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Non-Electricity Generating Unit Economic Impact Analysis for the NOx SIP Call

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DISCLAIMER

This document was developed by Abt Associates Inc. under technical direction from U.S. EPA's Office of Air and Radiation to provide technical support for the Regulatory Impact Analysis for the final NO_x SIP call. The analysis and conclusions presented in this report are those of the authors and should not be interpreted as necessarily reflecting the official views or policies of the U.S. EPA. The analysis is useful to derive regional estimates of air quality, costs, benefits, and/or economic impacts. However, the analysis inputs and outputs associated with any emissions source, county, or local area are subject to significant uncertainties and should not be used to predict attainment status, costs, benefits, and/or economic impacts at this level of detail.

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1. Introduction

This report provides technical support for the Regulatory Impact Analysis for the final NO_x SIP call rule-making. The report presents the results of the economic impact analysis for non-electricity generating (non-EGU) units potentially affected by the rule. This report also presents analyses of impacts on small entities and on government-owned entities for the non-EGU universe.

The analysis presented in this report relies on control costs and administrative costs documented in separate reports¹ and data on the final inventory of the potentially affected sources, to provide a screening analysis of potential economic impacts. Section 2 of this report describes the methodology used to assess economic impacts.

Section 3 presents the final results of the economic impact analysis for non-EGU units. This analysis addresses the regulatory alternative selected for promulgation -- state NO_x emissions budgets based on (1) a 60 percent reduction from uncontrolled levels for large industrial boilers and combustion turbines and (2) the highest reductions achievable at each emissions unit at less than \$5,000/ozone season ton for selected other large stationary sources.² The selected regulatory alternative is denoted as "60%/\$5,000".

The analysis reported in Section 3 reflects the revised final cost analysis prepared for the selected alternative. These results differ from those reported in the Regulatory Impact Analysis (RIA), which reflect an interim cost analysis prepared for all regulatory alternatives considered by EPA. The differences between the final results reported in Section 3 of this document and the results reported in the RIA reflect three changes:

- Minor revisions in the inventory of non-EGU sources potentially affected by the rule;³
- Revised estimates of administrative costs for non-trading sources, reflecting the fact that cement manufacturing sources and internal combustion engines will be required to comply with Part 60 monitoring requirements;
- Revised estimates of compliance costs based on least-cost modeling for the industrial boiler and turbine sources included in the final state NO_x emissions budgets under the 60% selected alternative.

Section 4 presents a comparison of economic impacts for a range of alternatives considered by EPA. The comparison considers the range from the lowest cost combination (40%/\$1,500) to the highest

1 Pechan-Avanti Group, *Ozone Transport Rulemaking Non-Electricity Generating Unit Cost Analysis*, September 1998; and U.S. Environmental Protection Agency, Office of Atmospheric Programs, *Summary of Methodology for Estimating Monitoring and Administrative Costs for EGUs and Non-EGUs*, September 1998.

2 The regulatory alternatives considered and the final alternative selected are described in *Regulatory Impact Analysis for the NO_x SIP Call*, September 1998.

3 The revised cost and economic impact analysis is based on an inventory that includes eight fewer sources than in the interim analyses.

cost combination (70%/\$5,000.) These alternatives are compared with the selected 60%/\$5,000 alternative. The results reported in Section 4 are based on the interim cost analysis.⁴ They are therefore consistent with the results reported in the RIA and differ somewhat from the final results reported for the 60%/\$5,000 alternative in Section 3.

Section 5 presents a small entity impacts analysis for the final rule and a comparison of small entity impacts for the range of alternatives considered. This analysis supports an evaluation of whether the associated proposed FIP and Section 126 rules will have a significant impact on a substantial number of small entities, as specified by the Regulatory Flexibility Act (RFA) of 1980 as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996.

Section 6 presents an analysis of impacts on government-owned non-EGU sources, for the final rule and for the regulatory alternatives considered. This analysis supports evaluation of impacts on governments associated with the proposed FIP and Section 126 rules, as required by the Unfunded Mandates Reform Act (UMRA) of 1995.

2. Methodology

This section describes the methodology used in the economic impacts analysis for the non-EGU establishments and firms potentially affected by the NO_x SIP call.

2.1 Overview of the Economic Impact Analysis Methodology

A significant number of industries and other sectors (e.g., schools, colleges, hospitals and governments) are potentially subject to new controls as a result of the NO_x SIP call. The economic impact analysis for non-EGU sources therefore relies on a screening analysis to focus on the directly-affected sectors that might experience significant impacts.⁵ More detailed analysis of market-level impacts and indirect impacts is needed only if the screening analysis shows that a substantial number of establishments in any industry(ies) might be subject to significant impacts. A more detailed market-level analysis assesses the distribution of impacts among subsectors of the potentially affected industry and their suppliers, customers and competitors.

Consistent with the analysis of electric utility sources described in Chapter 4 of the RIA, this analysis examines the economic impacts of incremental costs incurred by the potentially affected sources in the year 2007. No attempt was made to forecast changes in economic conditions between 1995 and 2007, however. The financial characteristics of the non-EGU establishments and firms potentially affected by the rule are assumed to remain the same as reported in 1995 (the latest year for which Census data are

4 Pechan-Avanti Group, *Ozone Transport Rulemaking Non-Electricity Generating Unit Cost Analysis*, Preliminary Draft, August 1998.

5 Direct impacts are impacts on profitability or viability of the directly-affected firms or entities. These are distinguished from indirect impacts, which are impacts on related parties -- suppliers (including the pollution control industry), customers, or competitors of the directly affected establishments -- that result from the rule. Indirect impacts also include impacts on local taxpayers where sources owned by local governments (e.g., schools or municipal combustion units) are subject to increased costs.

currently available.) To provide results in units comparable to the cost and benefits analyses prepared for the proposed NOx SIP call, costs and benefits are expressed in 1990 dollars. Therefore, the 1995 financial data used to assess economic impacts were adjusted to 1990 dollars using the overall GDP deflator.⁶

Economic impacts are assessed at both the plant and firm level. Impacts at the plant, facility or establishment level are relevant for assessing the potential for plant closures, and to calculate aggregate impacts for specific industries.⁷ Impacts at the firm-level are evaluated to determine whether small entities may be significantly impacted, and to determine whether the combined effect of requirements at multiple establishments owned by the same firm would impose a significant burden at the firm level.

2.2 Screening Analysis

The screening analysis was based on calculating compliance costs as a percentage of sales (for businesses) or (for non-profits or governments) other measures of revenues or expenditures. Two screening thresholds were used: one percent and three percent. Where annualized costs represent less than one percent of annual sales or revenues, it is assumed that the rule will not impose significant burdens on the establishment or firm in question. Establishments or firms that are predicted to incur costs of three percent of sales or revenues or more are assumed to be potential candidates for significant impacts. Cases where costs equal between one and three percent of sales/receipts are borderline cases. In an industry that operates with low profit margins, costs of this magnitude could represent an economic burden, while in higher-margin industries this level of costs would not impose significant impacts.

The screening analysis was conducted at three levels: establishment (or facility), firm and industry:

- Costs at the source level were aggregated for each establishment, where an establishment owns more than one potentially affected source. Establishment-level costs were then compared with estimated sales or expenditures for the average sized establishment in the relevant industry (4-digit SIC) and employee size category (small vs. large).
- Establishment-level impacts were summarized at the industry level, as defined by 4-digit SIC codes.
- Finally, establishment-level costs were also aggregated to the firm level to account for the fact that some firms own more than one establishment potentially affected by the rule. Firm-level costs are compared with firm sales, obtained for the most part from Dun & Bradstreet data. For governments and colleges and universities, costs are compared with revenues.

Individual potentially-affected establishments and firms may have both industrial boilers and combustion turbines (sources in the trading program) and other stationary sources (sources not in the

⁶ Note that the adjusted data represent 1995 economic conditions expressed in 1990 dollars, not 1990 economic conditions.

