	5,667	47	52
	on-road	64,563	49,481	114,198	71,395	970,330	862,410	767	858	3,834	3,306	2,391	1,795	8,315	9,165
	other area	141,283	146,517	36,371	37,083	67,303	64,313	37,286	37,581	15,908	15,868	13,892	13,774	3,986	4,153
	pfdust	0	0	0	0	0	0	0	0	945	1,059	90	101	0	0
Missouri Total		282,784	271,717	352,975	298,316	1,761,981	1,685,980	442,075	454,265	615,821	620,210	152,683	152,980	122,094	123,288

State	Sector	2010 CAIR VOC [tons/yr]	2015 CAIR VOCc [tons/yr]	2010 CAIR NOX [tons/yr]	2015 CAIR NOX [tons/yr]	2010 CAIR CO [tons/yr]	2015 CAIR CO [tons/yr]	2010 CAIR SO2 [tons/yr]	2015 CAIR SO2 [tons/yr]	2010 CAIR PM10 [tons/yr]	2015 CAIR PM10 [tons/yr]	2010 CAIR PM25 [tons/yr]	2015 CAIR PM25 [tons/yr]	2010 CAIR NH3 [tons/yr]	2015 CAIR NH3 [tons/yr]
Montana	afdust	0	0	0	0	0	0	0	0	178,917	180,359	31,110	31,280	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	45,205	44,373
	fire	10,631	10,631	5,401	5,401	211,269	211,269	1,422	1,422	20,735	20,735	18,097	18,097	946	946
	IPM	317	317	38,420	38,420	2,712	2,712	22,474	22,474	7,635	7,635	4,830	4,830	3	3
	nonIPM	3,626	3,995	17,586	19,088	59,165	65,311	25,300	27,453	10,123	11,836	6,389	7,222	442	473
	nonroad	10,599	8,821	48,020	44,100	101,923	105,551	447	118	2,646	2,180	2,552	2,102	16	18
	on-road	10,455	8,349	21,367	13,935	191,363	177,063	121	138	656	558	421	309	1,277	1,440
	other area	39,776	38,884	12,475	13,059	19,188	17,977	1,215	1,244	4,221	4,136	3,969	3,874	309	344
	pfdust	0	0	0	0	0	0	0	0	1,032	1,166	156	176	0	0
Montana Total		75,404	70,997	143,269	134,003	585,621	579,883	50,978	52,849	225,965	228,605	67,523	67,890	48,198	47,597
Nebraska	afdust	0	0	0	0	0	0	0	0	436,237	435,986	74,654	74,351	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	136,842	139,772
	fire	921	921	409	409	18,827	18,827	105	105	1,846	1,846	1,600	1,600	80	80
	IPM	445	446	49,341	49,378	3,526	3,544	72,333	72,333	2,495	2,496	2,055	2,057	4	4
	nonIPM	7,961	9,539	13,084	14,609	8,831	9,972	8,377	9,414	5,621	6,497	3,388	3,921	17	18
	nonroad	14,147	12,160	70,153	62,713	190,843	196,860	686	179	4,352	3,500	4,202	3,378	31	34
	on-road	17,475	13,528	33,065	20,978	285,017	255,640	200	222	1,047	878	664	482	2,140	2,347
	other area	70,441	71,103	15,882	16,472	11,158	10,946	13,396	13,528	3,929	3,982	3,389	3,429	699	783
	pfdust	0	0	0	0	0	0	0	0	836	933	67	75	0	0
Nebraska Total		111,390	107,697	181,934	164,559	518,203	495,790	95,097	95,780	456,363	456,117	90,019	89,293	139,812	143,037
Nevada	afdust	0	0	0	0	0	0	0	0	102,582	109,721	18,561	19,888	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	6,402	6,506
	fire	11,048	11,048	5,003	5,003	231,404	231,404	1,346	1,346	22,566	22,566	19,401	19,401	1,026	1,026
	IPM	417	442	44,206	46,904	7,903	8,450	29,325	31,096	4,687	4,937	3,803	4,019	2	3
	nonIPM	1,042	1,228	5,711	6,460	19,201	21,092	771	867	2,536	2,822	1,501	1,665	18	21
	nonroad	11,619	10,370	20,219	17,101	184,355	195,756	383	243	1,718	1,417	1,641	1,350	16	18
