

## **Revisions to the Economic Impacts and Burden Estimates for the Rule Titled: Review of New Sources and Modifications in Indian Country**

This addendum summarizes the revised qualitative assessment of the economic and burden impacts of the rule titled: Review of New Sources and Modifications in Indian Country. Burden and costs estimates have changed from those estimated under the previous versions of the Economic Impact Analysis (EIA) and the Supporting Statement (SS) for this rule due to a change in policy before the rule was finalized.

At the time the original EIA and SS were written, we planned to delay the applicability date of the rule for true minor sources that might be subject to the minor NSR program for a period of 18 months from the rule's effective date (60 days after the final rule is published). However, to address commenters concerns about EPA's ability to implement this NSR permitting program in a timely manner and to provide additional time for EPA Regions to prepare for their duties as the Federal permitting authority, including the development of additional permitting tools, we have extended the applicability date of the rule for true minor sources for an additional 18 months for a total applicability delay of 36 months from the effective date of the final rule. In addition, sources eligible to seek coverage under a general permit will be subject to that general permit 4 months after the general permit is effective (6 months after the general permit is published) unless the source opts to apply for a site-specific permit at the time the source had to apply for that general permit.

Therefore and based on these revisions, we are reducing the permitting burden and cost for both the regulated community and the agency. Under the revised provisions, no permits will be required for new and modified true minor sources during the initial 36 months after the effective date of the rule, unless a general permit is available before the 36 month applicability date for the source category for which the source owner is seeking a permit. Sources will still be required to register, as in the previous version of the rule, within the first 18 months after the minor NSR rule effective date or 90 days after the source begins operation, whichever is later.

### **Reduction in Economic Impacts Based on Rule Revisions**

In the EIA, we present a range of estimated costs and impacts for the first 3 years after the effective date of the rule. The "Lower Bound" costs in the EIA only include Monitoring, Recordkeeping and Reporting (MRR) costs, computed under the conservative assumption that all facilities choose source-specific permitting (cost and burden for the development and implementation of general permits is unknown at this time). Under the "Upper Bound" cost estimates some facilities are assumed to be subject to BACT.

Previously, Lower Bound costs, which are based only on MRR costs, were estimated for the first three years after the effective date of the rule to total \$22.9 million across all source categories. Under the revised provisions, costs for this initial three-year period would total \$2.7 million. The \$20.2 million reduction in costs over the initial three-year period is wholly owed to reduction in permitting burden for new and modified true minor sources during the second 18-month interval of the current 36-month applicability delay after the effective date of the rule.

Furthermore, previous Upper Bound costs during the first 3 years after the effective date of the rule, which include compliance costs for BACT controls for some facilities in addition to MRR costs, were estimated in the EIA to total \$24.2 million. Under the revisions, the Upper Bound

cost is \$2.9 million. This reduction of \$21.3 million is also wholly due to the reduction in permitting burden for new and modified true minor sources during the second 18-month interval of the current 36-month applicability delay after the effective date of the rule.

### **Burden Estimates in Supporting Statement**

**Estimated Reduction in Burden for Affected Sources.** As explained previously, no permits will be required for new and modified true minor sources during the initial 36 months after the effective date of the rule, unless a general permit is available before the 36 month applicability date for the source category for which the source owner is seeking a permit. Sources will still be required to register, as in the previous version of the rule, within the first 18 months after the minor NSR rule effective date or 90 days after the source begins operation, whichever is later.

We estimate that the level of effort and cost to register under the rule and to apply for coverage under a general permit is similar. Therefore, the overall burden for all affected true minor sources is projected to decrease from \$22.8 million to \$2.7 million, a reduction of \$20.1 million and about 1.8 million hours. The burden associated with affected true minor sources is projected to decrease from \$20.4 million to \$0.3 million. The burden for new true minor sources is projected to decrease from \$18.1 million to \$0.2 million. The burden for modified true minor sources is projected to decrease from \$2.3 million to about \$30 thousand.

The overall hours burden for all affected true minor sources is projected to decrease from 2.1 million hours to 0.2 million hours, a reduction of 1.8 million hours. New true minor sources account for 1.6 million of the reduction and modified true minor sources account for the remaining 0.2 million hours.

**Estimated Reduction in Agency Burden:** Similarly, the administrative burden to the Agency is projected to be lower under the revised provisions. Assuming all new and modified true minor sources are required to either register or apply for coverage under a general permit during the first 36 months following the rule's effective date, the Agency overall burden is projected to decrease from \$17.1 million to \$6.9 million, a reduction of \$10.2 million. In terms of hours, the Agency burden falls from 162,470 hours to 76,550 hours, a reduction of approximately 85,900 hours. This decrease is wholly owed to not requiring sources to seek site-specific permits for true minor sources during the second 18-month interval of the current 36-month applicability delay after the effective date of the rule. The burden associated with true minor sources is projected to decrease from \$11.0 million to \$0.8 million, a reduction of \$10.2 million.

These estimates, however, do not include the Agency cost burden for development and implementation of new general permits as those costs are unknown at this time.



# Economic Impact Analysis for the Review of New Sources and Modifications in Indian Country

## Final Report

Economic Impact Analysis for the Review of New Sources and Modifications in Indian Country  
Final Report

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## ACRONYMS AND ABBREVIATIONS

<b>Acronym or Abbreviation</b>	<b>Definition</b>
AIAN	American Indian or Alaska Native
BACT	Best Available Control Technology
CBP	County Business Patterns
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CSR	Cost-to-Sales Ratio
ECHO	EPA Enforcement and Compliance History Online database
EIA	Economic Impact Analysis
EPA	Environmental Protection Agency
HP	Horsepower
ICR	Information Collection Request
IRF	Information Request Form Sent by OAQPS to EPA Regions
MMBTU/hr	Million British Thermal Units per hour
MRR	Monitoring, Recordkeeping, and Reporting
NA NSR	Non-Attainment New Source Review
NAAQS	National Ambient Air Quality Standards under the Clean Air Act
NAICS	North American Industry Classification System
NEI	National Emissions Inventory
NO <sub>x</sub>	Nitrous Oxides
NSR	New Source Review
OAQPS	EPA Office of Air Quality Planning and Standards
PM	Particulate Matter
PM <sub>10</sub>	Particulate Matter, 10 microns or smaller
PSD	Prevention of Significant Deterioration
RFA	Regulatory Flexibility Act
SBA	Small Business Administration
SBREFA	Small Business Regulatory Enforcement Fairness Act
SISNOSE	Significant Impact to a Substantial Number of Small Entities
SO <sub>x</sub>	Sulfur Oxides
SUSB	Statistics of United States Business (U.S. Census Bureau)
TAC	Total Annualized Costs
TPY	Tons per Year
VOC	Volatile Organic Compounds

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## **EXECUTIVE SUMMARY**

The Review of New Sources and Modifications in Indian Country (hereafter referred to as the rule) establishes nationally applicable regulations to implement a permitting program to regulate the construction and modification of stationary sources of air pollution and to allow certain new and existing stationary sources to voluntarily accept federally enforceable emission limits to avoid major source regulations. The rule establishes procedures and terms under which the Administrator will issue permits for new minor source facilities (new plants that are minor sources, minor modifications to existing sources, and creation of synthetic minor sources by voluntarily accepting emissions limitations) as well as for minor modifications at major sources. In addition, the rule establishes procedures for permitting new major sources and major modifications in nonattainment areas in Indian Country. The U.S. Environmental Protection Agency (EPA) currently issues preconstruction permits in Indian Country for major sources and major modifications in attainment and unclassifiable areas under the Prevention of Significant Deterioration (PSD) regulations at 40 CFR Part 52.21. EPA has also issued preconstruction permits in Indian Country for major sources and major modifications in nonattainment areas on a case-by-case basis. Thus, the rule establishes a regulatory mechanism for permitting new major sources (new facilities) and major modifications at existing facilities in nonattainment areas in Indian Country. Existing minor source facilities in Indian Country at promulgation (an estimated 32,900 facilities) will be required to register but not to undertake any other compliance activities. Existing synthetic minor facilities (an estimated 79 facilities at promulgation) are expected to be required to acquire new permits.

EPA projected the number of new sources in Indian Country during the 6-year period following rule promulgation, based on projected population growth rates in Indian Country. These estimates were then revised based on information from EPA Regions. During the first 6 years following promulgation of the rule, EPA projects that there will be 110 new major sources in Indian Country, of which 5 will be in nonattainment areas; 48 new synthetic minor sources; 7,606 new true minor sources; one major modification to an existing major source; 12 minor modifications to existing major sources; and 984 minor modifications to minor sources.

EPA estimated a range of costs of compliance for the rule, with a lower-bound estimate of only permitting, monitoring, recordkeeping, and reporting (MRR) costs and the upper-bound estimate including both emissions control costs and MRR costs.

All new sources will be required to undertake permitting and MRR activities as a result of the rule. In addition, some facilities will be required to install and operate emissions control

equipment, as determined based on a case-by-case review of control technologies. EPA has estimated upper-bound costs as the sum of MRR costs and Best Achievable Control Technology (BACT) control costs, recognizing that this upper bound overstates control costs because very few facilities will be required to install BACT.

Existing minor sources are projected to incur a total of \$2.04 million to complete registration during the first year after the effective date of the rule. Existing synthetic minors are estimated to incur a total of \$48,800 to acquire new permits during the same time period. EPA has delayed implementation of the rule for new and modified minor sources until 18 months after the effective date of the rule. During the first 18 months following the rule's effective date, these new sources will be required to register but not to be permitted. During this period, facilities will incur costs similar to existing minor sources (\$62/source).

Table ES-1 presents national total annualized costs for new minor sources, minor modifications, and new synthetic minor sources, including lower-bound estimates (MRR costs only) and upper-bound estimates (MRR costs plus BACT emissions control costs) for the first year following rule promulgation, the second year following rule promulgation, and for years 3 through 6 following promulgation.

**Table ES-1. Summary of National Total Annualized Costs for Minor Sources and Minor Modifications, by Time Period (10<sup>6</sup> \$2008)**

<b>Time Period</b>	<b>Number of Affected Sources</b>	<b>Lower-Bound Estimate (MRR Costs Only)</b>	<b>Upper-Bound Estimate (MRR Costs Plus Emissions Control Costs)</b>
First-Year Costs	34,412	\$2.3	\$2.4
Second-Year Costs	1,442	\$6.9	\$7.4
Costs for Years 3 through 6	1,442	\$13.7	\$14.4

EPA estimates that new major sources in nonattainment areas will incur total annualized costs of \$40,000. However, EPA does not believe these costs are incremental, because new major sources in nonattainment areas would have incurred similar costs to comply with source-specific Federal Implementation Plans (FIPs) in the absence of the rule. The rule represents an administrative change but no increase in costs. Thus, EPA does not estimate incremental impacts for new major sources due to the rule.

In addition to the total annualized costs incurred by new sources, EPA estimates that the Agency will incur administrative costs of \$17.1 million over the first 3 years following rule promulgation, an average of \$5.7 million per year.

Thus, during the first year following promulgation, industry is projected to incur between \$2.3 and \$2.4 million; including annual Agency burden, the national annualized cost is estimated to be between \$8.0 and \$8.1 million. Because implementation of the rule was delayed 18 months from the rule's effective date for new and modified minor sources, Year 2 includes 6 months during which new and modified minor sources need only register and 6 months during which they will need to obtain a permit. Costs for the second year following rule promulgation total between \$6.9 million and \$7.4 million. Including annual Agency burden, the national annualized cost is estimated to be between \$12.6 million and \$13.1 million. During subsequent years, estimated total annualized incremental costs for new sources in the industry (excluding existing minor sources, existing synthetic minor sources, and new and modified major sources) range from \$13.7 million to \$14.4 million. Including annual average Agency burden, estimated total annualized costs for the rule range from \$19.4 million to \$20.1 million.