⁷ The terms plant, facility and establishment are used interchangeably to refer to a single location, which may include one or more sources subject to additional requirements under the NOx SIP call.

trading program) that are affected by the rule. To assess economic impacts accurately, it was therefore necessary to consider the trading and non-trading alternatives in combination.

The screening analysis does not indicate which establishments or firms will in fact experience significant economic burdens as a result of the NOx SIP call, for two reasons:

- First, the NOx SIP call does not impose specific requirements on sources, but rather requires States to set NOx emissions limits for specific sources that will achieve the aggregate NOx emissions budget established for each State. States have discretion in how they choose to allocate required reductions across sources. The actual allocation of reductions may differ from that assumed in the RIA. In particular, States may choose to impose less stringent limits for specific sources in those cases where the limits assumed in this analysis would impose significant economic burdens.
- Second, the potentially affected firms may be able to recover some of their added costs by increasing their prices to customers. This outcome is more likely where a substantial number of firms in a given industry is affected and less likely if only a few firms in an industry incur costs.⁸ A detailed market-level analysis would be required to determine to what extent firms would be able to recover costs through price increases. The screening analysis makes a worst-case assumption about impacts on profits — that all costs are borne by the directly-affected firms, and no costs are recovered through price increases.

The screening economic impact analysis therefore provides a general indication of the potential for significant impacts, rather than a prediction of specific outcomes. The screening analysis can be used to eliminate establishments and industries which can safely be assumed not to experience significant impacts and highlight other cases for more detailed investigation. The results may help States decide how to implement the requirements in ways that limit the most significant impacts identified in the screening analysis.

2.3 Detailed Market Analysis

The screening analysis identifies establishments which incur costs that *may* result in significant economic impacts. For those establishments, further analysis may be needed to assess the extent and nature of economic impacts. In general, a detailed market analysis refines the characterization of the affected facilities and industries, to determine whether *potential* significant impacts represent actual significant impacts.

The following describes the elements of a detailed market analysis. Specific data sources and methods depend on the industry in question.

⁸ In the latter case, the affected firms would most likely not be able to raise their prices to recover costs because of competition from firms that do not incur the added costs.

Potential Impacts on Profits

For establishments failing the screening criteria, potential impacts on profits can be analyzed assuming that no costs are passed on to customers in higher prices or shifted back to suppliers. This assumption provides a worst-case estimate of impacts on profits. Costs are compared with estimated profits. Impacts may be considered potentially significant if costs exceed some threshold, say, ten percent of profits. This would represent a screen for significant impacts on profitability and potential for plant closures only. No single threshold percentage reduction in profits provides a clear prediction of financial distress, since baseline profit rates and required rates of return on investment vary so much across industries. This calculation focuses attention on establishments and industries that *might* experience financial distress and plant closures, as described below. A more detailed analyses of these cases would focus on (1) whether costs are in fact likely to be borne entirely by the affected establishments, and (2) whether those costs would reduce profitability below acceptable levels for the specific establishments in question.

Potential Impacts on Prices

In some cases, affected establishments may pass on costs to their customers in the form of higher prices. The ratio of before-tax compliance costs to sales provides an estimate of the percentage price increase that would completely shift costs to customers. Where a rule affects only a small percentage of establishments in each industry, competition within each industry will prevent the affected establishments from raising their prices, unless they are isolated from competition by geographic limitations on markets or other factors.

Potential Plant Closures, Impacts on Competition and Other Market-Level Impacts

For industries in which a significant number of establishments incur substantial cost increases (e.g., greater than three percent of sales, receipts or revenues or more than ten percent of profits), a detailed investigation of the establishments and industries in question may be required. The nature of the detailed investigation would depend on the specific sector affected. For manufacturing establishments, for example, the analysis would compile industry-level data and qualitative information on recent growth or stagnation in the industry, trends in revenues and profits, the extent of foreign competition, recent plant closures, and the like. This information provides a descriptive profile of the affected industry and the place of the affected establishments in the industry.

The industry profile might address such topics as the following:

- Whether the affected establishments are required by the NO_x SIP call to install controls in excess of common industry practice, or whether the rule requires establishments which are less controlled than their competitors to upgrade to industry standards;
- Whether closures appear likely in the baseline, based on current industry trends, which might be accelerated by costs of the NO_x SIP call but which would likely occur in any event; and
- Whether the potentially-significant impacts are isolated to a few establishments or affect a significant segment of an industry or are concentrated regionally.

2.4 Data Sources

The screening analysis relies on Dun & Bradstreet (D&B) data, where available, to determine the size of individual potentially affected establishments and the entities that own them, and to characterize the revenues of potentially-affected firms. D&B DUNS identifiers were collected for as many of the potentially affected establishments as possible using EPA's FINDS and TRI databases. A D&B record for each potentially affected establishment was then accessed to identify the firm that owns the establishment (the D&B "ultimate"). The D&B record also provided estimates of employment at the potentially affected establishment ("employment here") and employment and sales at the ultimate firm level.⁹

The D&B employment data were used for two purposes:

- To classify the firms owning the potentially affected establishments as small or large, for those establishments in industries for which the SBA small-firm criteria are expressed in numbers of employees;
- To determine the size category for each establishment, so that the appropriate Census economic data could be selected for the establishment-level impacts analysis.

The D&B "ultimate" sales data were used to assess the ratio of compliance costs to sales at the firm level. For three sectors, additional data sources were used to obtain financial data:

- For establishments owned by electric utilities (in particular, those in SICs 4911 and 4931), data were obtained from the Energy Information Administration (EIA). The EIA sources provided both total megawatt hours (MWh) generated and total sales for the parent electric utilities of the potentially affected establishments. The former were used to determine which establishments were owned by small utilities (based on the SBA threshold of 4 million MWh), and the latter was used as the measure of firm-level sales.
- For colleges and universities, data on revenues (tuition and fees) were obtained from the National Center for Education and Statistics.¹⁰
- For government-owned sources, data on revenues and expenditures were obtained from the Census of Governments.

Because reliable sales or revenue data are generally not available for individual establishments, the economic impact analysis relied on Census data to estimate average SIC establishment-level sales, revenues and receipts. Census data are reported for industries defined by 4-digit SIC codes.

Many of the 4-digit SICs are very broad and include establishments of varying sizes and characteristics. Census data are also disaggregated by establishment- and firm-size. Where establishment

⁹ In some cases, sales at the establishment level is also provided by D&B. These data often in fact reflect sales at the firm level or some intermediate level in the firm organization, however, and were not believed to be reported consistently enough to be used in the analysis of economic impacts.

¹⁰ This measure of financial strength was used rather than a broader measure — which includes income from endowments — to provide a conservative screen for potential impacts.

employment data were available from D&B, they were used to select Census financial data for the size group as well as industry appropriate for each potentially affected establishment. Where D&B employment data were not available for individual establishments, Census data on the sales/revenues/receipts for the *average* establishment and for the *average small entity* (e.g., firm) in each industry (four-digit SIC) were used to screen for significant impacts.

Compliance costs provided in Pechan-Avanti (1998) and the administrative costs described below are before-tax costs, which is in general the appropriate measure for estimating the total social costs of the rule. To estimate economic impacts, however, the more relevant costs are after-tax costs. From the affected firm's perspective, the costs associated with the NOx SIP call are tax-deductible, as are other business expenses. The burden of these costs is therefore shared by the affected firms and the U.S. taxpayer in the form of lost tax revenues.

Fully adjusting for the tax consequences of the estimated costs would be complex, given the range of compliance alternatives involved and the fact that some of the potentially affected facilities are not subject to Federal corporate income taxes (e.g. government entities or non-profit hospitals and schools.) The economic impact analysis was therefore conducted using before-tax costs, which overstates impacts on establishments for which these costs are tax-deductible.

Census data were obtained from the Department of Census' Statistics of U.S. Businesses (SUSB) and the various 1992 Economic Censuses. Data on sales (value of shipments (VOS), receipts or revenues, depending on the sector) for the appropriate SIC and size category were divided by the number of establishments or firms, to provide the average sales/revenues/receipts per establishment or firm.