	on-road	24,297	19,903	39,183	26,365	319,706	302,973	259	309	1,260	1,172	778	632	2,828	3,320
	other area	40,457	45,816	8,257	8,917	7,089	7,106	3,156	3,461	2,814	2,952	2,487	2,603	1,124	1,302
Nevada Total		88,879	88,807	122,579	110,749	769,658	766,781	35,240	37,323	138,163	145,587	48,173	49,558	11,417	12,195
New Hampshire	afdust	0	0	0	0	0	0	0	0	5,673	6,059	903	964	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	1,358	1,208
	fire	1,732	1,732	710	710	26,312	26,312	38	38	2,690	2,690	2,601	2,601	29	29
	IPM	163	186	2,774	2,987	3,306	4,180	7,152	7,426	981	1,051	883	953	1	1
	nonIPM	1,706	1,976	3,392	3,622	3,526	3,939	7,385	7,609	2,047	2,298	1,899	2,144	61	69
	nonroad	15,145	12,600	7,078	5,989	132,074	134,930	305	299	996	868	937	814	10	10
	on-road	11,692	10,029	25,799	21,223	209,462	204,955	140	160	728	630	461	345	1,505	1,686
	other area	27,350	28,547	5,379	5,400	23,670	22,072	11,141	11,044	5,497	5,386	5,124	4,996	620	683
New Hampshire Total		57,789	55,069	45,132	39,932	398,351	396,388	26,161	26,576	18,612	18,982	12,807	12,817	3,583	3,685

		[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]
State	Sector	2010 CAIR VOC	2015 CAIR VOCc	2010 CAIR NOX	2015 CAIR NOX	2010 CAIR CO	2015 CAIR CO	2010 CAIR SO2	2015 CAIR SO2	2010 CAIR PM10	2015 CAIR PM10	2010 CAIR PM25	2015 CAIR PM25	2010 CAIR NH3	2015 CAIR NH3
New Jersey	afdust	0	0	0	0	0	0	0	0	36,712	39,186	5,956	6,324	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	5,106	4,879
	fire	876	876	360	360	15,399	15,399	61	61	1,557	1,557	1,414	1,414	47	47
	IPM	289	306	10,739	11,517	5,825	6,201	20,967	22,373	5,915	6,274	5,401	5,733	2	2
	nonIPM	24,433	26,370	20,310	21,865	10,336	11,312	12,408	12,978	4,651	4,985	4,046	4,353	220	229
	nonroad	43,687	39,348	46,822	39,772	737,807	779,254	2,402	2,432	4,784	4,217	4,537	3,987	47	51
	on-road	54,747	43,808	110,982	89,094	833,140	767,868	745	835	3,465	3,088	2,099	1,645	8,238	9,092
	other area	134,722	138,884	41,073	41,442	71,528	63,069	52,430	52,763	21,246	20,605	18,551	17,772	4,391	4,809
New Jersey Total		258,754	249,592	230,286	204,050	1,674,035	1,643,103	89,013	91,442	78,330	79,912	42,005	41,227	18,051	19,109
New Mexico	afdust	0	0	0	0	0	0	0	0	475,680	480,650	73,530	74,394	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	41,553	46,075
	fire	28,263	28,263	12,905	12,905	594,265	594,265	3,450	3,450	57,847	57,847	49,790	49,790	2,626	2,626
	IPM	513	518	73,515	73,562	4,396	4,589	52,884	52,884	11,412	11,428	7,898	7,914	8	8
	nonIPM	13,100	13,965	84,897	87,950	42,064	43,538	91,205	104,590	5,116	5,856	3,731	4,231	48	51
	nonroad	9,840	8,652	28,413	26,184	136,915	145,328	293	110	1,528	1,315	1,466	1,260	10	11
	on-road	27,278	22,047	46,430	30,573	379,856	350,302	284	329	1,487	1,304	944	717	3,036	3,464
	other area	50,811	53,607	29,634	31,424	19,080	18,762	4,508	5,943	5,390	5,614	4,781	4,930	434	487
New Mexico Total		129,805	127,052	275,795	262,598	1,176,576	1,156,784	152,624	167,306	558,460	564,014	142,140	143,235	47,715	52,722