After estimating costs of compliance, EPA conducted a screening assessment that compared the total annualized costs (using the per-facility costs for the period beginning 18 months following rule promulgation) for facilities in affected sectors to typical facility revenues in affected sectors. At the lower bound, MRR costs only, costs are below 1% of sales for all sectors except automobile body refinishers (whose costs are less than 1.5% of sales). At the upper bound, BACT plus MRR costs, costs are projected to be less than 3% of sales for all sectors and less than 1% of sales for all sectors except auto body refinishers, concrete batching plants, sand and gravel mines, sand and shot blasting operations, solid waste landfills, and wood kitchen cabinet manufacturers. EPA estimates there may be as many as 74 new minor sources or minor modifications at existing minor sources in these sectors in the first 6 years after rule promulgation but only a very small share of them would be required to install BACT controls, so very few affected new and modified minor source facilities would incur the upper-bound costs.

EPA estimated the number of new sources owned by small businesses in each sector, based on the share of existing sources in Indian Country owned by small businesses; in all, EPA estimates that 1,730 new minor sources, minor modifications, and new synthetic minor sources will be owned by small businesses during the first 6 years following rule promulgation. EPA's screening assessment compared the costs of compliance for these facilities to typical sales for firms with fewer than 500 employees. Table ES-2 shows EPA's estimated number of new and modified sources owned by small businesses, during the 6 years following rule promulgation.

At the lower bound, for MRR costs only, only small businesses in the automobile body refinishing sector are estimated to incur costs greater than 1% and less than 1.5%. EPA estimates that there may be 10 new or modified sources owned by small businesses in this sector during the 6 years following promulgation of the rule. At the upper bound, BACT plus MRR costs,

**Table ES-2. Projected Number of New and Modified Sources Owned by Small Businesses**

<b>Source Type</b>	<b>Projected Number of New and Modified Sources Owned by Small Businesses</b>
New Minor Sources	1,521
Modified Minor Sources	197
Synthetic Minor Sources	10
Minor Modifications to Major Sources	2
<b>Total</b>	<b>1,730</b>

several sectors (auto body refinishers, concrete batching plants, sand and gravel mining, sand and shot blasting, solid waste landfills, and sawmills) have costs between 1% and 3% of sales. EPA estimates that there will be at most 20 new minor sources or minor modifications owned by small businesses in these categories in the period 2011 to 2016. In addition, EPA anticipates that only a very small share of new or modified minor sources will incur upper-bound costs as a result of the rule. Thus, EPA believes that the rule will not result in significant impacts to a substantial number of small entities.

## **SECTION 1**

### **INTRODUCTION**

The Review of New Sources and Modifications in Indian Country (hereafter referred to as the rule) establishes nationally applicable regulations to implement a permitting program to regulate the construction and modification of stationary sources of air pollution and to allow certain new and existing stationary sources to voluntarily accept federally enforceable emission limits to avoid major source regulations. The rule establishes procedures and terms under which the Administrator will issue permits for new minor source facilities (new plants that are minor sources, minor modifications to existing sources, and creation of synthetic minor sources by voluntarily accepting emissions limitations). In addition, the rule establishes procedures for permitting new major sources and major modifications in nonattainment areas in Indian Country. The U.S. Environmental Protection Agency (EPA) currently issues preconstruction permits in Indian Country for major sources and major modifications in attainment and unclassifiable areas under the Prevention of Significant Deterioration (PSD) regulations at 40 CFR Part 52.21. EPA has also issued preconstruction permits in Indian Country for major sources and major modifications in nonattainment areas on a case-by-case basis. Thus, the rule does not impose any incremental emissions control requirements on existing major sources in nonattainment areas. It does, however, establish a regulatory mechanism for permitting new major sources (new facilities and major modifications at existing facilities) in nonattainment areas in Indian Country. Existing operations at existing minor and major source facilities in Indian Country will not be affected by the rule.

#### **1.1 Definitions**

To clarify terms used in this report, EPA provides the following definitions, which are found in their entirety in Appendix S to 40 CFR Ch I, Part 51(pp. 494–516 of the 7-1-09 Edition of the CFR):

##### **Major stationary source means:**

(a) Any stationary source of air pollutants which emits, or has the potential to emit, 100 tons per year or more of any pollutant subject to regulation under the Act, except that lower emissions thresholds shall apply in areas subject to subpart 2, subpart 3, or subpart 4 of part D, title I of the Act, according to the thresholds listed in Appendix S to Part 51, below.

(1) 50 tons per year of volatile organic compounds in any serious ozone nonattainment area.

(2) 50 tons per year of volatile organic compounds in an area within an ozone transport region, except for any severe or extreme ozone nonattainment area.

- (3) 25 tons per year of volatile organic compounds in any severe ozone nonattainment area.
- (4) 10 tons per year of volatile organic compounds in any extreme ozone nonattainment area.
- (5) 50 tons per year of carbon monoxide in any serious nonattainment area for carbon monoxide, where stationary sources contribute significantly to carbon monoxide levels in the area (as determined under rules issued by the Administrator).
- (6) 70 tons per year of PM<sub>10</sub> in any serious nonattainment area for PM<sub>10</sub>;

(b) For the purposes of applying the requirements of paragraph IV. H of Appendix S of Part 51 to stationary sources of nitrogen oxides located in an ozone nonattainment area or in an ozone transport region, any stationary source which emits, or has the potential to emit, 100 tons per year or more of nitrogen oxides emissions, except that the emission thresholds in paragraphs II.A.4(i)(b)(1) through (6) of this Ruling apply in areas subject to subpart 2 of part D, title I of the Act.

- (1) 100 tons per year or more of nitrogen oxides in any ozone nonattainment area classified as marginal or moderate.
- (2) 100 tons per year or more of nitrogen oxides in any ozone nonattainment area classified as a transitional, submarginal, or incomplete or no data area, when such area is located in an ozone transport region.
- (3) 100 tons per year or more of nitrogen oxides in any area designated under section 107(d) of the Act as attainment or unclassifiable for ozone that is located in an ozone transport region.
- (4) 50 tons per year or more of nitrogen oxides in any serious nonattainment area for ozone.
- (5) 25 tons per year or more of nitrogen oxides in any severe nonattainment area for ozone.
- (6) 10 tons per year or more of nitrogen oxides in any extreme nonattainment area for ozone; or

Any physical change that would occur at a stationary source not qualifying under paragraph II.A.4(i)(a) or (b) of this Ruling as a major stationary source, if the change would constitute a major stationary source by itself. A major stationary source that is major for volatile organic compounds or nitrogen oxides is major for ozone. Fugitive emissions are generally not included in determinations of whether a stationary source is a major source, although Appendix S to Part 51 lists several categories of stationary sources for which the fugitive emissions of a stationary source shall be included in determining whether the source is major.

**Major modification** means any physical change in or change in the method of operation of a major stationary source that would result in:

1. A significant emissions increase of a regulated New Source Review (NSR) pollutant (as defined in paragraph II.A.31 of Appendix S of Part 51); and
2. A significant net emissions increase of that pollutant from the major stationary source.

Any significant emissions increase (as defined in paragraph II.A.23 of this Ruling) from any emissions units or net emissions increase (as defined in paragraph II.A.6 of this Ruling) at a major stationary source that is significant for volatile organic compounds shall be considered significant for ozone. Appendix S of Part 51 lists several activities that would not be considered a physical change or change in the method of operation of the facility; specifies that any significant net increase in nitrogen oxides is considered significant for ozone, and that any physical change in or change in the method of operation of, a major stationary source of volatile organic compounds (VOCs) that results in any increase in emissions of VOCs from any discrete operation, emissions unit, or other pollutant emitting activity at the source shall be considered a significant net emissions increase and a major modification for ozone, if the major stationary source is located in an extreme ozone nonattainment area that is subject to subpart 2, part D, title I of the Act. Appendix S also notes that fugitive emissions are not included unless the source is in one of the specific categories listed in Appendix S's definition of major source.

**A minor stationary source** (often referred to simply as a **minor source** or **true minor source**) generally means a source that emits or has the potential to emit regulated NSR pollutants in amounts that are less than the major stationary source levels. However, for purposes of this rule, a minor source is a source that emits or has the potential to emit regulated NSR pollutants in amounts that are less than the major stationary source levels but has potential emissions higher than the minor NSR thresholds. For the purposes of this definition, the potential to emit includes fugitive emissions, to the extent that they are quantifiable, only if the source is in one of the source categories listed in 40 CFR 52.21(b)(1)(iii). The term "minor stationary source" applies independently to each regulated NSR pollutant that the source has the potential to emit and excludes any emissions units and activities that have been exempted from regulation according to final 40 CFR 49.153(c).

**Synthetic minor source** means a source that has the potential to emit regulated NSR pollutants in amounts that are at or above the major source thresholds in 40 CFR 49.167 or 52.21, as applicable, but that has taken an enforceable restriction so that its potential to emit (PTE) is less than the major source thresholds and, for purposes of this rule, above the minor NSR thresholds as well.

**Minor modification.** For the purposes of the minor NSR program, a minor modification is defined at 40 CFR 49.152(d) as any physical or operational change at a stationary source that would cause an increase in the allowable emissions of the affected emissions units above the minor NSR thresholds for any regulated NSR pollutant or that would cause the emission of any regulated NSR pollutant not previously emitted. For the purposes of this definition, fugitive



emissions, to the extent that they are quantifiable, are included only if the source is in one of the source categories listed in 40 CFR 52.21(b)(1)(iii). The following exemptions apply:

- A physical or operational change does not include routine maintenance, repair, or replacement.
- An increase in the hours of operation or in the production rate is not considered an operational change unless such change is prohibited under any permit condition that is enforceable as a practical matter.
- A change in ownership at a stationary source is not considered a modification.

**Major source of hazardous air pollutants** is any stationary source or group of contiguous sources under common control that emits or has the potential to emit considering control, in the aggregate, 10 tons per year or more of any hazardous air pollutant (Sec. 112(b)(1) of the Clean Air Act [CAA]) or 25 tons per year or more of any combination of hazardous air pollutants.

**Area source of hazardous air pollutants** is any stationary source or group of contiguous sources that is not a major source of hazardous air pollutants and emits or has the potential to emit any hazardous air pollutant or combination of hazardous air pollutants above the threshold level.

## **1.2 EPA Region Groups**

EPA conducted its analysis at the EPA Region level and then grouped the EPA Regions to reflect Regions with similar source types. EPA Region 3 contains no federally recognized Tribes, so it is omitted from the analysis. EPA grouped the Regions as follows: Regions 1, 2, and 4; Regions 5, 7, and 10; and Regions 6, 8, and 9. Because the analysis is conducted for the continental United States only, the EPA Regions in the analysis include the following states:

Region 1: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont

Region 2: New Jersey and New York

Region 4: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee

Region 5: Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin

Region 6: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas

Region 7: Iowa, Kansas, Missouri, and Nebraska

Region 8: Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming

Region 9: Arizona, California, and Nevada

Region 10: Idaho, Oregon, and Washington

### **1.3 Organization of the Economic Impact Analysis Report**

The analysis is organized as follows. Section 2 provides a profile of the baseline conditions for the analysis. In Section 3, the Agency estimates the costs and burdens that would typically result from implementing the rule. Section 4 describes the underlying assumptions and computations EPA made in estimating the economic impacts of the rule, including estimating the number of affected small entities and examining the rule's possible impact on these entities.

## **SECTION 2**

### **PROFILE OF BASELINE CONDITIONS**

Promulgation of the Review of New Sources and Modifications in Indian Country will result in regulation of air emissions from new and modified minor sources, minor modifications to existing major sources, and sources accepting emissions limitations to become synthetic minor sources. In addition, the rule establishes the nonattainment NSR program for major sources and major modifications to sources in Indian Country. In addition, the minor NSR portion of the rule will require the registration of existing minor sources. This section provides a profile of the baseline conditions and describes the underlying assumptions and computations that were made in support of the analysis.