2.5 Small Entity Impacts Analysis

A small entities impact analysis is required to comply with RFA and SBREFA requirements, as described in Section 5. The analysis is designed to assist EPA in determining whether the NOx SIP call will or will not impose "significant impacts on a substantial number of small entities." It is EPA's position that the RFA does not apply to this action, as described in the RIA. However, EPA has elected to evaluate the potential impacts of the rule on small entities, based on assumptions about how the States will implement the requirements. In addition, EPA's position is that the RFA does apply to the associated proposed FIP and Section 126 rules. Therefore, this analysis assists EPA in screening for significant impacts for those proposed rules.

For businesses, the D&B data on firm-level employment and revenues were compared with the SBA size standards to determine which establishments are owned by small entities. Additional data were collected to characterize the size of potentially affected non-federal government, utility, and college and university entities, as described previously.

Section 5 describes the criteria used to define small entities and presents the results of this analysis.

3. Final Results for the 60%/\$5,000 Alternative

This section presents the results of the economic impact analysis for the final rule for non-EGU sources (60%/\$5,000.)

Table 3-1 shows the number of potentially affected establishments and firms by sector and size of entity, for the final inventory. The final inventory included eight fewer sources than the inventory used in the interim analyses. The reduced number of sources resulted in three fewer potentially-affected establishments (one large firm, one firm/non-profit of unknown size, and one college/university) and two fewer potentially affected firms/entities (one firm/non-profit of unknown size and one college/university).

Table 3-1
Number of Firms Potentially Affected, by Sector and Size
60%/\$5,000

Sector and Size of Entity	Potentially Affected Firms/Entities
Firms/Non-Profits	252
<i>of which, small entities</i>	36
<i>large entities</i>	176
<i>entity size unknown^a</i>	40
Federal government ^b	1
Other government	7
Utility (SIC 4911, 4931) ^c	14
Colleges/Universities	5
TOTAL	279

^a Unknown size refers to entities whose employee size could not be determined.

^b The Federal government is treated as one entity for all firm/entity level results in this report.

^c EPA reports that these are primarily cogenerators that supply less than 50% of generated power to the electric power grid.

3.1 Firm/Entity-Level Impacts

Screening-level impact results at the firm/entity-level are summarized in Table 3-2. This table shows the number of potentially affected firms or entities at particular levels of firm/entity-level costs as a percentage of entity sales, revenues or expenditures.

Table 3-2
Number of Potentially Affected Firms by Firm Costs as a Percentage of Sales/Expenditures:
60%/\$5,000

	<0.5 %	0.5-1.0%	1 - 3%	>3%	Sales NA ^a	Total
Firms/Non-Profits	185	11	5	6	45	252
<i>Of which, small entities</i>	23	4	4	5	0	36
<i>large entities</i>	159	7	1	1	8	176
<i>entity-size unknown</i>	3	0	0	0	37	40
Federal Government	na	na	na	na	1	1
Other Government	3	1	1	1	1	7
Utility	10	1	1	1	1	14
Colleges/Universities	5	0	0	0	0	5
TOTAL	203	13	7	8	48	279

3.2 Establishment-Level Impacts

The 279 potentially affected firms/entities own 543 potentially-affected establishments. Table 3-3 summarizes the results of the establishment-level analysis, by sector and firm size.

Table 3-3
Number of Establishments by
Costs as a Percentage of Value of Shipments/Expenditures
and Sector and Firm Size:
60%/\$5,000

	<0.5 %	0.5-1.0%	1 - 3%	>3%	Total
Firms/Non-Profits	268	64	64	108	504
<i>Of which, owned by small entities</i>	21	5	4	7	37
<i>owned by large entities</i>	225	53	51	98	427
<i>entity-size unknown</i>	22	6	9	3	40
Federal Government ^a	na	na	na	na	12
Other Government ^a	3	1	1	1	7
Utility ^b	7	3	3	2	14
Colleges/Universities	6	-	-	-	6
TOTAL	284	68	68	110	543

^a Revenues not available for one "other government" and 12 federal government establishments.

3.3 Industry-Level Impacts

Table 3-4 shows estimated impacts at the establishment level by industry (SIC).

Table 3-4
Number of Establishments By Establishment-Level Costs
as a Percentage of Value of Shipments/Expenditures and Industry:
60%/\$5,000

SIC	Industry/Sector	<0.5 %	0.5-1.0%	1-3 %	> 3%	Total
10	Metal mining	1	0	0	0	1
14	Non-metal, non-fuel mining/quarrying	0	0	2	2	4
20	Food and kindred products mfr.	35	1	0	3	39
21	Tobacco products mfr	2	0	0	0	2
22	Textile mill products	5	0	1	1	7
24	Lumber & wood products, exc. furniture	0	0	0	1	1
25	Furniture & fixtures	1	0	1	2	4
2611	Pulp mills	7	3	1	0	11
2621	Paper mills	37	11	4	1	53
2631	Paperboard mills	20	3	1	1	25
Other 26	Other paper & allied products	4	1	0	1	6
27	Printing & publishing	1	0	1	0	2
28	Chemicals & allied products	57	11	9	6	83
2911	Petroleum refining	17	0	1	1	19
295	Asphalt paving & roofing matls.	1	2	0	0	3
30	Rubber & plastics products	7	1	0	1	9
321/322	Glass	2	1	0	0	3
3241	Cement, hydraulic	1	9	18	5	33
Other 32	Other stone, clay, glass, concrete products	2	0	0	1	3
3312	Steel works, blast furnaces & rolling mills	27	4	1	1	33
Other 33	Other primary metals	7	2	1	1	11

SIC	Industry/Sector	<0.5 %	0.5-1.0%	1-3 %	> 3%	Total
34-39	Metal products, machinery, computers, transp equip, and misc. mfr.	24	3	3	4	34
4922	Natural gas transmission	1	5	11	70	87
4961	Steam & air-conditioning supply	1	1	2	1	5
Other 49	Other gas & sanitary services	3	6	5	3	17
5171	Petroleum bulk stations & terminals	1	0	0	1	2
72-89	Services	4	0	2	1	7
4911/ 4931	Electric utilities ^b	7	3	3	1	14
	Colleges/universities	6	0	0	0	6
	Federal government ^a	na	na	na	na	12
	Other government ^a	3	1	1	1	7
	TOTAL	284	68	68	110	543

^aRevenues not available for one "other government" and 12 federal government establishments

Finally, Table 3-5 compares the total number of establishments in each industry nationwide with the number potentially affected by the NOx SIP call, as well as the number of potentially affected establishments with estimated costs greater than one percent of sales.

Tables 3-4 shows that, for the most part, only a small number of establishments owning non-EGU sources are potentially significantly impacted by the NOx SIP call in any single industry group. Table 3-5 shows that, for specific industries (4-digit SICs), only a small percentage of the establishments is potentially affected by the NOx SIP call in most cases, and an even smaller percentage is subject to costs greater than one percent of sales.

The exceptions are SICs 4922 (Natural Gas Transmission), 4925 (Mixed Gas Production/Distribution), and 3241 Cement. Analysis of impacts at the firm level for these industries shows that the potentially affected establishments are owned for the most part by relatively large firms, and that costs at the firm level represent no more than two percent of firm-level sales in all cases. The distribution of firm-level costs as a percent of firm-level sales is shown for firms owning establishments in each of these industries in Table 3-6.