New York	afdst	0	0	0	0	0	0	0	0	157,649	163,555	26,037	26,943	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	47,782	44,527
	fire	5,076	5,076	2,039	2,039	76,314	76,314	113	113	7,864	7,864	7,598	7,598	86	86
	IPM	660	702	40,301	36,517	18,778	20,553	82,572	51,902	10,071	9,918	8,862	8,709	6	3
	nonIPM	5,886	6,652	44,112	48,959	55,101	62,124	80,230	84,966	7,575	8,525	5,627	6,339	1,058	1,217
	nonroad	95,842	83,104	129,717	114,084	1,347,860	1,412,562	9,494	10,128	11,214	9,841	10,687	9,363	98	108
	on-road	115,287	94,606	225,563	184,683	1,823,694	1,699,726	1,342	1,471	6,749	5,902	4,125	3,154	14,992	16,266
	other area	348,348	354,694	64,396	64,628	241,478	212,983	156,008	159,043	55,381	51,816	48,406	44,741	11,237	12,121
New York Total		571,099	544,833	506,128	450,910	3,563,225	3,484,262	329,759	307,623	256,503	257,421	111,343	106,848	75,259	74,328
North Carolina	afdust	0	0	0	0	0	0	0	0	97,755	102,083	17,359	18,045	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	171,267	181,517
	fire	77,359	77,359	13,689	13,689	644,350	644,350	696	696	27,670	27,670	25,328	25,328	532	532
	IPM	1,318	1,359	52,080	50,950	13,341	14,485	256,989	145,946	30,176	25,825	23,395	18,966	12	13
	nonIPM	68,604	80,534	53,546	58,639	85,329	95,820	75,666	82,500	21,035	23,912	15,804	18,003	2,196	2,469
	nonroad	50,981	43,985	58,591	47,408	785,555	815,113	1,639	1,374	5,790	4,815	5,509	4,569	56	61
	on-road	94,532	72,588	150,713	93,967	1,229,518	1,086,447	1,018	1,140	5,148	4,427	3,226	2,413	10,998	12,140
	other area	220,789	234,873	17,248	17,969	110,668	105,228	32,592	33,698	31,114	31,419	27,601	27,681	2,385	2,657
	pfdust	0	0	0	0	0	0	0	0	4	4	0	0	0	0
North Carolina Total		513,583	510,698	345,867	282,622	2,868,761	2,761,443	368,600	265,354	218,691	220,156	118,222	115,005	187,446	199,389

		[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]
State	Sector	2010 CAIR VOC	2015 CAIR VOCc	2010 CAIR NOX	2015 CAIR NOX	2010 CAIR CO	2015 CAIR CO	2010 CAIR SO2	2015 CAIR SO2	2010 CAIR PM10	2015 CAIR PM10	2010 CAIR PM25	2015 CAIR PM25	2010 CAIR NH3	2015 CAIR NH3
North Dakota	afdust	0	0	0	0	0	0	0	0	325,098	323,161	60,449	59,960	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	57,555	56,227
	fire	561	561	251	251	11,607	11,607	66	66	1,136	1,136	981	981	50	50
	IPM	776	785	71,021	71,709	9,903	9,936	97,803	99,997	7,336	7,441	6,207	6,302	6	6
	nonIPM	189	194	7,886	8,328	4,211	4,459	70,024	73,425	2,707	2,924	2,584	2,793	14	14
	nonroad	10,783	8,858	45,943	39,164	103,046	102,747	457	71	3,738	2,866	3,613	2,768	30	33
	on-road	7,052	5,439	13,838	8,762	128,770	115,914	79	88	426	353	273	195	836	918
	other area	54,183	50,184	19,182	19,707	16,139	15,488	52,762	52,829	3,550	3,512	2,283	2,240	222	243
North Dakota Total		73,544	66,020	158,121	147,921	273,676	260,151	221,191	226,476	343,991	341,393	76,390	75,238	58,713	57,492
Ohio	afdust	0	0	0	0	0	0	0	0	259,499	264,426	47,037	47,812	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	62,147	62,702