#### **2.1 Data Availability and Uncertainties and Limitations**

A first step in analyzing the impacts of the rule is characterizing the baseline conditions in the absence of the rule (year 2009). Characterizing the baseline requires estimating the number of existing major and minor sources in Indian Country in 2009 and projecting the number of new sources that will be created in Indian Country during the period 2011 to 2016. Data on major sources in Indian Country are publicly available because major sources are required to obtain Title V permits. However, data on minor sources are very limited because existing minor sources are not required to have permits.

The analysis presented here is for the continental United States; thus, it does not include data for Alaska Native Villages or Hawaii. Furthermore, the nationwide results are presented geographically by groups of EPA Regions to reflect those Regions that have similar source categories, as described in Section 1.

#### **2.2 Major and Synthetic Minor Sources**

This section describes the data used to estimate the number and type of existing major and synthetic minor sources in Indian Country, and the methods and data used to project the number of new major and synthetic minor sources over the first 6 years following rule promulgation (i.e., 6-year period, 2011 through 2016).

##### ***2.2.1 Data on Existing Major and Synthetic Minor Sources (2009)***

We obtained data from EPA's Enforcement and Compliance History Online (ECHO) database (<http://www.epa-echo.gov/echo/>) in May 2009, as well as data from various EPA Regions on existing major sources in Indian Country. However, the data from the ECHO

database were reviewed and amended by Tribal experts in the EPA Regions based on the information gathered by them. For example, several Regions identified sources not listed in ECHO or identified sources that had shut down. The revised data for existing major sources are shown in Table 2-1, while the data for existing synthetic minor sources are shown later in this section in Table 2-4. These data reflect actual data for the year 2009; thus, these values are not estimates.

In summary, there were 157 existing major sources and 64 existing synthetic minor sources in Indian Country in 2009.

### ***2.2.2 Methodology for Projecting Major Sources Expected to Exist in 2010***

The number of existing sources in the previous section was used to estimate the number of major sources that would exist in late 2010. We present our projection methods for new major sources first; then we describe methods for projecting new synthetic minor sources. Although the data sources and projection methodologies are similar, major source and synthetic minor sources are regulated differently under the rule.

1. We assumed that the number of major sources in Indian Country in each Region would grow at the same rate as the American Indian and Alaska Native (AIAN) population in each Region.
2. Estimated AIAN growth rates for each state were calculated based on Census projections of the state-level AIAN population for the period 2000 to 2015 (U.S. Census Bureau, 1996), and we assumed the annual growth rates remain valid through 2016. AIAN growth rates for each EPA Region were then computed as the population-weighted average of the state growth rates. This approach assumes that all sectors with major sources will grow at the same rate, and that all new major sources and major modifications will occur in the same sectors as the existing major sources.
3. This basic approach was augmented with information from EPA Regions about the expected number of new sources.

Table 2-2 shows the projected number of major sources in Indian Country in 2010, by EPA Region group. Overall, we estimate that there will be 179 existing major sources in Indian Country in 2010.

**Table 2-1. Estimated Number of Existing Major Sources in Indian Country, by EPA Region Groups (2009)<sup>a</sup>**

Industry Description	EPA Region Groups			Total
	1, 2, 4	5, 7, 10	6, 8, 9	
Wood Furniture Manufacturing	1	0	0	1
Crude Petroleum and Natural Gas Extraction	0	0	101	101
Natural Gas Liquid Extraction	0	0	6	6
Power Generation	0	0	0	0
Fossil Fuel Electric Power Generation	0	0	4	4
Natural Gas Distribution	0	0	1	1
Fabric Coating Mills	0	0	1	1
Sawmills	0	6	2	8
Hardwood Veneer and Plywood Manufacturing	0	1	0	1
Softwood Veneer and Plywood Manufacturing	0	1	0	1
Wood Window and Door Manufacturing	0	1	0	1
All Other Miscellaneous Wood Product Manufacturing	0	1	0	1
All Other Basic Inorganic Chemical Manufacturing	0	0	1	1
Plastics Plumbing Fixture Manufacturing	0	1	0	1
Pipeline Transportation of Natural Gas	0	3	5	8
Solid Waste Landfill	0	0	3	3
Aluminum Production	0	0	1	1
Non-fossil Fuel Power Generation	0	0	2	2
Coal Mining	0	0	2	2
Natural Gas Compressor Station	0	0	7	7
Casino/Hotel	0	3	1	4
Other (Boilers)	0	1	1	2
<b>Total Existing Sources</b>	<b>1</b>	<b>18</b>	<b>138</b>	<b>157</b>

<sup>a</sup> Estimates and projections are presented by EPA Region groupings, which are defined geographically. Note that EPA Region 3 has no federally recognized Indian Tribes and is thus omitted from the tables.

**Table 2-2. Projected Number of Existing Major Sources in Indian Country, by EPA Region Groups (2010)<sup>a</sup>**

Industry Description	EPA Region Groups			Total
	1, 2, 4	5, 7, 10	6, 8, 9	
Wood Furniture Manufacturing	1	0	0	1
Crude Petroleum and Natural Gas Extraction	0	0	119	119
Natural Gas Liquid Extraction	0	0	6	6
Power Generation	0	0	2	2
Fossil Fuel Electric Power Generation	0	0	4	4
Natural Gas Distribution	0	0	1	1
Fabric Coating Mills	0	0	1	1
Sawmills	0	6	2	8
Hardwood Veneer and Plywood Manufacturing	0	1	0	1
Softwood Veneer and Plywood Manufacturing	0	1	0	1
Wood Window and Door Manufacturing	0	1	0	1
All Other Miscellaneous Wood Product Manufacturing	0	1	0	1
All Other Basic Inorganic Chemical Manufacturing	0	0	1	1
Plastics Plumbing Fixture Manufacturing	0	1	0	1
Pipeline Transportation of Natural Gas	0	3	5	8
Solid Waste Landfill	0	0	3	3
Aluminum Production	0	0	1	1
Non-fossil Fuel Power Generation	0	0	2	2
Coal Mining	0	0	2	2
Natural Gas Compressor Station	0	0	9	9
Casino/Hotel	0	3	1	4
Other (Boilers)	0	1	1	2
<b>Total Existing Major Sources</b>	<b>1</b>	<b>18</b>	<b>160</b>	<b>179</b>

Growth rate based on U.S. Census Bureau. Projected State Populations, by Sex, Race, and Hispanic Origin, 1995–2025. <http://www.census.gov/population/projections/state/stpjrace.txt>.

### ***2.2.3 Methodology for Projecting New Major Sources Expected During the First 6 Years after Promulgation***

The same method was used to project the number of major sources at the end of the 6-year period.

1. We assumed that the number of major sources in Indian Country in each Region would grow at the same rate as the AIAN population in each Region.
2. We estimated AIAN growth rates for each state based on Census projections of state-level AIAN population for the period of 2000 to 2015 (U.S. Census Bureau, 1996). AIAN growth rates for each EPA Region were then computed as the population-weighted average of the state growth rates. Major sources in each Region were projected by applying the Region-specific AIAN growth rate to the numbers of major sources estimated to exist in 2010. Then the number of new major sources was computed by subtracting the projected number of major sources at the beginning of the 6-year period from the estimated sources at the end of the period. This approach assumes that all sectors with major sources will grow at the same rate, and that all new major sources and major modifications will occur in the same sectors as the existing major sources. We project that there will be 110 new major sources in Indian Country during the period 2011 to 2016, as shown in Table 2-3.
3. To identify the number of new major sources in nonattainment areas, we assumed that the same percentage of new sources would be in nonattainment areas (approximately 5%) as were reported in the ECHO database in 2009. Thus, we estimate that only 5 of the 110 new major sources in Indian Country would be in a nonattainment area.
4. Based on experience with other rulemakings, we estimated at most one of the major sources in nonattainment areas would choose to make a major modification during the 6-year period.
5. Based on experience with other rulemakings, we assumed that two major sources per year will choose to make a minor modification during the 6-year period, for a total of 12 minor modifications to major facilities.

**Table 2-3. Projected Number of New Major Sources in Indian Country, by EPA Region Groups, 6-Year Period (2011–2016)**

Industry Description	EPA Region Groups			Total
	1, 2, 4	5, 7, 10	6, 8, 9	
Wood Furniture Manufacturing	0	0	0	0
Crude Petroleum and Natural Gas Extraction	0	0	108	108
Natural Gas Liquid Extraction	0	0	1	1
Power Generation	0	0	0	0
Fossil Fuel Electric Power Generation	0	0	0	0
Natural Gas Distribution	0	0	0	0
Fabric Coating Mills	0	0	0	0
Sawmills	0	1	0	1
Hardwood Veneer and Plywood Manufacturing	0	0	0	0
Softwood Veneer and Plywood Manufacturing	0	0	0	0
Wood Window and Door Manufacturing	0	0	0	0
All Other Miscellaneous Wood Product Manufacturing	0	0	0	0
All Other Basic Inorganic Chemical Manufacturing	0	0	0	0
Plastics Plumbing Fixture Manufacturing	0	0	0	0
Pipeline Transportation of Natural Gas	0	0	0	0
Solid Waste Landfill	0	0	0	0
Aluminum Production	0	0	0	0
Non-fossil Fuel Power Generation	0	0	0	0
Coal Mining	0	0	0	0
Natural Gas Compressor Station	0	0	0	0
Casino/Hotel	0	0	0	0
Other (Boilers)	0	0	0	0
<b>Total New Major Sources</b>	<b>0</b>	<b>1</b>	<b>109</b>	<b>110</b>

Growth rate based on U.S. Census Bureau. Projected State Populations, by Sex, Race, and Hispanic Origin, 1995–2025. <http://www.census.gov/population/projections/state/stpjrace.txt>.



### 2.2.4 Methodology for Projecting Synthetic Minor Sources Expected to Exist in 2010

The data on existing synthetic minor sources in 2009 (Table 2-4) was used to estimate the number of synthetic minor sources that would exist in late 2010 as follows:

1. We assumed that the number of synthetic minor sources in Indian Country in each Region would grow at the same rate as the AIAN population in each Region.
2. We estimated AIAN growth rates for each state based on Census projections of the state-level AIAN population for the period 2000 to 2015,<sup>1</sup> and we assumed the annual AIAN growth rates remain valid through 2016. AIAN growth rates for each EPA Region were then computed as the population-weighted average of the state growth rates. This approach assumes that all sectors with synthetic minor sources will grow at the same rate, and that all new major modifications will occur in the same sectors as the existing synthetic minor sources.
3. This basic approach was augmented with information from EPA Regions about the expected number of new sources.

**Table 2-4. Number of Existing Synthetic Minor Sources in Indian Country, by Region Groups (2009)**

Industry Description	EPA Region Groups			Total
	1, 2, 4	5, 7, 10	6, 8, 9	
Crude Petroleum and Natural Gas Extraction	0	0	33	33
Sand and Gravel Mining	0	0	1	1
All Other Nonmetallic Mineral Mining	0	0	1	1
Hydroelectric Power Generation	0	2	0	2
Sawmills	0	5	1	6
Asphalt Paving Mixture and Block Manufacturing	0	2	0	2
Casino/Hotel	0	0	1	1
Softwood Veneer and Plywood Manufacturing	0	1	0	1
Fiberglass Manufacturing	0	1	0	1
Agricultural Post-harvest Chemicals	0	1	0	1
Slaughterhouse	0	0	0	0
Other (Boilers)	2	0	13	15
<b>Total</b>	<b>2</b>	<b>12</b>	<b>50</b>	<b>64</b>

Table 2-5 shows the projected number of synthetic minor sources in Indian Country in 2010, by EPA Region group. Overall, we estimate that there will be 79 existing synthetic minor sources in Indian Country in 2010.