Table 3-5
Percent of Industry Establishments Potentially Affected
and Percent with Costs > 1 % of Sales
60%/\$5,000 Alternative
(Final Results)

SIC	INDUSTRY	Total # Estab. ^a	# Potentially Affected	% Potentially Affected	# Estab w. Cost > 1% of Sales	% Estab w. Cost > 1% of Sales
1031	Lead & Zinc Ores	38	1	3%	0	0%
1422	Crushed & Broken Limestone	1438	2	0%	2	0%
1429	Crushed & Broken Stone NEC	463	1	0%	1	0%
1442	Construction Sand & Gravel	2359	1	0%	1	0%
2011	Meat Packing Plants	1264	1	0%	0	0%
2033	Canned Fruits, Vegetables, Preserves, Jams, & Jellies	649	1	0%	1	0%
2035	Pickled Fruits & Vegetables, Sauces, Seasonings, & Salad Dressings	373	1	0%	0	0%
2041	Flour & Other Grain Mill Products	358	2	1%	0	0%
2046	Wet Corn Milling	58	9	16%	1	2%
2051	Bread & Bakery Products Except Cookies & Crackers	2375	1	0%	0	0%
2062	Cane Sugar Refining	19	2	11%	0	0%
2063	Beet Sugar	40	1	2%	0	0%
2067	Chewing Gum	1	1	100%	0	0%
2075	Soybean Oil Mills	94	3	3%	1	1%
2076	Vegetable Oil Mills Except Corn, Cottonseed, & Soybean	24	1	4%	0	0%
2077	Animal & Marine Fats & Oils	260	1	0%	0	0%
2079	Shortening, Table Oils, Margarine, & Other Edible Fats & Oils NEC	108	2	2%	0	0%
2082	Malt Beverages	359	7	2%	0	0%
2083	Malt	34	1	3%	0	0%
2085	Distilled & Blended Liquors	58	2	3%	0	0%
2095	Roasted Coffee	198	1	1%	0	0%
2096	Potato Chips, Corn Chips, & Similar Snacks	369	1	0%	0	0%
2099	Food Preparations NEC	1736	1	0%	0	0%

SIC	INDUSTRY	Total # Estabs. ^a	# Potentially Affected	% Potentially Affected	# Estab w. Cost>1% of Sales	% Estab w. Cost>1% of Sales
2111	Cigarettes	13	2	15%	0	0%
2211	Broadwoven Cotton Fabric Mills	367	2	1%	1	0%
2261	Cotton Finishing	349	1	0%	0	0%
2262	Manmade Fiber & Silk Finishing	215	2	1%	1	0%
2281	Yarn Spinning Mills	399	1	0%	0	0%
2295	Coated Fabrics Not Rubberized	192	1	1%	0	0%
2434	Wood Kitchen Cabinets	4445	1	0%	1	0%
2511	Wood Household Furniture, Except Upholstered	2726	3	0%	2	0%
2522	Office Furniture Except Wood	379	1	0%	1	0%
2611	Pulp Mills	53	11	21%	1	2%
2621	Paper Mills	317	53	17%	5	2%
2631	Paperboard Mills	219	25	11%	2	1%
2652	Setup Paperboard Boxes	152	1	1%	0	0%
2653	Corrugated & Solid Fiber Boxes	1631	1	0%	0	0%
2672	Coated & Laminated Paper NEC	456	1	0%	0	0%
2675	Die-cut Paper & Paperboard & Cardboard	395	1	0%	1	0%
2676	Sanitary Paper Products	153	1	1%	0	0%
2679	Converted Paper & Paperboard Products NEC	737	1	0%	0	0%
2752	Commercial Printing, Lithographic	26161	1	0%	1	0%
2782	Blankbooks, Looseleaf Binders & Devices	496	1	0%	0	0%
2812	Alkalies & Chlorine	45	2	4%	1	2%
2813	Industrial Gases	595	2	0%	1	0%
2819	Industrial Inorganic Chemicals NEC	698	11	2%	5	1%
2821	Plastics Materials, Synthetic Resins, & Nonvulcanizable Elastomers	558	11	2%	0	0%
2822	Synthetic Rubber (Vulcanizable Elastomers)	126	2	2%	0	0%
2823	Cellulosic Manmade Fibers	12	3	25%	0	0%
2824	Manmade Organic Fibers, Except Cellulosic	89	7	8%	1	1%
2833	Medicinal Chemicals & Botanical Products	261	3	1%	0	0%
2834	Pharmaceutical Preparations	711	6	1%	1	0%

SIC	INDUSTRY	Total # Estabs. ^a	# Potentially Affected	% Potentially Affected	# Estab w. Cost>1% of Sales	% Estab w. Cost>1% of Sales
2841	Soap & Detergents, Except Specialty Cleaners	674	2	0%	0	0%
2865	Cyclic Organic Crudes & Intermediates, & Organic Dyes & Pigments	209	6	3%	0	0%
2869	Industrial Organic Chemicals NEC	698	18	3%	4	1%
2873	Nitrogenous Fertilizers	164	2	1%	0	0%
2879	Pesticides & Agricultural Chemicals NEC	242	1	0%	0	0%
2891	Adhesives & Sealants	654	1	0%	1	0%
2895	Carbon Black	22	1	5%	0	0%
2899	Chemicals & Chemical Preparations NEC	1395	5	0%	1	0%
2911	Petroleum Refining	251	19	8%	2	1%
2951	Asphalt Paving Mixtures & Blocks	1081	2	0%	0	0%
2952	Asphalt Felts & Coatings	242	1	0%	0	0%
3011	Tires & Inner Tubes	157	6	4%	1	1%
3069	Fabricated Rubber Products NEC	1130	1	0%	0	0%
3081	Unsupported Plastics Film & Sheet	741	1	0%	0	0%
3089	Plastics Products NEC	8737	1	0%	0	0%
3211	Flat Glass	64	1	2%	0	0%
3221	Glass Containers	75	2	3%	0	0%
3241	Cement, Hydraulic	228	33	14%	23	10%
3272	Concrete Products Except Block & Brick	3051	1	0%	1	0%
3291	Abrasive Products	390	1	0%	0	0%
3295	Minerals & Earths, Ground or Otherwise Treated	355	1	0%	0	0%
3312	Steel Works, Blast Furnaces, & Rolling Mills	391	33	8%	2	1%
3313	Electrometallurgical Products Except Steel	34	1	3%	0	0%
3315	Steel Wiredrawing & Steel Nails & Spikes	352	1	0%	1	0%
3316	Cold-rolled Steel Sheet, Strip, & Bars	190	1	1%	0	0%
3321	Gray & Ductile Iron Foundries	662	1	0%	0	0%
3334	Primary Production of Aluminum	40	1	2%	0	0%
3339	Primary Smelting & Refining of Nonferrous Metals Except Cu & AL	123	2	2%	0	0%

SIC	INDUSTRY	Total # Estabs. ^a	# Potentially Affected	% Potentially Affected	# Estab w. Cost>1% of Sales	% Estab w. Cost>1% of Sales
3341	Secondary Smelting & Refining of Nonferrous Metals	359	2	1%	0	0%
3399	Primary Metal Products Nec	239	2	1%	1	0%
3432	Plumbing Fixture Fittings & Trim	180	1	1%	0	0%
3462	Iron & Steel Forgings	393	1	0%	0	0%
3469	Metal Stampings NEC	2668	1	0%	0	0%
3471	Electroplating, Plating, Polishing, Anodizing, & Coloring	3319	1	0%	0	0%
3496	Miscellaneous Fabricated Wire Products	1168	1	0%	0	0%
3511	Steam, Gas, & Hydraulic Turbines & Turbine Generator Sets	91	1	1%	0	0%
3523	Farm Machinery & Equipment	1683	1	0%	1	0%
3531	Construction Machinery & Equipment	920	3	0%	1	0%
3537	Industrial Trucks, Tractors, Trailers, & Stackers	454	1	0%	0	0%
3562	Ball & Roller Bearings	186	1	1%	1	1%
3585	Air-conditioning & Warm Air Heating & Commercial & Industrial Refrigeration Equipment	894	1	0%	1	0%
3631	Household Cooking Equipment	100	1	1%	0	0%
3632	Household Refrigerators & Home & Farm Freezers	61	1	2%	0	0%
3639	Household Appliances NEC	64	1	2%	0	0%
3647	Vehicular Lighting Equipment	93	1	1%	0	0%
3711	Motor Vehicles & Passenger Car Bodies	483	7	1%	0	0%
3714	Motor Vehicle Parts & Accessories	3270	2	0%	0	0%
3724	Aircraft Engines & Parts	394	2	1%	1	0%
3731	Ship Building & Repairing	561	1	0%	1	0%
3743	Railroad Equipment	209	1	0%	0	0%
3861	Photographic Equipment & Supplies	851	1	0%	0	0%
3999	Manufacturing Industries NEC	2968	3	0%	1	0%
4922	Natural Gas Transmission	587	87	15%	81	14%
4923	Natural Gas Transmission & Distribution	1674	3	0%	1	0%
4924	Natural Gas Distribution	1622	1	0%	0	0%
4925	Mixed, Manufactured, or Liquefied Petroleum Gas Production And/or Distribution	62	9	15%	7	11%