	fire	3,011	3,011	1,141	1,141	41,605	41,605	22	22	4,409	4,409	4,357	4,357	17	17
	IPM	1,998	2,151	95,626	79,094	17,695	21,197	327,168	221,410	46,234	41,450	35,576	30,409	19	19
	nonIPM	35,667	41,381	80,194	86,125	267,956	309,220	113,682	117,450	23,439	26,832	18,499	21,126	3,342	3,558
	nonroad	69,467	60,695	132,860	116,357	1,055,003	1,094,526	9,963	10,652	10,397	9,054	9,945	8,648	83	91
	on-road	101,783	77,320	177,487	110,761	1,527,784	1,365,388	1,194	1,330	5,874	5,082	3,641	2,748	13,000	14,273
	other area	281,685	299,348	66,935	68,313	122,576	117,176	74,298	75,559	33,264	33,133	29,109	28,835	6,555	7,293
	pfdust	0	0	0	0	0	0	0	0	1,366	1,553	795	909	0	0
Ohio Total		493,611	483,906	554,243	461,791	3,032,619	2,949,112	526,327	426,423	384,482	385,940	148,959	144,845	85,163	87,953
Oklahoma	afdust	0	0	0	0	0	0	0	0	474,137	476,999	78,164	78,465	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	104,399	106,168
	fire	4,361	4,361	1,923	1,923	87,506	87,506	469	469	8,608	8,608	7,506	7,506	359	359
	IPM	992	1,042	78,503	78,530	26,420	28,255	115,526	115,526	12,754	12,902	11,715	11,863	26	29
	nonIPM	19,925	21,573	98,822	105,490	65,480	70,491	35,428	37,182	12,081	13,304	9,157	10,079	3,941	4,268
	nonroad	21,896	18,691	40,733	35,008	318,537	333,095	524	233	3,390	2,760	3,245	2,637	29	32
	on-road	44,113	34,537	75,076	48,131	612,230	547,429	487	544	2,469	2,115	1,548	1,153	5,263	5,794
	other area	137,639	143,451	33,392	35,255	25,673	25,439	6,217	6,730	8,836	9,090	8,039	8,242	7,889	8,029
	pfdust	0	0	0	0	0	0	0	0	126	141	17	19	0	0
Oklahoma Total		228,925	223,655	328,449	304,337	1,135,846	1,092,215	158,651	160,684	522,400	525,919	119,390	119,964	121,906	124,679
Oregon	afdust	0	0	0	0	0	0	0	0	59,322	60,635	9,966	10,164	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	39,462	40,108
	fire	44,660	44,660	20,122	20,122	845,553	845,553	4,896	4,896	82,346	82,346	71,637	71,637	3,542	3,542
	IPM	256	199	13,210	10,602	8,540	6,287	10,034	10,034	1,055	873	988	806	0	0
	nonIPM	13,530	15,305	17,986	20,053	66,851	74,522	10,040	11,129	12,251	13,821	9,195	10,388	70	75
	nonroad	28,175	24,406	48,250	42,615	380,866	400,183	3,976	4,292	3,919	3,432	3,742	3,273	30	33
	on-road	38,798	31,744	69,619	46,143	607,862	569,318	463	541	2,234	2,016	1,390	1,091	4,853	5,616
	other area	151,881	167,745	15,207	16,384	33,799	32,643	21,834	23,511	11,319	11,688	10,388	10,679	319	349
	pfdust	0	0	0	0	0	0	0	0	11	13	5	6	0	0
Oregon Total		277,301	284,059	184,394	155,919	1,943,471	1,928,506	51,243	54,403	172,457	174,823	107,312	108,044	48,276	49,723

		[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]
State	Sector	2010 CAIR VOC	2015 CAIR VOCc	2010 CAIR NOX	2015 CAIR NOX	2010 CAIR CO	2015 CAIR CO	2010 CAIR SO2	2015 CAIR SO2	2010 CAIR PM10	2015 CAIR PM10	2010 CAIR PM25	2015 CAIR PM25	2010 CAIR NH3	2015 CAIR NH3
Pennsylvania	afdust	0	0	0	0	0	0	0	0	128,874	134,279	22,657	23,581	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	71,030	71,486