<sup>1</sup> U.S. Census Bureau, Projected State Populations, by Sex, Race and Hispanic Origin, 1995–2025.  
<http://www.census.gov/population/projections/state/stpjrace.txt>.

**Table 2-5. Projected Number of Existing Synthetic Minor Sources in Indian Country, by Region Groups (2010)**

Industry Description	EPA Region Groups			Total
	1, 2, 4	5, 7, 10	6, 8, 9	
Crude Petroleum and Natural Gas Extraction	0	0	34	34
Sand and Gravel Mining	0	0	1	1
All Other Nonmetallic Mineral Mining	0	0	1	1
Hydroelectric Power Generation	0	2	0	2
Sawmills	0	5	1	6
Asphalt Paving Mixture and Block Manufacturing	0	4	0	4
Casino/Hotel	0	0	1	1
Softwood Veneer and Plywood Manufacturing	0	1	0	1
Fiberglass Manufacturing	0	1	0	1
Agricultural Post-harvest Chemicals	0	1	0	1
Slaughterhouse	0	1	0	1
Other (Boilers)	2	0	24	26
<b>Total</b>	<b>2</b>	<b>15</b>	<b>62</b>	<b>79</b>

Growth rate based on U.S. Census Bureau. Projected State Populations, by Sex, Race, and Hispanic Origin, 1995–2025. <http://www.census.gov/population/projections/state/stprace.txt>.

### **2.2.5 Methodology for Projecting New Synthetic Minor Sources Expected During the First 6 Years after Promulgation**

The same method was used to project the number of synthetic minor sources at the end of the 6-year period.

1. EPA assumed that the number of synthetic minor sources in Indian Country in each Region would grow at the same rate as the American Indian and AIAN population in each Region.
2. We estimated AIAN growth rates for each state based on Census projections of the state-level AIAN population for the period 2000 to 2015, and assumed the annual growth rate remains valid through 2016. AIAN growth rates for each EPA Region were then computed as the population-weighted average of the state growth rates. Synthetic minor sources in each Region were projected by applying the Region-specific AIAN growth rate to the numbers of major sources estimated to exist in 2010. Then the number of new synthetic minor sources was computed by subtracting the projected number of sources at the beginning of the 6-year period from the estimated sources at the end of the period. This approach assumes that all sectors with synthetic minor sources will grow at the same rate, and that all new sources will occur in the same sectors as the existing synthetic minor sources. Our estimated numbers of synthetic minor sources were reviewed by the EPA Regions and revised according to their comments. We project that there will be 48 new synthetic minor sources during

the 6-year period. Table 2-6 presents the projected new synthetic minor sources during the period 2011 to 2016.

**Table 2-6. Projected Number of New Synthetic Minor Sources in Indian Country, by Region Groups, First 6 Years (2011–2016)**

Industry Description	EPA Region Groups			Total
	1, 2, 4	5, 7, 10	6, 8, 9	
Crude Petroleum and Natural Gas Extraction	0	0	12	12
Sand and Gravel Mining	0	0	0	0
All Other Nonmetallic Mineral Mining	0	0	0	0
Hydroelectric Power Generation	0	0	0	0
Sawmills	0	0	0	0
Asphalt Paving Mixture and Block Manufacturing	0	0	0	0
Casino/Hotel	0	0	0	0
Softwood Veneer and Plywood Manufacturing	0	0	0	0
Fiberglass Manufacturing	0	0	0	0
Agricultural Post-harvest Chemicals	0	0	0	0
Slaughterhouse	0	0	0	0
Other (Boilers)	0	0	36	36
<b>Total</b>	<b>0</b>	<b>0</b>	<b>48</b>	<b>48</b>

Growth rate based on U.S. Census Bureau. Projected State Populations, by Sex, Race, and Hispanic Origin, 1995–2025. <http://www.census.gov/population/projections/state/stprace.txt>.

## 2.3 Minor Stationary Sources, (or True Minor Sources)

The method for estimating the number of existing minor sources in Indian Country and projecting the number of new minor sources during the first 6 years after rule promulgation is more complex, because data on existing minor sources in Indian Country are limited. Appendix A illustrates the process for estimating existing new minor sources and then projecting the number of new minor sources.

### 2.3.1 Methodology for Estimating Existing Minor Sources (2009)<sup>2</sup>

EPA's methodology for estimating existing minor sources in 2009 used data from a variety of sources.

<sup>2</sup> Existing minor source estimates are assumed to be valid for 2009.

1. EPA used all available information to identify the types of sources likely to be found in Indian Country, including
  - regional reports to the Office of Air Quality Planning and Standards (OAQPS)
  - National Emissions Inventory (NEI) categories identified in the proposal (North American Industry Classification System [NAICS] codes)
  - additional categories listed in the NEI (NAICS codes)
  - additional categories listed on the Information Request Forms (IRFs) sent to the Regions
2. We estimated the share of income in each EPA Region that is associated with the AIAN geographical locations. EPA chose to use an income ratio to estimate the share of facilities in each NAICS on AIAN lands because income is a good proxy for economic activity. This is the same method that was used for the proposal economic impact analysis (EIA). The following relationship was used to calculate this income ratio:

$$\text{Income Ratio} = \frac{\sum ( \text{Income per capita for AIAN} ) * ( \text{Population for each AIAN geographic area} )}{( \text{Estimated income of the Region where AIAN is located} )}.$$

3. We obtained data on the number of establishments for each affected NAICS from 2002 *Statistics of U.S. Businesses*<sup>3</sup> for each state.
4. We grouped the data into EPA Regions.
5. We estimated the number of sources in Indian Country in each Region and minor source NAICS code/source category using the following equation, based on each AIAN geographic area's income ratio:

$$\text{Number of Sources} = (\text{Income Ratio}) * (\text{Total Number of Establishments in Each Region}).$$

6. We then sent the estimated number of existing sources to the EPA Regions for review, and based on the information gathered by them, several Regions amended the information.

### **2.3.2 Methodology for Projecting New Minor Sources**

The overall approach for projecting new minor sources, as described below, is similar to that used for projecting new major and synthetic minor sources.

1. We assumed that the number of minor sources in Indian Country in each Region would grow at the same rate as the AIAN population in each Region.

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<sup>3</sup> U.S. Census Bureau. *Statistics of U.S. Businesses, 2002*. Data from all U.S. and Puerto Rico business establishments with paid employees (excludes certain source categories and most government employees). Data for establishments are presented by geographic area, 6-digit NAICS, and employment size class. <http://www.census.gov/econ/susb/data/susb2002.html>.

2. We estimated AIAN growth rates for each state based on Census projections of state-level AIAN populations for the period of 2005 to 2015; we assumed the annual AIAN growth rates remain valid through 2016.<sup>4</sup>
3. We calculated AIAN growth rates for each EPA Region as the population-weighted average of the state growth rates. Minor sources in each Region were then projected by applying the Region-specific AIAN growth rate to the number of minor sources estimated/reported in 2010. This reflects the same assumptions underlying the major source and synthetic minor sources projections, that all sectors with minor sources will grow at the same rate as the AIAN population, and that all new minor sources will be in the same sectors as the existing minor sources.
4. To project new minor sources during the first 6 years after rule promulgation, the estimated number of existing minor sources in 2010 was projected to grow at AIAN population growth rates for 6 years. New minor sources were estimated by subtracting projected minor sources at the beginning of the period from projected minor sources at the end of the period. Overall, we project that there will be 7,606 new true minor sources in Indian Country in the 6 years after rule promulgation.
5. To estimate the number of minor modifications to these sources subject to the rule, EPA assumed based on experience that 10% (3,289) of existing minor sources would choose to make changes to their facilities each year. However, it is anticipated that of these minor source process/operational modifications, only 5% will result in emission increases greater than the minor NSR threshold. We estimate that 984 minor modifications to minor sources will require permits during the first 6 years after promulgation.

Table 2-7 presents the resulting estimated/reported minor sources for 2009, and Table 2-8 presents the resulting estimated minor sources for 2010. In 2010, Regions 1, 2, and 4 are estimated to have approximately 300 existing true minor source facilities. Regions 5, 7, and 10 are estimated to have approximately 800 true minors, and Regions 6, 8, and 9 are estimated to have approximately 31,800, for a total of approximately 32,900.

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<sup>4</sup> U.S. Census Bureau. Projected State Populations, by Sex, Race, and Hispanic Origin, 1995–2025. <http://www.census.gov/population/projections/state/stpjrace.txt>.

**Table 2-7. Estimated and Reported Existing Minor Sources in Indian Country (2009)**

Industry Description	EPA Region Groups			Total
	1, 2, 4	5, 7, 10	6, 8, 9	
Logging	5	7	49	61
Forestry Support Activities	0	1	19	20
Oil and Natural Gas Wells	5	30	23,774	23,809
Rock Mining Gravel	3	12	83	98
Electric Power Generation	0	3	78	81
Natural Gas Distribution	1	3	77	81
Agricultural Irrigation	2	4	216	222
Sewage Treatment Facilities	0	15	19	34
Sand Blasting	12	25	178	215
Animal Food Manufacturing	1	1	15	17
Fruit Concentrate Processing	0	1	1	2
Canned Vegetable Plant	0	1	1	2
Meat Packing	1	5	45	51
Mint Distillery	0	2	0	2
Lumber Saw Mill	1	3	25	29
Softwood, Veneer and Plywood	0	0	4	4
Reconstituted Wood Products	0	1	1	2
Millwork	2	3	20	25
Wood Pellet Fuel Plant	1	2	8	11
Box Manufacturing	0	1	5	6
Printing Operations Lithographic	11	16	183	210
Petroleum Refineries (Post-harvest Coating Manufacture for Fruit-Paraffin)	0	2	9	11
Asphalt Hot Mix	0	6	42	48
Chemical Preparation	0	2	63	65
Liquid Fertilizer Storage Distribution	0	3	5	8
Explosives Manufacturing	0	0	0	0
Clay and Ceramics Operations	0	1	178	179
Concrete Batching Plant	2	11	68	81
Fiber Glass Operations	0	2	17	19
Mineral and Earth Manufacturing	0	0	1	1
Aluminum Manufacturing	0	0	2	2
Casting Foundry	1	2	13	16
Fabricated Structural Metal	5	10	102	117
Metal Can Manufacturing	0	1	1	2
Coating Painting Facilities	2	4	201	207

(continued)

**Table 2-7. Estimated and Reported Existing Minor Sources in Indian Country (2009)**  
(continued)

Industry Description	EPA Region Groups			Total
	1, 2, 4	5, 7, 10	6, 8, 9	
Surface Coating Operations	1	2	16	19
Fabricated Metal Products	3	8	62	73
Machinery Manufacturing	1	3	10	14
Communications Equipment Manufacturing	0	1	7	8
Transportation Equipment Manufacturing	0	0	6	6
Wood Kitchen Cabinet Manufacturing	4	6	39	49
Furniture Manufacturing	0	1	8	9
Grain Elevator	2	24	81	107
Gasoline Bulk Plant	1	5	37	43
Automobile Dealers	18	34	345	397
Gas Stations	40	157	1,016	1,213
Pipeline Transportation of Natural Gas	0	2	34	36
Airports and Services	0	3	25	28
Professional, Scientific, Technical Services	4	7	50	61
Solid Waste landfill	0	9	21	30
Other Solid Waste/Incineration	0	0	22	22
Hospitals	3	8	87	98
Social Assistance	11	18	170	199
Casino/Hotels	10	51	136	197
Restaurants	74	133	1,326	1,533
Automobile Light Duty Operation	31	57	538	626
Automobile Refinishing Shop	14	31	250	295
Welding Operations	9	22	260	291
Cremation	1	3	31	35
Dry Cleaner	6	13	173	192
Tribal Governments	0	0	145	145
Boilers	0	1	126	127
Feedlot	0	0	0	0
Surgical Instrument Manufacturing	0	0	0	0
Paper Manufacturing	0	0	0	0
Residential Construction General Contractor	0	0	0	0
Other	0	0	23	23
<b>Grand Total</b>	<b>288</b>	<b>779</b>	<b>30,547</b>	<b>31,614</b>