SIC	INDUSTRY	Total # Estabs. ^a	# Potentially Affected	% Potentially Affected	# Estab w. Cost>1% of Sales	% Estab w. Cost>1% of Sales
4931	Electric & Other Services Combined	1610	4	0%	0	0%
4961	Steam & Air-conditioning Supply	62	5	8%	3	5%
5171	Petroleum Bulk Stations & Terminals	9242	2	0%	1	0%
7211	Power Laundries, Family & Commercial	1631	1	0%	1	0%
7999	Amusement & Recreation Services NEC	25461	1	0%	1	0%
8062	General Medical & Surgical Hospitals	5716	3	0%	0	0%
8063	Psychiatric Hospitals	913	1	0%	0	0%
8999	Services NEC	14778	1	0%	1	0%

^aU.S. Bureau of the Census, *Statistics of U.S. Businesses*, 1995.

Table 3-6
Number of Potentially Affected Firms by Firm Costs as a Percentage of Sales
for Selected Industries
60%/\$5,000
(Final Results)

SIC	Number of Potentially Affected Firms	1-3%	>3%	Percent of Firms with Costs > 1 % of Sales ^a
3241 - Cement	18	3	0	16%
4922 - Nat. Gas Transmission	15	0	0	0%
4925 - Mixed Gas Production/Distribution	7	0	0	0%

^a Sales not available for 3 SIC 3241, 3 SIC 4922 and 1 SIC 4925 firms.

In general, then, potential impacts associated with the NO_x SIP call for non-EGU units are unlikely to result in any impacts at the industry level. In addition, because only a few establishments may experience potentially significant costs in each industry, the rule is not likely to result in price increases to customers of the affected firms or other indirect economic impacts. EPA therefore concluded that the more detailed market-level impacts analysis described in Section 2 is not needed for any of these industries.

4. Comparison of Results by Regulatory Alternative

This section compares economic impacts for the range of regulatory alternatives considered. The final rule (60%/\$5,000) is compared with the highest-cost combination considered (70%/\$5,000) and the lowest-cost combination considered (40%/\$1,500.)

The final cost and economic impact analysis for the 60%/\$5,000 alternative reported in Section 3 shows slightly reduced total costs compared with the interim results reported in this section (\$274 million for the final analysis versus \$277 million for the interim analysis), and similar economic impacts (15 firms/entities with costs greater than one percent of sales for the final analysis versus 14 for the interim analysis.) While the comparison of results by alternative reported in this section is based on interim rather than final cost results, it nonetheless provides a useful comparison of the alternatives. The modest difference between the final and interim results for the 60%/\$5,000 alternative suggests that the relative costs and economic impacts of the three alternatives based a final cost analysis for all three alternatives would be similar to the results based on the interim cost analysis reported here.

4.1 Overview

Tables 4-1 and 4-2 provide an overview of economic impacts for the three combinations of alternatives considered. Table 4-1 presents results at the firm level, and Table 4-2 shows impacts at the establishment level.

Table 4-1
Number of Firms by
Firm Costs as a Percentage of Sales/Expenditures and Alternative
(Interim Results)

	<0.5 %	0.5-1.0%	1 - 3%	>3%	Sales NA ^a	Total
40%/\$1,500	208	12	6	6	49	281
Final Alternative: 60%/\$5,000	203	15	6	8	49	281
70%/\$5,000	198	14	10	10	59	281

^a Sales not available or (for federal government) not applicable.

Table 4-2
Number of Establishments by
Establishment-Level Costs as a Percentage of Value of Shipments/Expenditures and Alternative
(Interim Results)

	<0.5 %	0.5-1.0%	1 - 3%	>3%	Sales NA ^a	Total
40%/\$1,500	333	31	66	103	13	546
Final Alternative: 60%/\$5,000	286	61	75	111	13	546
70%/\$5,000	252	66	88	127	13	546

^a Sales not available or (for federal government) not applicable.

The comparison among these alternatives shows a modest difference in potential economic impacts between the selected alternative and either the least or most stringent combination of alternatives considered. Only two additional firms and 17 additional establishments may incur costs above one percent of sales/expenditures for the selected alternative compared to the least stringent alternative. The most stringent alternative results in an increase of six firms and 29 establishments that may incur costs above one percent of sales/expenditures when compared to the selected alternative.

The following sections report the economic impact analysis results for each alternative considered in more detail.

4.2 60%/\$5,000 Alternative - Interim Results

Table 4-3 shows firm-level results and Table 4-4 shows establishment-level results for the 60%/\$5,000 alternative, based on the interim cost results.

Table 4-3
Number of Potentially Affected Firms by Firm Costs as a Percentage of Sales/Expenditures:
60%/\$5,000 - Interim Results

	<0.5 %	0.5-1.0%	1 - 3%	>3%	Sales NA ^a	Total
Firms/Non-Profits	184	13	4	6	46	253
<i>Of which, small entities</i>	22	5	4	5	0	36
<i>large entities</i>	159	8	0	1	8	176
<i>entity-size unknown</i>	3	0	0	0	38	41
Federal Government ^a	na	na	na	na	1	1
Other Government ^a	3	1	1	1	1	7
Utility	10	1	1	1	1	14
Colleges/Universities	6	0	0	0	0	6
TOTAL	203	15	6	8	49	281

^a Sales not available or (for the federal government) not applicable.

Table 4-4
Number of Establishments by
Costs as a Percentage of Value of Shipments/Expenditures
and Sector and Firm Size:
60%/\$5,000
(Interim Results)

	<0.5 %	0.5-1.0%	1 - 3%	>3%	Total
Firms/Non-Profits	269	57	71	109	506
<i>Of which, owned by small entities</i>	21	4	5	7	37
<i>owned by large entities</i>	226	49	55	98	428
<i>entity-size unknown</i>	22	4	11	4	41
Federal Government ^a	na	na	na	na	12
Other Government ^a	3	1	1	1	7
Utility	7	3	3	1	14
Colleges/Universities	7	0	0	0	7
TOTAL	286	61	75	111	546

^a Revenues not available for one "other government" and 12 federal government establishments.

Table 4-5 shows estimated impacts at the establishment level by industry (SIC).