	fire	5,617	5,617	2,188	2,188	78,438	78,438	32	32	8,222	8,222	8,146	8,146	25	25
	IPM	1,684	1,819	111,875	79,875	17,511	21,264	260,502	149,903	39,783	30,937	32,615	23,545	14	15
	nonIPM	39,634	44,985	102,870	111,680	117,839	128,610	118,629	123,830	23,638	26,177	18,059	19,969	1,388	1,521
	nonroad	66,418	57,294	100,898	89,284	1,023,698	1,069,892	7,860	8,480	8,020	7,054	7,655	6,726	65	72
	on-road	95,632	78,421	193,428	153,638	1,494,400	1,403,706	1,160	1,294	5,793	4,990	3,612	2,710	12,580	13,832
	other area	239,045	249,638	59,927	60,946	185,342	172,540	104,863	105,165	43,012	41,881	38,811	37,628	6,590	7,261
	pfdust	0	0	0	0	0	0	0	0	246	275	103	115	0	0
Pennsylvania Total		448,030	437,774	571,185	497,611	2,917,228	2,874,450	493,046	388,704	257,587	253,815	131,657	122,421	91,692	94,212
Rhode Island	afdust	0	0	0	0	0	0	0	0	3,755	4,083	610	663	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	534	510
	fire	103	103	42	42	1,498	1,498	1	1	154	154	151	151	1	1
	IPM	36	34	527	466	1,415	1,321	0	0	114	107	114	107	0	0
	nonIPM	1,854	2,158	2,000	2,291	1,040	1,213	3,472	3,573	292	309	182	193	4	4
	nonroad	4,238	3,833	5,993	5,271	77,382	80,858	511	559	518	473	492	449	4	5
	on-road	6,648	5,271	13,415	10,751	105,980	96,883	89	100	408	364	245	193	992	1,089
	other area	39,740	44,351	5,772	6,009	8,158	7,890	5,592	5,715	1,649	1,647	1,474	1,458	107	107
Rhode Island Total		52,619	55,750	27,749	24,830	195,473	189,663	9,665	9,948	6,890	7,136	3,268	3,214	1,642	1,716
South Carolina	afdust	0	0	0	0	0	0	0	0	89,203	91,242	14,239	14,562	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	27,284	28,747
	fire	8,609	8,609	3,716	3,716	157,331	157,331	646	646	15,638	15,638	14,118	14,118	494	494
	IPM	606	647	37,322	35,942	7,056	8,523	141,904	105,008	19,978	18,880	15,527	14,383	5	5
	nonIPM	30,198	34,894	39,562	43,286	70,018	78,396	55,603	60,028	10,252	11,512	7,455	8,381	1,364	1,472
	nonroad	26,944	23,483	33,196	28,176	387,539	402,907	1,456	1,430	3,065	2,649	2,912	2,510	27	29
	on-road	45,972	35,826	80,349	50,976	661,817	588,968	504	562	2,643	2,228	1,678	1,226	5,391	5,917
	other area	139,893	152,089	20,994	21,933	62,057	58,937	14,945	15,292	14,020	13,941	12,569	12,425	1,135	1,268
South Carolina Total		252,222	255,548	215,139	184,029	1,345,819	1,295,062	215,059	182,966	154,799	156,089	68,497	67,604	35,700	37,932
South Dakota	afdust	0	0	0	0	0	0	0	0	252,503	252,194	46,410	46,169	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	82,265	81,180
	fire	4,109	4,109	1,867	1,867	86,425	86,425	498	498	8,413	8,413	7,241	7,241	381	381
	IPM	109	109	14,541	14,544	507	509	12,085	12,085	215	215	203	203	1	1
	nonIPM	1,337	1,893	5,362	5,965	0	0	1,739	1,851	860	911	515	548	1	1
	nonroad	9,155	7,450	26,870	22,031	89,112	89,146	284	44	2,600	1,970	2,510	1,900	23	25
	on-road	8,033	6,243	16,596	10,509	141,245	127,759	96	106	519	430	334	238	1,011	1,114
	other area	37,055	35,760	6,542	6,646	10,387	9,781	20,528	20,633	3,153	3,117	2,566	2,523	353	386