**Table 2-8. Estimated and Reported Existing Minor Sources in Indian Country (2010)**

Industry Description	EPA Region Groups			Total
	1, 2, 4	5, 7, 10	6, 8, 9	
Logging	5	8	49	62
Forestry Support Activities	0	1	19	20
Oil and Natural Gas Wells	5	30	24,923	24,958
Rock Mining Gravel	3	12	85	100
Electric Power Generation	0	3	80	83
Natural Gas Distribution	1	3	78	82
Agricultural Irrigation	2	4	219	225
Sewage Treatment Facilities	0	16	19	35
Sand Blasting	13	25	180	218
Animal Food Manufacturing	1	1	15	17
Fruit Concentrate Processing	0	1	1	2
Canned Vegetable Plant	0	1	1	2
Meat Packing	1	5	45	51
Mint Distillery	0	2	1	3
Lumber Saw Mill	1	4	25	30
Softwood, Veneer and Plywood	0	0	4	4
Reconstituted Wood Products	0	1	1	2
Millwork	2	3	20	25
Wood Pellet Fuel Plant	1	2	8	11
Box Manufacturing	0	1	5	6
Printing Operations Lithographic	11	17	185	213
Petroleum Refineries (Post-harvest Coating Manufacture for Fruit-Paraffin)	0	2	9	11
Asphalt Hot Mix	0	6	44	50
Chemical Preparation	0	2	66	68
Liquid Fertilizer Storage Distribution	0	3	5	8
Explosives Manufacturing	0	0	0	0
Clay and Ceramics Operations	0	1	181	182
Concrete Batching Plant	3	11	69	83
Fiber Glass Operations	0	2	18	20
Mineral and Earth Manufacturing	0	0	1	1
Aluminum Manufacturing	0	0	2	2
Casting Foundry	1	3	13	17
Fabricated Structural Metal	5	11	103	119
Metal Can Manufacturing	0	1	1	2
Coating Painting Facilities	2	4	206	212

(continued)



**Table 2-8. Estimated and Reported Existing Minor Sources in Indian Country (2010)**  
(continued)

Industry Description	EPA Region Groups			Total
	1, 2, 4	5, 7, 10	6, 8, 9	
Surface Coating Operations	1	2	17	20
Fabricated Metal Products	3	9	63	75
Machinery Manufacturing	1	3	10	14
Communications Equipment Manufacturing	0	1	7	8
Transportation Equipment Manufacturing	0	0	6	6
Wood Kitchen Cabinet Manufacturing	4	6	39	49
Furniture Manufacturing	0	1	8	9
Grain Elevator	2	25	82	109
Gasoline Bulk Plant	1	5	37	43
Automobile Dealers	19	35	348	402
Gas Stations	42	158	1,031	1,231
Pipeline Transportation of Natural Gas	0	2	34	36
Airports and Services	0	3	26	29
Professional, Scientific, Technical Services	4	7	51	62
Solid Waste landfill	0	9	22	31
Other Solid Waste/Incineration	0	0	23	23
Hospitals	3	8	89	100
Social Assistance	11	19	172	202
Casino/Hotels	10	51	138	199
Restaurants	76	136	1,341	1,553
Automobile Light Duty Operation	33	58	546	637
Automobile Refinishing Shop	16	31	253	300
Welding Operations	9	22	264	295
Cremation	1	3	31	35
Dry Cleaner	6	14	176	196
Tribal Governments	0	0	147	147
Boilers	0	1	131	132
Feedlot	0	0	0	0
Surgical Instrument Manufacturing	0	0	0	0
Paper Manufacturing	0	0	0	0
Residential Construction General Contractor	0	0	0	0
Other	0	0	24	24
<b>Grand Total</b>	<b>299</b>	<b>795</b>	<b>31,797</b>	<b>32,891</b>

Sectors identified by EPA from various sources (see above); number of facilities estimated based on AIAN share of total income in each EPA Region.

Table 2-9 presents projected new minor sources for the first 6 years after the effective date of the rule. EPA projects that Regions 1, 2, and 4 will have 17 new sources during the first 6 years following the effective date of the rule. Regions 5, 7, and 10 are projected to have 59 new minor sources, and Regions 6, 8, and 9 are projected to have 7,530 new minor sources. Therefore, EPA projects a total of 7,606 new minor sources in Indian Country during the 6-year period, 2011 through 2016.

In summary, EPA estimates that 32,900 existing minor source facilities would be required to register, and 79 existing synthetic minor sources would be required to obtain new permits. Over the first 6 years of the rule, EPA projected that the rule will affect 7,606 new true minor sources, 48 new synthetic minor sources, 12 minor modifications to existing major sources, and 984 minor modifications to existing minor sources. In addition, EPA believes the rule would provide a new regulatory mechanism to permit an estimated 5 new major sources in nonattainment areas and at most one major modification to a major source over the 6-year period.

**Table 2-9. Projected New Minor Sources in Indian Country, First 6 Years (2011–2016)**

Industry Description	EPA Region Groups			Total
	1, 2, 4	5, 7, 10	6, 8, 9	
Logging	0	1	3	4
Forestry Support Activities	0	0	1	1
Oil and Natural Gas Wells	0	2	7,006	7,008
Rock Mining Gravel	0	0	7	7
Electric Power Generation	0	0	7	7
Natural Gas Distribution	0	0	6	6
Agricultural Irrigation	0	0	21	21
Sewage Treatment Facilities	0	2	2	4
Sand Blasting	1	2	11	14
Animal Food Manufacturing	0	0	1	1
Fruit Concentrate Processing	0	0	0	0
Canned Vegetable Plant	0	0	0	0
Meat Packing	0	0	3	3
Mint Distillery	0	0	0	0
Lumber Saw Mill	0	0	3	3
Softwood, Veneer and Plywood	0	0	1	1
Reconstituted Wood Products	0	0	0	0
Millwork	0	0	1	1
Wood Pellet Fuel Plant	0	0	0	0
Box Manufacturing	0	0	0	0
Printing Operations Lithographic	0	1	13	14
Petroleum Refineries (Post-harvest Coating Manufacture for Fruit-Paraffin)	0	0	1	1
Asphalt Hot Mix	0	0	5	5
Chemical Preparation	0	0	7	7
Liquid Fertilizer Storage Distribution	0	0	0	0
Explosives Manufacturing	0	0	0	0
Clay and Ceramics Operations	0	0	18	18
Concrete Batching Plant	0	1	5	6
Fiber Glass Operations	0	0	1	1
Mineral and Earth Manufacturing	0	0	0	0
Aluminum Manufacturing	0	0	0	0
Casting Foundry	0	0	1	1
Fabricated Structural Metal	0	1	6	7
Metal Can Manufacturing	0	0	0	0
Coating Painting Facilities	0	0	24	24

(continued)

**Table 2-9. Projected New Minor Sources in Indian Country, First 6 Years (2011–2016)  
(continued)**

Industry Description	EPA Region Groups			Total
	1, 2, 4	5, 7, 10	6, 8, 9	
Surface Coating Operations	0	0	1	1
Fabricated Metal Products	0	0	4	4
Machinery Manufacturing	0	0	1	1
Communications Equipment Manufacturing	0	0	0	0
Transportation Equipment Manufacturing	0	0	0	0
Wood Kitchen Cabinet Manufacturing	0	0	2	2
Furniture Manufacturing	0	0	0	0
Grain Elevator	0	2	8	10
Gasoline Bulk Plant	0	0	2	2
Automobile Dealers	2	3	21	26
Gas Stations	3	15	77	95
Pipeline Transportation of Natural Gas	0	0	2	2
Airports and Services	0	0	3	3
Professional, Scientific, Technical Services	0	1	3	4
Solid Waste Landfill	0	1	2	3
Other Solid Waste/Incineration	0	0	3	3
Hospitals	0	0	7	7
Social Assistance	0	2	11	13
Casino/Hotels	1	4	15	20
Restaurants	6	11	90	107
Automobile Light Duty Operation	3	5	38	46
Automobile Refinishing Shop	1	2	16	19
Welding Operations	0	2	19	21
Cremation	0	0	3	3
Dry Cleaner	0	1	13	14
Tribal Governments	0	0	15	15
Boilers	0	0	17	17
Feedlot	0	0	0	0
Surgical Instrument Manufacturing	0	0	0	0
Paper Manufacturing	0	0	0	0
Residential Construction General Contractor	0	0	0	0
Other	0	0	3	3
<b>Grand Total</b>	<b>17</b>	<b>59</b>	<b>7,530</b>	<b>7,606</b>

Growth rate based on U.S. Census Bureau. Projected State Populations, by Sex, Race, and Hispanic Origin, 1995–2025. <http://www.census.gov/population/projections/state/stpjrace.txt>.

## **SECTION 3**

### **COST ANALYSIS**

All new sources in Indian Country will be required to obtain a permit and conduct compliance activities referred to broadly as monitoring, recordkeeping, and reporting (MRR) activities. In addition, new sources may be required to install control equipment and undertake other compliance activities; these activities will be different for new minor sources and new major sources. Thus, we discuss the development of cost estimates separately for minor sources and major sources.

#### **3.1 General Approach for Estimating Compliance Costs for New Minor Sources**

EPA began by identifying the minor source categories listed in Table 2-9 having the largest numbers of projected new sources and grouped several similar source categories together. After identifying the most common types of minor sources likely to be affected by the rule, EPA developed an approach that estimates compliance costs for a typical new facility for each source category. New minor sources will be subject to various requirements during the permitting process under the rule, including

- case-by-case review of control technology by EPA or Tribal air agency,
- air quality impact analysis upon request by the reviewing authority,
- MRR activities, and
- public participation through public notices and comment requirements and administrative and judicial review upon a permit appeal.

EPA estimated a range of costs of compliance for the rule, with a lower-bound estimate of only permitting, MRR costs and an upper-bound estimate including both emissions control costs and MRR costs.

All new minor sources will be required to obtain a permit and conduct MRR activities. Thus, estimated costs of MRR activities represent the minimum costs that will be incurred by affected new sources. A full description of the development of these cost estimates, along with the assumptions used for labor rates and capital outlays, is presented in the Supporting Statement for the Information Collection Request (ICR).

In addition to MRR activities, some new sources will be required to install control equipment. The specific control technology requirements are uncertain, because of the case-by-case control technology review process. EPA has thus estimated the costs of installing Best Available Control Technology (BACT) controls for each source category, recognizing that most

new minor sources will not be required to install BACT controls. Thus, BACT control costs plus MRR costs represent the maximum costs likely to be incurred by a new minor source.

To estimate the costs of BACT controls, process throughput or operating capacities are needed to size and cost air pollution controls and to estimate emissions. These values are selected to reflect typical minor source sizes for the source category. In some cases they are based on a national average value; others are based on existing size categories where the lower-end values are selected to characterize minor sources, and in some cases, the values were based on information contained in the available Tribal emission inventories. EPA used this information to develop estimates of compliance costs for typical new facilities in each minor source category.

EPA then reviewed existing regulations to determine controls required in the absence of the rule and estimated incremental control costs attributable to the rule. These costs included one-time costs, such as purchasing and installing control equipment and annual costs such as labor and materials. The one-time costs were annualized over their expected service life at a 7% rate of interest, reflecting private cost of capital. The sum of the annualized one-time costs and the annual costs are the total annualized costs incurred by each facility type.