Table 4-5
Number of Establishments By Establishment-Level Costs
as a Percentage of Value of Shipments/Expenditures and Industry:
60%/\$5,000
(Interim Results)

SIC	Industry/Sector	<0.5 %	0.5-1.0%	1-3 %	> 3%	Total
10	Metal mining	1	0	0	0	1
14	Non-metal, non-fuel mining/quarrying	0	0	2	3	5
20	Food and kindred products mfr.	35	1	0	3	39
21	Tobacco products mfr	2	0	0	0	2
22	Textile mill products	5	0	1	1	7
24	Lumber & wood products, exc. furniture	0	0	0	1	1
25	Furniture & fixtures	1	0	1	2	4
2611	Pulp mills	7	3	1	0	11
2621	Paper mills	37	10	5	1	53
2631	Paperboard mills	20	3	1	1	25
Other 26	Other paper & allied products	4	1	0	1	6
27	Printing & publishing	1	0	1	0	2
28	Chemicals & allied products	58	11	9	5	83
2911	Petroleum refining	17	0	1	1	19
295	Asphalt paving & roofing matls.	1	2	0	0	3
30	Rubber & plastics products	7	1	0	1	9
32	Glass	3	0	0	0	3
3241	Cement, hydraulic	0	5	23	6	34
Other 32	Other stone, clay, glass, concrete products	1	1	0	1	3
3312	Steel works, blast furnaces & rolling mills	27	4	1	1	33
Other 33	Other primary metals	8	1	1	1	11

SIC	Industry/Sector	<0.5 %	0.5-1.0%	1-3 %	> 3%	Total
34-39	Metal products, machinery, computers, transp equip, and misc. mfr.	24	3	3	4	34
4922	Natural gas transmission	1	4	12	70	87
4961	Steam & air-conditioning supply	1	1	2	1	5
Other 49	Other gas & sanitary services	3	6	5	3	17
5171	Petroleum bulk stations & terminals	1	0	0	1	2
72-89	Services	4	0	2	1	7
4911/ 4931	Electric utilities	7	3	3	1	14
Colleges/universities		7	0	0	0	7
Federal government ^a		na	na	na	na	12
Other government ^a		3	1	1	1	7
TOTAL		286	61	75	111	546

^aRevenues not available for one "other government" and 12 federal government establishments

4.3 70%/\$5,000 Alternative - Interim Results

Table 4-6 shows the number of potentially affected firms/entities by firm-level costs as a percent of firm/entity revenues/expenditures, for the highest cost combination alternative considered (70%/\$5,000.)

Table 4-6
Number of Potentially Affected Firms by Firm Costs as a Percentage of Sales/Expenditures:
70%/\$5,000
(Interim Results)

	<0.5 %	0.5-1.0%	1 - 3%	>3%	Sales NA ^a	Total
Firms/Non-Profits	179	12	8	8	46	253
<i>Of which, small entities</i>	<i>21</i>	<i>3</i>	<i>5</i>	<i>7</i>	<i>0</i>	<i>36</i>
<i>large entities</i>	<i>156</i>	<i>8</i>	<i>3</i>	<i>1</i>	<i>8</i>	<i>176</i>
<i>entity-size unknown</i>	<i>2</i>	<i>1</i>	<i>0</i>	<i>0</i>	<i>38</i>	<i>41</i>
Federal Government ^a	na	na	na	na	1	1
Other Government ^a	3	1	1	1	1	7
Utility	10	1	1	1	1	14
Colleges/Universities	6	0	0	0	0	6
TOTAL	198	14	10	10	49	281

^a Sales not available or (for the federal government) not applicable.

Table 4-7
Number of Establishments by
Costs as a Percentage of Value of Shipments/Expenditures
and Sector and Firm Size:
70%/\$5,000
(Interim Results)

	<0.5 %	0.5-1.0%	1 - 3%	>3%	Total
Firms/Non-Profits	239	62	81	124	506
<i>Of which, owned by small entities</i>	19	2	8	8	37
<i>owned by large entities</i>	199	55	62	112	428
<i>entity-size unknown</i>	21	5	11	4	41
Federal Government ^a	na	na	na	na	12
Other Government ^a	3	1	1	1	7
Utility	3	3	6	2	14
Colleges/Universities	7	0	0	0	7
TOTAL	252	66	88	127	546

^a Revenues not available for one "other government" and 12 federal government establishments.

Table 4-8 shows estimated impacts at the establishment level by industry (SIC) for the 70%/\$5,000 alternative.

Table 4-8
Number of Establishments By Establishment-Level Costs
as a Percentage of Value of Shipments/Expenditures and Industry:
70%/\$5,000
(Interim Results)

SIC	Industry/Sector	<0.5 %	0.5-1.0 %	1-3 %	> 3%	Total
10	Metal mining	1	0	0	0	1
14	Non-metal, non-fuel mining/quarrying	0	0	2	3	5
20	Food and kindred products mfr.	34	1	1	3	39
21	Tobacco products mfr	2	0	0	0	2
22	Textile mill products	4	1	0	2	7
24	Lumber & wood products, exc. furniture	0	0	0	1	1
25	Furniture & fixtures	1	0	1	2	4
2611	Pulp mills	7	3	1	0	11
2621	Paper mills	30	10	11	2	53
2631	Paperboard mills	16	6	2	1	25
Other 26	Other paper & allied products	1	2	2	1	6
27	Printing & publishing	1	0	1	0	2
28	Chemicals & allied products	49	15	10	9	83
2911	Petroleum refining	17	0	1	1	19
295	Asphalt paving & roofing matls.	1	2	0	0	3
30	Rubber & plastics products	7	0	1	1	9
32	Glass	2	0	1	0	3
3241	Cement, hydraulic	0	5	23	6	34
Other 32	Other stone, clay, glass, concrete products	1	1	0	1	3
3312	Steel works, blast furnaces & rolling mills	27	2	2	2	33
Other 33	Other primary metals	6	3	0	2	11

SIC	Industry/Sector	<0.5 %	0.5-1.0%	1-3 %	> 3%	Total
34-39	Metal products, machinery, computers, transp equip, and misc. mfr.	22	3	3	6	34
4922	Natural gas transmission	1	3	11	72	87
4961	Steam & air-conditioning supply	3	5	4	5	17
Other 49	Other gas & sanitary services	1	0	2	2	5
5171	Petroleum bulk stations & terminals	1	0	0	1	2
72-89	Services	4	0	2	1	7
4911/ 4931	Electric utilities ^b	3	3	6	2	14
Colleges/universities		7	0	0	0	7
Federal government ^a		na	na	na	na	12
Other government ^a		3	1	1	1	7
TOTAL		252	66	88	127	546

^aRevenues not available for one "other government" and 12 federal government establishments

4.4 40%/\$1,500 Alternative - Interim Results

Table 4-9 shows the number of potentially affected firms/entities by firm-level costs as a percent of firm/entity revenues/expenditures, for the lowest cost combination alternative considered (40%/\$1,500.)

Table 4-9
Number of Potentially Affected Firms by Firm Costs as a Percentage of Sales/Expenditures:
40%/\$1,500
(Interim Results)

	<0.5 %	0.5-1.0%	1 - 3%	>3%	Sales NA ^a	Total
Firms/Non-Profits	187	12	4	4	46	253
<i>Of which, small entities</i>	25	4	4	3	0	36
<i>large entities</i>	159	8	0	1	8	176
<i>entity-size unknown</i>	3	0	0	0	38	41
Federal-Government ^a	na	na	na	na	1	1
Other Government ^a	4	0	1	1	1	7
Utility	11	0	1	1	1	14
Colleges/Universities	6	0	0	0	0	6
TOTAL	208	12	6	6	49	281

^a Sales not available or (for the federal government) not applicable.

Table 4-10 summarizes the results of the establishment-level analysis, by sector and firm size.

Table 4-10
Number of Establishments by
Costs as a Percentage of Value of Shipments/Expenditures
and Sector and Firm Size:
40 %/\$1,500
(Interim Results)

	<0.5 %	0.5-1.0%	1 - 3%	>3%	Total
Firms/Non-Profits	312	30	63	101	506
<i>Of which, owned by small entities</i>	24	3	5	5	37
<i>owned by large entities</i>	262	23	49	94	428
<i>entity-size unknown</i>	26	4	9	2	41
Federal Government ^a	na	na	na	na	12
Other Government ^a	4	0	1	1	7
Utility	10	1	2	1	14
Colleges/Universities	7	0	0	0	7
TOTAL	333	31	66	103	546

^a Revenues not available for one "other government" and 12 federal government establishments.

Table 4-11 shows estimated impacts at the establishment level by industry (SIC).