South Dakota Total		59,798	55,563	71,779	61,562	327,676	313,620	35,231	35,217	268,263	267,251	59,779	58,823	84,034	83,087

		[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]
State	Sector	2010 CAIR VOC	2015 CAIR VOCc	2010 CAIR NOX	2015 CAIR NOX	2010 CAIR CO	2015 CAIR CO	2010 CAIR SO2	2015 CAIR SO2	2010 CAIR PM10	2015 CAIR PM10	2010 CAIR PM25	2015 CAIR PM25	2010 CAIR NH3	2015 CAIR NH3
Tennessee	afdust	0	0	0	0	0	0	0	0	111,021	115,791	19,783	20,546	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	39,546	39,276
	fire	5,465	5,465	2,265	2,265	91,351	91,351	277	277	9,243	9,243	8,590	8,590	212	212
	IPM	782	803	37,085	27,029	6,023	6,250	208,886	157,514	15,576	15,164	13,716	13,304	7	7
	nonIPM	94,763	110,380	68,421	74,636	147,121	167,320	99,630	106,590	41,696	48,409	33,516	38,958	2,667	2,951
	nonroad	38,042	32,126	72,462	64,786	490,826	508,534	6,566	7,156	5,448	4,799	5,210	4,587	38	42
	on-road	66,297	50,813	110,406	69,026	924,628	817,381	738	826	3,708	3,199	2,315	1,739	8,020	8,845
	other area	198,912	214,161	27,986	29,488	76,160	73,446	44,614	46,450	20,641	20,934	17,927	18,079	4,215	4,946
	pfdust	0	0	0	0	0	0	0	0	5	6	3	3	0	0
Tennessee Total		404,261	413,748	318,625	267,230	1,736,109	1,664,282	360,711	318,813	207,338	217,545	101,061	105,806	54,704	56,279
Texas	afdust	0	0	0	0	0	0	0	0	1,455,268	1,478,723	240,441	243,991	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	271,976	278,482
	fire	30,680	30,680	12,476	12,476	472,783	472,783	1,178	1,178	47,578	47,578	43,668	43,668	2,577	2,577
	IPM	4,970	4,773	168,109	159,597	91,552	92,507	398,088	351,645	37,036	37,801	28,236	29,025	595	404
	nonIPM	107,361	118,390	445,621	477,110	418,115	457,150	270,232	287,600	41,112	44,994	32,956	35,943	0	0
	nonroad	107,571	96,578	314,550	288,470	1,842,688	1,941,244	28,603	31,367	20,629	18,639	19,805	17,879	138	151
	on-road	220,527	172,207	343,962	218,904	2,714,039	2,431,628	2,502	2,846	12,111	10,767	7,458	5,796	27,367	30,672
	other area	581,046	610,047	47,686	49,961	85,679	85,206	8,337	8,990	37,731	39,328	31,812	32,928	7,827	8,777
	pfdust	0	0	0	0	0	0	0	0	333	373	102	115	0	0
Texas Total		1,052,155	1,032,675	1,332,404	1,206,518	5,624,856	5,480,518	708,940	683,626	1,651,798	1,678,203	404,478	409,346	310,480	321,063
Utah	afdust	0	0	0	0	0	0	0	0	85,325	89,411	14,911	15,674	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	24,531	24,971
	fire	22,422	22,422	9,065	9,065	378,512	378,512	1,934	1,934	40,245	40,245	35,028	35,028	1,479	1,479
	IPM	423	423	60,784	60,784	3,523	3,523	53,108	53,108	5,593	5,593	4,360	4,360	4	4
	nonIPM	7,749	8,794	28,308	30,986	45,412	51,243	10,682	12,020	8,116	9,254	5,066	5,741	1,232	1,288
	nonroad	20,967	17,155	28,448	22,572	217,706	223,835	385	135	2,648	2,059	2,532	1,964	27	29
	on-road	23,501	18,108	39,272	24,859	377,558	342,257	264	300	1,265	1,128	774	605	2,915	3,253
	other area	54,329	58,334	21,578	22,984	24,274	23,757	8,535	9,715	6,222	6,428	5,236	5,390	758	871