EPA has adequate information to complete cost estimates for emission controls. However, because of a lack of data on existing sources in Indian Country and the uncertainties associated with projecting the number of new facilities and modifications to existing facilities in the future, the current data will provide national cost estimates that are correspondingly uncertain. EPA estimated the costs of emissions controls based on the assumption that all affected new sources would be required to install BACT. Because requirements for each new source will be determined on a case-by-case basis, this will likely overstate the costs for some facilities.

Appendix B presents the estimated compliance costs for typical new sources in Indian Country. For each source category, the table in Appendix B shows the estimated capital cost per source of BACT and the total annualized BACT cost, including annualized capital costs and annual costs such as labor and materials.

Because EPA is delaying implementation of the rule for new minor sources and minor modifications of minor sources for 18 months, and because existing true minor sources and existing synthetic minor sources experience one-time costs during the first year following the effective date of the rule, we are presenting the costs broken out according to time period. We present the costs for the first year (including annualized costs for new and modified minor sources and one-time costs for existing sources), for the second year (showing registration costs for new and modified sources during the first 6 months and permitting costs during the second 6 months), and for years 3 through 6 (permitting costs for new and modified sources). First-year

costs affect many more facilities, but the cost per facility is generally low, approximately \$62 per source. In subsequent years, the 32,891 existing minor sources and the 79 existing synthetic minor sources no longer incur costs, so the number of affected facilities is much lower; however, the cost per facility increases. National BACT control costs for the first year are shown in Table 3-1, for the second year in Table 3-2, and for subsequent years in Table 3-3. They were computed by multiplying the number of projected affected sources in each category by the estimated control costs per source. This is certainly an overestimate of the control costs that will be incurred by affected new and modified minor sources under the rule's case-by-case control technology review. EPA recognizes that not all new sources will be required to install BACT controls; however, these represent upper-bound national control cost estimates that are needed to compute the maximum national costs, which are reported later in this section.

**Table 3-1. Estimated National Total Annualized Control Costs by Source Type, First Year**

Affected Source Type	Number of Affected Sources, First Year	National Total Annualized Control Costs (10 <sup>3</sup> \$2008)
New Minor Sources	1,268	\$0
Modifications to Minor Sources	164	\$0
Existing Synthetic Minor Sources	79	\$0
Existing True Minor Sources	32,891	\$0
Minor Modifications to Major Sources	2	\$0
New Synthetic Minor Sources	8	\$80
<b>Totals</b>	<b>34,412</b>	<b>\$80</b>

**Table 3-2. Estimated National Total Annualized Control Costs by Source Type, Second Year**

Affected Source Type	Number of Affected Sources, Second Year	National Total Annualized Control Costs (10 <sup>3</sup> \$2008)
New Minor Sources (Costs Applicable for the First 6 Months of the Second Year)	634	\$0
New Minor Sources (Costs Applicable for the Second 6 Months of the Second Year)	634	\$270
Modifications to Minor Sources (Costs Applicable for the First 6 Months of the Second Year)	82	\$0
Modifications to Minor Sources (Costs Applicable for Second 6 Months of the Second Year)	82	\$80
Minor Modifications to Major Sources	2	\$0
New Synthetic Minor Sources	8	\$80
<b>Totals</b>	<b>1,442</b>	<b>\$430</b>

**Table 3-3. Estimated National Total Annualized Control Costs by Source Type, Years 3 through 6 (10<sup>3</sup> \$2008)**

Affected Source Type	Number of Affected Sources per Year	National Total Annualized Control Costs (10 <sup>3</sup> \$2008)
New Minor Sources	1,268	\$540
Modifications to Minor Sources	164	\$160
Minor Modifications to Major Sources	2	\$0
New Synthetic Minor Sources	8	\$80
<b>Totals</b>	<b>1,442</b>	<b>\$780</b>

In addition to control costs, affected sources are expected to incur MRR costs associated with the NSR permit program. Some of the MRR costs are one-time costs, and others are annual costs. The detailed explanation for the rule's MRR costs is presented in the Supporting Statement (EPA, 2011). Table 3-4 shows the estimated MRR costs for the first year, Table 3-5 shows estimated MRR costs for the second year, and Table 3-6 presents estimated MRR costs for subsequent years. As explained above, these are broken out according to time period because the rule's requirements for several source types vary over time. MRR costs are the minimum or lower-bound costs that could be incurred by affected sources.

**Table 3-4. Estimated Lower-Bound National Total Annualized (MRR) Costs, First Year (10<sup>3</sup> \$2008)**

Affected Source Type	Number of Affected Sources, First Year	Total Annual Cost per Source (10 <sup>3</sup> \$2008)	National Total Annualized MRR Costs, First Year (10 <sup>3</sup> \$2008)
New Minor Sources	1,268	\$0.062	\$79
Modifications to Minor Sources	164	\$0.062	\$10
Existing Synthetic Minor Sources (One Time Cost, First Year)	79	\$0.62	\$50
Existing True Minor Sources (One Time Cost, First Year)	32,891	\$0.062	\$2,040
Minor Modifications to Major Sources	2	\$9.435	\$20
New Synthetic Minor Sources	8	\$9.435	\$80
<b>Totals</b>	<b>34,412</b>		<b>\$2,279</b>

<sup>a</sup> For details, see the Supporting Statement for the Review of New Sources and Modifications in Indian Country Rule.



**Table 3-5. Estimated Lower-Bound National Total Annualized (MRR) Costs, Second Year (10<sup>3</sup> \$2008)**

Affected Source Type	Number of Affected Sources, Second Year	Total Annual Cost per Source (10 <sup>3</sup> \$2008)	National Total Annualized MRR Costs (10 <sup>3</sup> \$2008)
New Minor Sources (Costs Applicable for First 6 Months of the Second Year)	634	\$0.062	\$79
New Minor Sources (Costs Applicable for Second 6 Months of the Second Year)	634	\$9.435	\$5,982
Modifications to Minor Sources (Costs Applicable for First 6 Months of the Second Year)	82	\$0.062	\$10
Modifications to Minor Sources (Costs Applicable for Second 6 Months of the Second Year)	82	\$9.435	\$774
Minor Modifications to Major Sources	2	\$9.435	\$20
New Synthetic Minor Sources	8	\$9.435	\$80
<b>Totals</b>	<b>1,442</b>		<b>\$6,945</b>

**Table 3-6. Estimated Lower-Bound National Total Annualized (MRR) Costs, Years 3 through 6 (10<sup>3</sup> \$2008)**

Affected Source Type	Number of Affected Sources per Year, Years 3 through 6	Total Annual Cost per Source	National Total Annualized MRR Costs, Subsequent Years <sup>a</sup> (10 <sup>3</sup> \$2008)
New Minor Sources	1,268	\$9.435	\$12,000
Modifications to Minor Sources	164	\$9.435	\$1,550
Minor Modifications to Major Sources	2	\$9.435	\$20
New Synthetic Minor Sources	8	\$9.435	\$80
<b>Totals</b>	<b>1,442</b>		<b>\$13,650</b>

<sup>a</sup> For details, see the Supporting Statement for the Review of New Sources and Modifications in Indian Country Rule.

For the first year following promulgation, existing, new, and modified minor sources incur costs to comply with the rule's registration requirements. Existing synthetic minor sources incur costs to obtain new permits. After the first year, existing sources incur no costs unless they choose to modify their facilities. During the first half of the second year, new and modified minor sources are required to register; during the second half of the second year, they are required to obtain a permit. The estimated MRR costs for the second year reflect these

requirements. During years 3 through 6, all new sources are required to obtain permits and incur the estimated MRR costs associated with those activities.

Table 3-7 shows estimated upper-bound total national costs, including both BACT control costs and MRR costs by source category for the first year following rule promulgation. Table 3-8 shows estimated upper-bound costs for the second year, including both MRR costs and BACT costs where applicable. Table 3-9 shows estimated total national costs, including estimated BACT and MRR costs for years 3 through 6. Estimated upper-bound costs increase from \$2.4 million to \$7.4 million from the first to the second year following promulgation. For subsequent years, the estimated upper-bound national total annualized costs equal approximately \$14.4 million.

**Table 3-7. Estimated Upper-Bound National Total Annualized (Control and MRR) Costs, First Year (10<sup>3</sup> \$2008)**

Affected Source Type	Number of Affected Sources per Year	National Total Annualized Costs (First Year)
New Minor Sources	1,268	\$79
Modifications to Minor Sources	164	\$10
Existing Synthetic Minor Sources (One Time, First Year)	79	\$50
Existing True Minor Sources (One Time, First Year)	32,891	\$2,040
Minor Modifications to Major Sources	2	\$20
New Synthetic Minor Sources	8	\$160
<b>Totals</b>	<b>34,412</b>	<b>\$2,359</b>

### 3.2 Costs for Major Sources

EPA estimates that there will be approximately one new major source per year in the oil and gas extraction sector, with a total annualized cost of approximately \$40,000, including control costs and MRR costs, during the 6 years following promulgation. However, EPA believes that new major sources would have incurred these costs in the absence of the rule, because EPA would have been required to implement a source-specific FIP. Therefore, the final rule just provides a regulatory mechanism for permitting such sources; it does not change any of the compliance requirements. In addition, since the permitting process may be less uncertain under the final rule, new and modifying major sources could potentially experience cost savings compared to baseline conditions. Thus, the costs in Table 3-10 are not considered to be incremental because of the rule. Because EPA expects at most one major modification in Indian Country during the 6-year period, annual costs for major modifications are assumed to be \$0.

**Table 3-8. Estimated Upper-Bound National Total Annualized (Control and MRR) Costs, Second Year (10<sup>3</sup> \$2008)**

Affected Source Type	Number of Affected Sources per Year	National Total Annualized Costs (Second Year)
New Minor Sources (Costs Applicable for First 6 Months of Second Year)	634	\$79
New Minor Sources (Costs Applicable for Second 6 Months of Second Year)	634	\$6,252
Modifications to Minor Sources (Costs Applicable for First 6 Months of Second Year)	82	\$10
Modifications to Minor Sources (Costs Applicable for Second 6 Months of Second Year)	82	\$854
Minor Modifications to Major Sources	2	\$20
New Synthetic Minor Sources	8	\$160
<b>Totals</b>	<b>1,442</b>	<b>\$7,375</b>

**Table 3-9. Estimated Upper-Bound National Total Annualized (Control and MRR) Costs, Years 3 through 6 (10<sup>3</sup> \$2008)**

Affected Source Type	Number of Affected Sources per Year	National Total Annualized Costs (Subsequent Years)
New Minor Sources	1,268	\$12,540
Modifications to Minor Sources	164	\$1,710
Minor Modifications to Major Sources	2	\$20
New Synthetic Minor Sources	8	\$160
<b>Totals</b>	<b>1,442</b>	<b>\$14,430</b>

**Table 3-10. Costs for New Major Sources in Nonattainment Areas (10<sup>3</sup> \$2008)**

Costs	Number of Affected Sources per Year	Total Annualized Costs (10 <sup>3</sup> \$2008)
Control Costs	1	\$30
MRR Costs	1	\$10
<b>Totals</b>	<b>1</b>	<b>\$40</b>

### 3.3 Agency Costs

In addition to costs incurred by regulated facilities, EPA examined the costs to the Agency resulting from the rule. These costs are discussed in detail in the Supporting Statement for the Review of New Sources and Modifications in Indian Country (EPA, 2011). The costs are estimated by examining the Agency activities associated with administering the rule for each type of affected facility, estimating the number of hours required for each activity, and multiplying these hours by appropriate hourly salary rates to compute the total labor cost per affected source.