Table 4-11
Number of Establishments By Establishment-Level Costs
as a Percentage of Value of Shipments/Expenditures and Industry:
40%/\$1,500
(Interim Results)

SIC	Industry/Sector	<0.5 %	0.5-1.0 %	1-3 %	> 3%	Total
10	Metal mining	1	0	0	0	1
14	Non-metal, non-fuel mining/quarrying	0	0	3	2	5
20	Food and kindred products mfr.	36	0	0	3	39
21	Tobacco products mfr	2	0	0	0	2
22	Textile mill products	6	0	0	1	7
24	Lumber & wood products, exc. furniture	0	0	1	0	1
25	Furniture & fixtures	2	0	0	2	4
2611	Pulp mills	10	1	0	0	11
2621	Paper mills	48	1	3	1	53
2631	Paperboard mills	23	0	1	1	25
Other 26	Other paper & allied products	5	0	0	1	6
27	Printing & publishing	1	0	1	0	2
28	Chemicals & allied products	69	5	8	1	83
2911	Petroleum refining	17	0	1	1	19
295	Asphalt paving & roofing matls.	3	0	0	0	3
30	Rubber & plastics products	8	0	0	1	9
32	Glass	3	0	0	0	3
3241	Cement, hydraulic	0	5	23	6	34
Other 32	Other stone, clay, glass, concrete products	1	1	0	1	3
3312	Steel works, blast furnaces & rolling mills	30	1	1	1	33
Other 33	Other primary metals	9	0	2	0	11

SIC	Industry/Sector	<0.5 %	0.5-1.0%	1-3 %	> 3%	Total
34-39	Metal products, machinery, computers, transp equip, and misc. mfr.	25	4	2	3	34
4922	Natural gas transmission	1	4	12	70	87
4961	Steam & air-conditioning supply	4	6	4	3	17
Other 49	Other gas & sanitary services	2	1	1	1	5
5171	Petroleum bulk stations & terminals	1	0	0	1	2
72-89	Services	5	1	0	1	7
4911/ 4931	Electric utilities ^b	10	1	2	1	14
Colleges/universities		7	0	0	0	7
Federal government ^a		na	na	na	na	12
Other government ^a		4	0	1	1	7
TOTAL		333	31	66	103	546

^a Revenues not available for one "other government" and 12 federal government establishments

5. Small Entity Impacts

While the RFA as amended by SBREFA does not apply to this rulemaking, EPA has elected to evaluate the potential impacts of the rule on potentially affected small entities, based on assumptions about how the States will implement the requirements associated with meeting their NOx budgets. In addition, EPA's position is that the RFA does apply to the associated proposed FIP and Section 126 rules. The analysis of small entity impacts assists EPA in screening for significant impacts for those proposed rules.

EPA has prepared Interim Guidance for program offices on complying with the RFA and SBREFA requirements.¹¹ That document provides guidance on the analytical requirements, including criteria for defining "significant impact", "substantial number" and "small entities."

- "Small business" is defined by the Small Business Administration; these definitions are codified at 13 CFR 121.201, and are reviewed and updated every year.¹² These definitions

¹¹ EPA Interim Guidance for Implementing the Small Business Regulatory Enforcement Fairness Act and Related Provisions of the Regulatory Flexibility Act, February 5, 1997.

¹² The most recent revisions to the size standards can be obtained at the SBA's Internet site, <http://www.sbaonline.sba.gov/gopher/Financial-Assistance/Size-Standards>.

are established by SIC codes — by employment for most manufacturing SICs and by annual receipts for agriculture, mining, and electric, gas and sanitary services.

- “Small government” is defined as the government of a city, county, town, school district or special district with a population of less than 50,000.
- “Small organization” is any “not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”

The recommended quantitative measures for evaluating economic impacts on small entities include:

- Small businesses: annualized compliance costs as a percentage of sales (“sales test”)
- Small governments: annualized compliance costs as a percentage of annual government revenues (“revenue test”)
- Small nonprofit organizations: annualized compliance costs as a percentage of annual operating expenditures (“expenditure test”.)

The screening analysis described in Section 2 provided the information needed to assess whether the NOx SIP call might impose a significant impact on a substantial number of small entities. For businesses, the D&B data on firm-level employment and revenues were compared with the SBA size standards to determine which establishments are small entities. The 1992 Census of Governments provided population and revenue data for most of the affected non-federal government entities. All of the potentially-affected non-federal government entities were either large (as defined above) or their size could not be determined from published Census of Governments data.

Table 5-1 shows total small entity impacts and impacts by establishment industry category, based on the final results for the 60%/\$5,000 alternative.

Table 5-1
Number of Potentially Affected Small Entities by
Cost as a Percentage of Sales/Expenditures by Industry

SIC	Industry	Number of Small Firms Affected	Costs = 1-3% of Sales	Costs > 3% of Sales	% of Affected Small Firms w/ Costs >3%
1442	Construction Sand and Gravel	1		1	100%
2033	Canned Fruits and Vegetables	1		1	100%
2075	Soybean Oil Mills	2		1	50%
2083	Malt	1			0%
2295	Coated Fabrics, Not Rubberized	1			0%
2434	Wood Kitchen Cabinets	1		1	100%
2511	Wood Household Furniture	1			0%
2621	Paper Mills	2			0%
2631	Paperboard Mills	1			0%
2819	Industrial Inorganic Chemicals, NEC	1			0%
2865	Cyclic Crudes and Intermediates	1			0%
2869	Industrial Organic Chemicals, NEC	2		1	50%
2873	Nitrogenous Fertilizers	1			0%
2911	Petroleum Refining	1			0%
3241	Cement, Hydraulic	6	3		50%
3291	Abrasive Products	1			0%
3312	Blast Furnaces and Steel Mills	3			0%
3432	Plumbing Fittings and Brass Goods	1			0%
3462	Iron and Steel Forgings	1			0%
3471	Plating and Polishing	1			0%
3531	Construction Machinery	1	1		100%
3999	Manufacturing Industries, NEC	2			0%
8062	Gen Surgical Hospital	3			0%
Total		36	4	5	25%

Table 5-2 shows potential small entity impacts for the final alternative combination and the other two alternative combinations considered, based on the interim cost analysis.

Table 5-2
Number of Potentially Affected Small Entities by
Cost as a Percentage of Sales/Expenditures by Alternative
(Interim Results)

Alternative	Total Small Entities Potentially Affected	<1%	1-3%	>3%	Percent of Total Entities > 1%	Percent of Total Entities >3%
40%/\$1,500	36	29	4	3	19%	8%
Final Alternative: 60%/\$5,000	36	27	4	5	25%	14%
70%/\$5,000	36	24	5	7	33%	19%

Because size could not be determined for a number of potentially-affected entities, a worst-case estimate was made of number of entities that could be significantly impacted under the 60%/\$5,000 alternative if all the entities of unknown size are in fact small. The results of this calculation are reported in Appendix A.

6. Impacts on Government-Owned Sources

This section presents detailed economic impact results for potentially affected non-EGU sources owned by government entities. This analysis supports EPA's evaluation of impacts on governments, as mandated for certain rules by the Unfunded Mandates Reform Act of 1995. It is EPA's position that UMRA requirements do not apply to the NOx SIP call, but that UMRA requirements do apply for the associated FIP and Section 126 rules. This analysis therefore assists EPA in assessing impacts on governments for those proposed rules.

Costs incurred by sources owned by the federal government are not relevant when assessing unfunded mandates. Compliance and administrative costs for federal government sources are included here, however, to provide a complete picture of government entity impacts. Analysis of other components of costs relevant to evaluation of unfunded mandates — including administrative costs incurred by state and local governments — are reported in the RIA for the rule.

These costs reported in this section include both control costs and administrative, including costs associated with trading. The control costs are based on assumptions of how affected States will implement control measures to meet their NOx budgets.

Table 6-1 provides an overview of costs incurred by government entities that own non-EGU sources that may be affected under the 60%/\$5,000 alternative. Appendix C provides a detailed list of the affected government entities.