	pfdust	0	0	0	0	0	0	0	0	1,493	1,665	342	382	0	0
Utah Total		129,391	125,236	187,455	171,250	1,046,985	1,023,127	74,908	77,212	150,907	155,782	68,248	69,143	30,946	31,895
Vermont	afdust	0	0	0	0	0	0	0	0	17,012	17,585	2,724	2,823	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	9,121	8,594
	fire	1,030	1,030	424	424	16,996	16,996	49	49	1,727	1,727	1,612	1,612	38	38
	IPM	0	4	14	55	5	170	0	0	0	14	0	14	0	0
	nonIPM	1,739	2,130	742	1,361	1,462	1,850	2,190	2,296	536	651	395	485	2	2
	nonroad	8,490	6,945	3,152	2,529	69,194	70,433	37	12	513	426	483	401	5	6
	on-road	6,989	5,983	14,858	12,318	121,994	117,647	80	91	425	364	270	200	856	958
	other area	16,524	17,278	4,461	4,505	14,738	13,682	8,140	8,405	4,176	4,098	3,737	3,647	306	339
Vermont Total		34,772	33,370	23,652	21,192	224,389	220,778	10,496	10,853	24,390	24,865	9,221	9,182	10,328	9,937

		[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]
State	Sector	2010 CAIR VOC	2015 CAIR VOCc	2010 CAIR NOX	2015 CAIR NOX	2010 CAIR CO	2015 CAIR CO	2010 CAIR SO2	2015 CAIR SO2	2010 CAIR PM10	2015 CAIR PM10	2010 CAIR PM25	2015 CAIR PM25	2010 CAIR NH3	2015 CAIR NH3
Virginia	afdust	0	0	0	0	0	0	0	0	56,128	58,800	9,403	9,829	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	45,973	47,321
	fire	6,634	6,634	2,812	2,812	115,270	115,270	399	399	11,553	11,553	10,614	10,614	305	305
	IPM	556	644	43,061	39,101	10,751	13,513	137,518	117,496	12,997	12,931	11,129	10,969	5	5
	nonIPM	46,402	54,407	72,545	81,522	78,387	85,544	82,130	88,671	16,052	18,142	12,508	14,162	720	788
	nonroad	37,973	33,983	71,890	64,211	572,683	602,623	3,661	3,732	5,424	4,787	5,176	4,560	43	47
	on-road	68,430	56,674	117,831	100,586	1,014,196	975,905	803	898	3,499	3,223	2,038	1,670	9,229	10,161
	other area	146,077	150,139	48,244	50,354	111,165	107,495	17,881	18,199	32,271	32,526	23,115	23,001	758	809
	pfdust	0	0	0	0	0	0	0	0	28	30	3	4	0	0
Virginia Total		306,072	302,481	356,383	338,586	1,902,452	1,900,350	242,392	229,395	137,952	141,992	73,987	74,809	57,033	59,436
Washington	afdust	0	0	0	0	0	0	0	0	76,811	76,405	14,429	14,277	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	44,913	46,798
	fire	6,156	6,156	2,290	2,290	84,741	84,741	407	407	9,301	9,301	8,444	8,444	248	248
	IPM	335	304	26,037	25,034	7,324	6,159	10,916	9,754	3,281	3,184	2,735	2,640	2	2
	nonIPM	12,836	14,757	35,986	40,159	230,745	252,600	45,963	49,759	14,219	15,880	11,646	13,003	4,335	5,515
	nonroad	41,738	36,406	72,082	64,131	573,036	601,146	5,377	5,756	5,804	5,115	5,541	4,875	45	49
	on-road	51,372	40,284	92,352	59,315	843,481	778,866	632	730	3,044	2,756	1,871	1,482	6,914	7,874
	other area	107,611	115,827	17,539	18,960	47,337	46,176	2,917	3,009	13,348	13,783	12,302	12,654	4,201	4,650
	pfdust	0	0	0	0	0	0	0	0	16	17	1	2	0	0
Washington Total		220,048	213,734	246,286	209,889	1,786,664	1,769,688	66,212	69,415	125,824	126,441	56,969	57,377	60,658	65,135
West Virginia	afdust	0	0	0	0	0	0	0	0	15,553	16,130	2,656	2,763	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	10,604	10,886