The average total annual cost to the Agency per affected source is calculated by determining the total labor cost for all the various respondent activities. The costs for those activities are then added to any associated costs (e.g., total travel expenses for inspections attended) to get the average Agency burden per facility per year. Because the Agency activities are similar for processing a permit for a major or minor source, and because we anticipate only one new major source in a nonattainment area per year for the first 3 years following promulgation, the cost to the Agency for each affected source is assumed to be the same. The average total annual cost to the Agency per affected source (new majors, new minors, and modifications) given in Attachment 2 of the ICR, including the cost of labor, materials, operation, and maintenance, is \$3,037 per year. The average total cost to the Agency per affected existing synthetic minor source is \$693 and per true existing minor source is \$180. (A detailed description of the estimation of Agency costs is provided in the Supporting Statement for the Review of New Sources and Modifications in Indian Country.) (EPA, 2011)

The bottomline Agency total annual burden costs are calculated by taking the average cost to the Agency per facility (\$4,932) and multiplying by the number of affected sources in Indian Country during the first 3 years following promulgation. The nationwide total annual cost to EPA or Tribal agencies as shown in Table 3 of the ICR Supporting Statement is \$17.1 million for the first 3 years (an average of \$5.7 million per year). Total national costs, including costs for affected sources and costs to the Agency, are shown in Table 3-11. First-year costs range from \$8.0 to \$8.1 million, second-year costs range from \$12.6 to \$13.1 million, and subsequent-year costs range from \$19.4 to \$20.1 million.

**Table 3-11. Summary of National Costs, Including Agency Costs<sup>a</sup> (10<sup>6</sup> \$2008)**

<b>Time Period</b>	<b>Number of Affected Sources</b>	<b>Lower-Bound Estimate (MRR Costs Only)</b>	<b>National Lower-Bound Costs, Including Agency Costs</b>	<b>Upper-Bound Estimate (MRR Costs Plus Emissions Control Costs)</b>	<b>National Upper-Bound Costs, Including Agency Costs</b>
First-Year Costs	34,412	\$2.3	\$8.0	\$2.4	\$8.1
Second-Year Costs	1,442	\$6.9	\$12.6	\$7.4	\$13.1
Costs for Years 3 through 6	1,442	\$13.7	\$19.4	\$14.4	\$20.1

<sup>a</sup>Agency costs are estimated to average \$5.7 million per year.

## **SECTION 4**

### **ECONOMIC IMPACT ANALYSIS METHODS AND RESULTS**

The purpose of the EIA is to evaluate the effect of the rule on the welfare of affected stakeholders and society as a whole. To inform its assessment of economic impacts, the Agency developed a qualitative assessment of potential economic impacts of the rule on facility construction and market prices. In addition, EPA conducted a simple screening analysis, described in more detail below, to develop quantitative measures of the potential impacts of the rule. As described in Section 3 above, EPA expects new minor source facilities to incur some incremental costs as a result of the rule. In this analysis, EPA presents a range of economic impacts corresponding to the range of potential costs of compliance described in Section 3. At a minimum, facilities are expected to incur MRR costs; at a maximum, new sources will also incur the costs of installing BACT controls. This is a maximum cost assumption, because most new sources will not be required to install BACT controls. Existing minor and major sources may incur compliance costs associated with permitting and emission controls for modifications to their facilities. Because the costs and impacts are expected to be different for minor sources and major sources, we analyze them separately.

#### **4.1 Impacts on New Minor Sources, Minor Modifications, and New Synthetic Minor Sources**

In this section, EPA presents its analysis of economic impacts on minor source facilities. Because minor source facilities are largely unregulated at baseline, EPA estimates that companies wishing to site new minor source facilities in Indian Country will incur some incremental costs. The incremental costs include costs associated with permitting, MRR, and emission control costs for companies choosing to invest in a new minor source facility or to make minor modifications to existing minor sources.

The rule could alter firms' economic choices because it would increase the costs of production for siting new minor source facilities in Indian Country. Firms considering building new facilities are faced with a decision on location and size of the new facility. In its analysis, EPA assumes that, without the rule, new minor source facilities in Indian Country are not regulated; thus, the rule will increase the cost of siting such a facility. Because the rule affects only new and modified sources in Indian Country, it will increase the costs of siting these sources in Indian Country, relative to other locations. The rule incorporates case-by-case review of control technologies, in an effort to protect air quality in Indian Country while allowing economic growth.

The economic sectors expected to invest in new minor source facilities or minor modifications in Indian Country produce a variety of goods and face demand curves of varying elasticities. Similarly, different types of facilities will face different estimated incremental costs. EPA does not have sufficient data to estimate the market impacts (changes in prices and market quantities) or the impacts on investment decisions (changes in rates of return and in numbers of projects undertaken) in each affected sector. However, EPA has undertaken a screening analysis to assess the relative magnitude of the costs of compliance for each affected economic sector.

As discussed in Section 3, EPA has delayed implementation of the rule for new minor sources and minor modifications at minor sources; these source types would only incur the costs of registration during the first 18 months following promulgation. Because costs for new minor sources and minor modifications would increase after the first 18 months following rule promulgation, EPA's screening assessment compares the total annualized cost of complying with the rule for typical facilities in each sector after the first 18 months (for lower-bound MRR costs only, and upper-bound MRR plus BACT costs) with facility sales for typical facilities in each sector. Table 4-1 shows the establishment sales test (estimated total annualized cost for a typical affected facility)/(sales receipts for a typical establishment) for MRR costs only. Data on the sales receipts, number of enterprises (firms), and number of establishments for these sectors were obtained from the Census Bureau's Statistics of U.S. Businesses, 2002 (SUSB, 2002) and County Business Patterns, 2002 (CBP, 2002).

Overall, the MRR costs of complying with the rule for minor sources are generally low and unlikely to cause significant reductions in the rate of investment in new minor source facilities in Indian Country. In Table 4-1, costs are shown to be less than 1% of sales and, thus, are not likely to result in significant impacts to the firms owning these facilities. For facilities in the auto body refinishing sector, costs are estimated to fall between 1% and 1.5% of sales. This ratio is also low enough that it is not expected to have an adverse impact on the facilities.

Some facilities will be required to install control equipment and will incur not only the costs of MRR activities, but also the costs of purchasing, installing, and operating required controls. The maximum level of control such affected facilities would be required to achieve would be BACT. Thus, the upper-bound impacts are computed by summing estimated MRR costs and BACT control costs for each sector. Table 4-2 presents establishment sales test results (cost-to-sales ratios) for typical facilities in each sector under the maximum cost assumptions. Across all source categories, cost-to-sales ratios range from 0.02% to 2.87%. Examining the upper-bound costs, we see that six sectors have costs between 1% and 3% of sales. No sectors have costs exceeding 3% of sales.

**Table 4-1. Lower-Bound Cost-to-Sales Ratios (MRR Costs Only), for Minor Sources, Minor Modifications to Existing Major and Minor Sources, and New Synthetic Minor Sources, by Industry Sector**

Source Category	NAICS Code	Estimated Number of Sources <sup>a</sup>	Average Total Annualized Cost Per Entity (\$1,000)	Costs as Percentage of Sales
Animal Food Manufacturing	311119	1	\$9.44	0.06%
Asphalt Hot Mix	324121	7	\$9.44	0.14%
Auto Body Refinishing	811121	27	\$9.44	1.25%
Beef Cattle Complex, Slaughter House and Meat Packing Plant	3116	5	\$9.44	0.02%
Casting Foundry (Iron)	331511	2	\$9.44	0.05%
Chemical Preparation	3251	9	\$9.44	0.02%
Clay and Ceramics Operations (Kilns)	32711	23	\$9.44	0.22%
Concrete Batching Plant	327320	8	\$9.44	0.20%
Crude Petroleum and Natural Gas Extraction	21111	7,781	\$9.44	0.04%
Electric Power Generation	22111	9	\$9.44	0.02%
Fabricated Metal Products	3329	77	\$9.44	0.12%
Fabricated Structural Metal	3323	123	\$9.44	0.21%
Fiber Glass Operations	3279	2	\$9.44	0.16%
Gasoline Bulk Plant	424710	4	\$9.44	0.01%
Gasoline Station (Storage Tanks, Refueling)	4471	160	\$9.44	0.39%
Grain Elevator	424510	13		0.04%
Machinery Manufacturing	33311	14	\$9.44	0.05%
Millwork (Wood Products Mfg)	32191	2	\$9.44	0.17%
Natural Gas Distribution	221210	8	\$9.44	0.04%
Oil and Gas Production/Operations	211112	6	\$9.44	0.04%
Other (Natural Gas-Fired Boilers)-Used Casino/Hotels	72112	105	\$9.44	0.00%
Printing Operations (Lithographic)	323110	20	\$9.44	0.30%
Professional, Scientific, and Technical Services	54171	19	\$9.44	0.16%
Sand and Gravel Mining	212321	10	\$9.44	0.41%
Sand and Shot Blasting Operations	238990	21	\$9.44	0.85%
Sawmills	32113	4	\$9.44	0.14%
Sewage Treatment Facilities	221320	5	\$9.44	0.65%
Softwood Veneer and Plywood Manufacturing	321212	1	\$9.44	0.02%
Solid Waste Landfill	562212	5	\$9.44	0.19%
Surface Coating Operations	332812	32	\$9.44	0.19%
Wood Kitchen Cabinet Manufacturing	337110	3	\$9.44	0.52%
Other (No Costs Estimated)		158		
<b>Total</b>		<b>8,664</b>		

<sup>a</sup>Sources include new minor sources, minor modifications to existing major or minor sources, and new synthetic minor sources.



**Table 4-2. Upper-Bound Cost-to-Sales Ratios, for Minor Sources, Minor Modifications to Existing Major and Minor Sources, and New Synthetic Minor Sources, BACT and MRR Costs, by Industry Sector**

Source Category	NAICS Code	Estimated Number of Sources <sup>a</sup>	Average Total Annualized Cost Per Entity (\$1,000)	Costs as Percentage of Sales
Animal Food Manufacturing	311119	1	\$15.00	0.10%
Asphalt Hot Mix	324121	7	\$9.44	0.14%
Auto Body Refinishing	811121	27	\$9.44	1.25%
Beef Cattle Complex, Slaughter House and Meat Packing Plant	3116	5	\$18.47	0.05%
Casting Foundry (Iron)	331511	2	\$10.68	0.06%
Chemical Preparation	3251	9	\$9.44	0.02%
Clay and Ceramics Operations (Kilns)	32711	23	\$9.44	0.22%
Concrete Batching Plant	327320	8	\$135.13	2.87%
Crude Petroleum and Natural Gas Extraction	21111	7,781	\$9.44	0.04%
Electric Power Generation	22111	9	\$9.44	0.02%
Fabricated Metal Products	3329	77	\$9.44	0.12%
Fabricated Structural Metal	3323	123	\$9.44	0.21%
Fiber Glass Operations	3279	2	\$9.44	0.16%
Gasoline Bulk Plant	424710	4	\$15.93	0.01%
Gasoline Station (Storage Tanks, Refueling)	4471	160	\$9.99	0.41%
Grain Elevator	424510	13	\$69.36	0.27%
Machinery Manufacturing	33311	14	\$9.44	0.05%
Millwork (Wood Products Mfg)	32191	2	\$45.46	0.82%
Natural Gas Distribution	22121	8	\$9.44	0.05%
Oil and Gas Production/Operations	211112	6	\$9.44	0.04%
Other (Natural Gas-Fired Boilers)-Used Casino/Hotels	72112	105	\$18.47	0.03%
Printing Operations (Lithographic)	323110	20	\$11.64	0.37%
Professional, Scientific, and Technical Services	54171	19	\$18.47	0.32%
Sand and Gravel Mining	212321	10	\$49.35	2.16%
Sand and Shot Blasting Operations	238990	21	\$19.77	1.77%
Sawmills	32113	4	\$49.35	0.73%
Sewage Treatment Facilities	221320	5	\$9.44	0.65%
Softwood Veneer and Plywood Manufacturing	321212	1	\$45.46	0.11%
Solid Waste Landfill	562212	5	\$49.58	1.01%
Surface Coating Operations	332812	32	\$9.44	0.19%
Wood Kitchen Cabinet Manufacturing	337110	3	\$45.46	2.51%
Other (No Costs Estimated)		158		
<b>Total</b>		<b>8,664</b>		

<sup>a</sup>Sources include new minor sources, minor modifications to existing major or minor sources, and new synthetic minor sources.