Table 6-1
2007 Annual Costs To Potentially Affected Government-Owned NOx Emissions Sources:
60%/\$5,000
(Final Results)

Government Entity	Number of Establishments	Annual Control Costs (thousands of 1990\$)	Annual Administrative Costs (thousands of 1990\$)	Total Compliance Costs (thousands of 1990\$)
Federal Government	12	\$1,928	\$661	\$2,589
State - correctional facility	1	602	46	648
City - Refuse systems	1	0.5	8	8.5
Educational institution	1	30	1	31
Metropolitan water system	1	54	46	100
City, regional sewerage systems	3	176	136	286
TOTAL:	19	\$2,790.5	\$872	\$3,662.5

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- Census of Mineral Industries (SICs 10 - 14)
- Census of Construction and Housing (SICs 16-17)
- Census of Manufacturers (SICs 20-39)
- Census of Transportation, Communications and Utilities (SICs 40-49)
- Census of Wholesale Trade (SIC 50-51)
- Census of Retail Trade (SICs 52-59)
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Appendix A: Worst Case Estimate of Potentially Impacted Small Entities

Size of firm or entity could not be determined for some of the non-EGU establishments potentially-affected by the NOx SIP call. This appendix provides a worst case estimate of the maximum number of firms that could be significantly impacted, if all of the firms/entities of unknown size were small.

The maximum potential number of small entities that may be significantly impacted under the 60%/\$5,000 alternative is 26, as shown in Table A-1. This calculation includes entities for which firm/entity-level sales or expenditures are not available and which could not be classified as small or large based on employment. Costs are compared with the average value of shipments for small entities in the relevant industry (classified by 4 digit SIC.) The entities with unknown sales and size are included in the count of potential small entity impacts if that ratio exceeds one or three percent of average small entity impacts in the relevant industry. (These are the thresholds used to screen for *potential* significant impacts.) This calculation does not indicate that these entities *are* small entities, but rather that they would incur costs above the threshold percents if they *were* small entities. This calculation therefore provides an worst-case estimate of the maximum potential small entity impacts, because many of the entities in question may not in fact be small.

Table A-1
Upper Bound Estimate of Number of Potentially Affected Small Entities by
Cost as a Percentage of Sales/Expenditures:
60%/\$5,000
(Final Results)

	Total Entities	1-3%	>3%	Percent of Total Entities > 1 %
Identified as small entities	36	4	5	25%
Size unknown	40	10	7	43%
Total	76	14	12	34%

Therefore, of the 76 possible small entities in the worst-case estimate, 26 may have compliance costs as a percentage of sales or revenues of greater than one percent in the selected alternative, and of these 12 may have compliance costs as a percentage of sales of greater than three percent.

**Appendix B: List of Potentially Affected Small Entities
60%/\$5,000 Alternative
(Final Results)**

SIC	Control Costs: Trading Sources	Control Costs: Non-Trading	Administrative Costs	Total Costs (1990 \$)	Firm Sales (1990 \$)	Costs as a Percent of Firm Sales
3312	4,316	0	1,776	6,092	131,631,000	<0.1%
8062	164	0	16,051	16,215	146,386,980	<0.1%
8062	138	81,920	46,509	128,567	660,504,870	<0.1%
2873	61,527	0	45,595	107,122	329,977,950	<0.1%
3312	20,527	0	2,761	23,288	68,556,000	<0.1%
2075	122,861	0	53,249	176,110	381,059,889	<0.1%
2865	18,195	0	1,776	19,971	36,192,000	0.1%
2819	161,737	0	16,822	178,559	304,499,889	0.1%
3999	191	0	16,051	16,242	26,970,000	0.1%
2869	184,453	0	53,249	237,702	208,800,000	0.1%
2295	216	0	8,026	8,242	6,909,208	0.1%
2083	22,220	0	45,595	67,815	49,677,000	0.1%
2621	10,799	0	8,026	18,825	11,310,000	0.2%
8062	330	0	8,026	8,356	5,007,046	0.2%
2511	42	0	8,026	8,068	4,350,000	0.2%
3291	76,223	0	1,776	77,999	41,760,000	0.2%
2911	230,736	0	136,785	367,521	180,525,000	0.2%
3312	73,078	0	45,595	118,673	45,849,000	0.3%
3471	18	0	8,026	8,044	2,610,000	0.3%
2631	70,795	0	985	71,780	22,794,000	0.3%
3999	83,522	0	3,552	87,074	23,463,775	0.4%
3462	85,005	0	45,595	130,600	34,800,000	0.4%
3241	0	368,890	21,494	390,384	87,000,000	0.4%
3432	26,056	0	1,776	27,832	4,350,000	0.6%
3241	0	1,532,259	10,747	1,543,006	208,800,000	0.7%
3241	0	979,057	10,747	989,804	123,453,000	0.8%
2621	178,477	0	53,249	231,726	24,559,836	0.9%

SIC	Control Costs: Trading Sources	Control Costs: Non-Trading	Administrative Costs	Total Costs (1990 \$)	Firm Sales (1990 \$)	Costs as a Percent of Firm Sales
3531	101,552	0	45,595	147,147	13,937,363	1.1%
3241	0	266,299	10,747	277,046	20,184,000	1.4%
3241	0	826,498	21,494	847,992	43,500,000	1.9%
3241	0	323,093	21,494	344,587	17,200,770	2.0%
2434	45,547	0	45,595	91,142	2,175,000	4.2%
1442	0	28,358	30,458	58,816	1,298,448	4.5%
2869	6,105,101	0	45,595	6,150,696	114,840,000	5.4%
2075	91,483	0	45,595	137,078	339,300	40.4%
2033	1,159,056	0	45,595	1,204,651	1,180,144	102.1%

**Appendix C: List of Potentially Affected Government-Owned Sources
60%/\$5,000 Alternative
(Final Results)**

Source	State	Type of Govt. Entity	Control Costs- Trading Sources	Control Costs- Non-Trading	Administrative Costs	Total Costs (1990 \$)	Revenues (1990 \$)	Costs as a Percent of Revenues
GSA-West Heating	DC	Fed- GSA	46,339	0	4,732	51,071	na	na
GSA-Central Heating	DC	Fed-GSA	99	0	985	1,084	na	na
Great Lakes Naval Station	IL	Fed-DID	92,566	0	45,595	138,161	na	na
Naval Surface Warfare Cntr-Indian Hd	MD	Fed-DOD	123,866	0	15,837	139,703	na	na
Portsmouth Gaseous Diffusion Plant	OH	Fed- DOE	365,715	0	159,748	525,463	na	na
Savannah R Pl: area a	SC	Fed-DOE	0	360	30,458	30,818	na	na
Savannah R Pl: area d	SC	Fed-DOE	1,107,799	0	212,997	1,320,796	na	na
Savannah R Pl: area h	SC	Fed-DOE	0	169,029	30,458	199,487	na	na
Savannah R Pl: area k	SC	Fed-DOE	0	11,480	30,458	41,938	na	na
US Navy: Beaufrt Hos	SC	Fed-DOD	0	1,504	60,916	62,420	na	na
US Air Force: Mrtl Bch	SC	Fed-DOD	925	0	16,051	16,976	na	na
US Department of Energy (Ornl)	TN	Fed-DOE	8,306	0	53,249	61,555	na	na
Campus Pwr Plant Ogs	NY	Educ	30,395	0	985	31,380	na	na
Indiana Girls School	IN	Corrections	602,234	0	45,595	647,829	9,926,338	6.5%
Charleston, City of	SC	Sewerage	0	2,486	60,916	63,402	4,135,060	1.3%
Stony Brook Regional Sewerage	NJ	Sewerage	69,196	0	3,552	72,748	9,204,480	0.8%
Blue River Treatment Plant	MO	Refuse	492	0	8,026	8,518	5,340,075	0.2%
Metropolitan W.R.D. of Greater Chicago	IL	Sewerage	104,641	0	45,595	150,236	461,328,500	0.0%
Chicago Water Dept -Springfield Station	IL	Water	54,008	0	45,595	99,603	221,233,619	