	fire	3,984	3,984	1,676	1,676	67,748	67,748	215	215	6,815	6,815	6,309	6,309	165	165
	IPM	1,412	1,442	63,122	44,202	12,404	12,728	248,888	118,125	31,059	24,666	24,194	17,689	13	13
	nonIPM	16,479	18,537	45,416	48,624	128,270	143,560	63,074	67,373	15,824	17,964	12,292	14,037	522	587
	nonroad	14,830	12,086	48,100	46,281	139,182	146,387	7,060	8,014	2,821	2,702	2,711	2,600	10	11
	on-road	14,280	10,240	25,446	15,184	229,499	196,679	165	175	877	725	544	393	1,936	2,010
	other area	48,671	49,655	14,855	15,602	44,035	41,648	13,805	14,618	9,295	9,059	8,481	8,234	470	522
	pfdust	0	0	0	0	0	0	0	0	314	351	113	128	0	0
West Virginia Total		99,656	95,944	198,615	171,569	621,138	608,750	333,207	208,520	82,558	78,411	57,300	52,153	13,720	14,194
Wisconsin	afdust	0	0	0	0	0	0	0	0	133,732	137,433	24,813	25,429	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	83,398	75,079
	fire	3,735	3,735	1,521	1,521	55,978	55,978	70	70	5,741	5,741	5,576	5,576	54	54
	IPM	918	956	53,646	38,614	9,321	10,176	159,462	151,010	9,238	9,969	8,225	8,929	8	8
	nonIPM	35,515	40,841	45,755	49,031	50,600	54,987	69,432	70,453	13,203	14,759	9,587	10,742	1,021	1,045
	nonroad	70,297	57,844	54,727	46,407	584,942	586,513	2,534	2,490	5,916	4,975	5,618	4,714	54	58
	on-road	53,624	41,218	101,141	63,654	900,045	812,143	638	714	3,265	2,791	2,055	1,525	6,875	7,580
	other area	148,175	152,584	31,042	31,679	130,767	125,022	52,589	57,064	24,962	24,553	22,873	22,312	2,955	3,325
	pfdust	0	0	0	0	0	0	0	0	29	33	2	3	0	0
Wisconsin Total		312,264	297,178	287,832	230,906	1,731,653	1,644,819	284,725	281,801	196,087	200,254	78,750	79,230	94,365	87,149

		[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]	[tons/yr]
State	Sector	2010 CAIR VOC	2015 CAIR VOCc	2010 CAIR NOX	2015 CAIR NOX	2010 CAIR CO	2015 CAIR CO	2010 CAIR SO2	2015 CAIR SO2	2010 CAIR PM10	2015 CAIR PM10	2010 CAIR PM25	2015 CAIR PM25	2010 CAIR NH3	2015 CAIR NH3
Wyoming	afdust	0	0	0	0	0	0	0	0	227,781	230,738	35,364	35,873	0	0
	ag	0	0	0	0	0	0	0	0	0	0	0	0	14,910	14,919
	fire	9,163	9,163	4,164	4,164	192,514	192,514	1,106	1,106	18,741	18,741	16,138	16,138	846	846
	IPM	752	678	81,171	81,173	6,269	5,650	70,828	71,874	9,168	8,652	7,596	7,244	7	6
	nonIPM	12,415	13,233	37,734	39,632	54,380	57,708	37,676	39,439	21,703	24,121	17,868	19,873	716	752
	nonroad	8,663	7,126	22,082	20,538	66,716	68,385	197	50	1,184	1,006	1,136	965	7	8
	on-road	7,325	5,730	14,993	9,572	131,054	118,276	85	95	460	385	295	213	906	999
	other area	17,041	17,489	72,270	74,880	23,469	23,092	13,471	14,274	3,311	3,335	2,780	2,776	324	353
	pfdust	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wyoming Total		55,360	53,419	232,413	229,959	474,402	465,625	123,363	126,838	282,349	286,978	81,176	83,082	17,716	17,884
Grand Total		13,332,981	13,061,983	15,194,017	13,362,365	82,645,557	80,748,386	11,178,028	10,327,258	14,400,398	14,570,837	5,083,639	5,095,939	3,849,435	3,989,346