The analysis described above is based on a range of estimated costs of compliance for typical minor source facilities compared to estimated sales for typical facilities. Generally, EPA believes that the costs will be substantially lower than the upper-bound estimates and would thus not impose significant impacts on typical firms considering construction or modification of a minor source. Within each sector there is likely to be substantial variation in costs, facility sales, and company sales and profits. Thus, it is possible that individual companies might find that the costs for a specific project would be sufficient to discourage them from investing.

## **4.2 Impacts on Major Sources**

EPA projects new major sources in nonattainment areas in only one sector: oil and gas extraction. EPA estimates that there will be at most one new major source per year in nonattainment areas in Indian Country. EPA estimated compliance costs for new major sources in nonattainment areas in Indian Country; however, EPA believes that these costs would generally have been incurred without the rule and, thus, will have no incremental adverse economic impact on new major sources.

In the absence of the final rule, EPA would be required to implement a source-specific FIP. Therefore, the final rule just provides a regulatory mechanism for permitting such sources; it does not change any of the compliance requirements. In addition, since the permitting process may be less uncertain under the final rule, new and modifying major sources could potentially experience cost savings compared to baseline conditions. Reducing the uncertainty about the timing and cost of permitting new major source facilities in nonattainment areas in Indian Country will reduce the need to wait for more information and will make investors more likely to invest.

Existing major sources in nonattainment areas that choose to make a major modification to their facilities are also subject to the rule. EPA projects at most one major modification to a major source over the first 6 years after rule promulgation. Costs and impacts are estimated to be similar to, or lower than, those for a new major source and would be incurred in the absence of the rule.

Existing major source facilities that elect to make minor modifications are also expected to incur compliance costs under the rule. EPA estimates that 12 facilities will make minor modifications over the entire study period. Although there are company-specific data on existing major sources in nonattainment areas, EPA is not able to identify which of the major source facilities may decide to make minor modifications. Costs incurred by major sources making minor modifications are estimated to be similar to, or lower than, costs incurred by new minor source facilities. To assess the relative magnitude of the costs of compliance for each of the affected economic sectors, EPA conducted a screening analysis. Comparing the costs of minor

modifications (assumed to be equivalent to the costs for a new minor facility) to typical sales for facilities in affected sectors, EPA projected costs to be less than 1% of sales for facilities in all major source sectors.

#### **4.3 Impacts on New Synthetic Minor Sources**

For those sources that choose to accept enforceable emission limitations to become a synthetic minor source, no resulting adverse economic impacts are expected for any businesses, including small businesses. No impacts are anticipated because this option is entirely optional and rational firms would only make this choice if it resulted in a cost savings. Thus, although projected new synthetic minor sources are included in the facility counts in this section, EPA does not project that such sources will incur incremental costs due to the rule.

#### **4.4 Impacts on Existing True Minor and Existing Synthetic Minor Sources**

Existing true minor sources and existing synthetic minor sources will be required to undertake some MRR activities and, thus, will incur some incremental costs due to the rule. During the first year following the effective date of the rule, existing true minor sources will be required to register at an estimated cost of \$62 per facility. These costs are very low and will impose no appreciable burden on existing minor sources. During the first year following the effective date of the rule, existing synthetic minor sources are required to submit a permit application at an estimated cost of \$618 per facility. Again, these costs are sufficiently low that they are not expected to impose an appreciable impact on affected existing sources.

#### **4.5 Small Entity Impact Analysis**

Although all entities owning affected sources are subject to the rule, small entities (small businesses, governments, or nonprofit organizations) may have special problems complying with regulations because they have fewer financial resources, fewer workers to implement changes, and less engineering and legal expertise, for example. The Regulatory Flexibility Act (RFA) of 1980 as amended in 1996 by the Small Business Regulatory Enforcement Fairness Act (SBREFA) generally requires an agency to prepare a regulatory flexibility analysis of a rule unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities (no SISNOSE).

This document describes the underlying assumptions and computations EPA made in estimating the number of affected small entities (in this case, small businesses) and examines the rule's possible impact on these entities. Table 4-3 presents the projected number of new and modified sources owned by small entities during the first 6 years following the effective date of the rule, together with the Small Business Administration's Size Standard criteria (SBA, 2010) for small businesses under each NAICS code. EPA's screening assessment used the costs

**Table 4-3. Projected Numbers of New and Modified Sources Owned by Small Entities, 2011–2016, by Industry Sector**

NAICS	Sector Description	New Minor Sources	Modified Minor Sources	Synthetic Minor Sources	Minor Modifications to Major Sources	Total Projected Sources Owned by Small Entities by Sector
324121	Asphalt Hot Mix	1				1
811121	Auto Body Refinishing	4	6			10
3116	Beef Cattle Complex, Slaughter House and Meat Packing Plant	1				1
3251	Chemical Preparation	1				1
32711	Clay and Ceramics Operations (Kilns)	4	1			5
327320	Concrete Batching Plant	1				1
211111	Crude Petroleum and Natural Gas Extraction	1,402	150	3	2	1,557
22111	Electric Power Generation	1				1
3329	Fabricated Metal Products		1			1
3323	Fabricated Structural Metal		1			1
4471	Gasoline Station (Storage Tanks, Refueling)	19	7			26
424510	Grain Elevator					3
33311	Machinery Manufacturing		3			3
221210	Natural Gas Distribution	1	1			2
21111	Oil and Gas Production/Operations (Minor O&G)	1				1
72112	Other (Natural Gas-Fired Boilers) <sup>a</sup>	11	10	7		28
323110	Printing Operations (Lithographic)	3	1			4
54171	Professional, Scientific, and Technical Services	3	1			4
212321	Sand and Gravel Mining	1	1			2
238990	Sand and Shot Blasting Operations	3	1			4
321113	Sawmills (Minor Source)	1	1			2
221320	Sewage Treatment Facilities	1				1
562212	Solid Waste Landfill	1				1
332812	Surface Coating Operations	5	3			8
	Other (Costs Not Estimated) <sup>b</sup>	54	8			62
<b>Total</b>		1,521	197	10	2	1,730

<sup>a</sup>Used NAICS for casino/hotels but includes Tribal governments also.

<sup>b</sup>Includes crematories, restaurants, car dealers, social assistance, other unspecified.

applicable beginning 18 months following the effective date of the rule. The screening assessment is presented in Tables 4-4 and 4-5. EPA's screening assessment compares estimated lower-bound and upper-bound total annualized costs to facility sales for facilities owned by companies with fewer than 500 employees (U.S. Census Bureau, 2002). Table 4-4 presents MRR costs as a percentage of sales, which represents the lower-bound costs incurred by new minor sources. Table 4-5 presents cost-to-sales ratios for BACT costs plus MRR costs, which represents the upper-bound costs that would be incurred by affected new minor sources, and likely overstates the costs incurred by most facilities.

EPA employed criteria (EPA, 2006) widely used in conducting such screening analyses to assess the severity of potential impacts. Companies incurring costs less than 1% of sales are not expected to incur substantial impacts due to the rule. Companies incurring costs exceeding 3% of sales are estimated to incur potentially significant impacts. Companies with costs between 1% and 3% may or may not incur substantial impacts.

Because EPA does not expect new or major sources or major modifications to major sources to experience incremental impacts under the rule, EPA's analysis of small business impacts focuses on impacts associated with new minor source facilities and minor modifications to existing minor and major sources. EPA estimates that small businesses investing in new minor source facilities, minor modifications to existing minor sources, and minor modifications to existing major sources over the period 2011 through 2016 will incur costs that are less than 3% of sales in all sectors, even when BACT control costs are included. Under lower-bound costs, only new auto body refinishers owned by small businesses are projected to experience costs exceeding 1% of sales (1.3%). Under upper-bound costs, most sectors are estimated to incur costs less than 1% of average small company sales revenues; however, small companies choosing to invest in new minor sources in six sectors—auto body refinishers, concrete batching plants, sand and gravel mining, sand and shot blasting, solid waste landfills, and sawmills—are estimated to incur costs between 1% and 3% of sales. Whether costs of this magnitude are significant is uncertain; however, EPA believes the upper-bound costs are overstated for most minor sources.

Assuming that the share of new sources owned by small businesses is comparable to the share of existing sources owned by small businesses (less than 20%), EPA projects that at most 20 new minor sources or minor modifications would be owned by small businesses in these sectors over the 6 years following rule promulgation. Only a very small share of new minor sources is projected to incur BACT control costs, so the costs of controls are likely overestimated. Thus, EPA does not believe that the rule will impose significant economic impacts on a substantial number of small entities (no SISNOSE).

**Table 4-4. Lower-Bound Small Business Impacts for New Minor Sources, Minor Modifications at Existing Major and Minor Sources, and New Synthetic Minor Sources, MRR Costs Only, by Industry Sector**

Source Category	SBA Size Standard in Millions of Dollars or Employees	Estimated Number of Affected Sources Owned by Small Businesses	Average Total Annualized Cost Per Entity (\$10 <sup>3</sup> 2008)	Costs as Percentage of Sales for Facilities Owned by Firms with <500 Employees
Asphalt Hot Mix	500	1	\$9.44	0.15%
Auto Body Refinishing	\$7	10	\$9.44	1.30%
Beef Cattle Complex, Slaughter House and Meat Packing Plant	500	1	\$9.44	0.12%
Chemical Preparation	1,000	1	\$9.44	0.07%
Clay and Ceramics Operations (Kilns)	750	5	\$9.44	0.55%
Concrete Batching Plant	500	1	\$9.44	0.23%
Crude Petroleum and Natural Gas Extraction	500	1,557	\$9.44	0.22%
Electric Power Generation	—	1	\$9.44	0.04%
Fabricated Metal Products	500	1	\$9.44	0.26%
Fabricated Structural Metal	500	1	\$9.44	0.27%
Gasoline station (Storage Tanks, Refueling)	\$27	26	\$9.44	0.49%
Grain Elevator	100	3	\$9.44	0.04%
Machinery Manufacturing	500	3	\$9.44	0.22%
Natural Gas Distribution	500	2	\$9.44	0.04%
Oil and Gas Production/Operations	500	1	\$9.44	0.22%
Other (Natural Gas-Fired Boilers)-Used Casino/Hotels	\$30	28	\$9.44	0.16%
Printing Operations (Lithographic)	500	4	\$9.44	0.51%
Professional, Scientific, and Technical Services	500	4	\$9.44	0.31%
Sand and Gravel Mining	500	2	\$9.44	0.51%
Sand and Shot Blasting Operations	\$14	4	\$9.44	0.85%
Sawmills	500	2	\$9.44	0.22%
Sewage Treatment Facilities	\$7	1	\$9.44	0.93%
Solid Waste Landfill	\$12.5	1	\$9.44	0.46%
Surface Coating Operations	500	8	\$9.44	0.30%
Other (Costs Not Estimated)		62		
<b>Total</b>		<b>1,730</b>		

**Table 4-5. Upper-Bound Small Business Impacts for New Minor Sources, Minor Modifications at Existing Major and Minor Sources, and New Synthetic Minor Sources, BACT and MRR Costs, by Industry Sector**

Source Category	SBA Size Standard in Millions of Dollars or Employees	Estimated Number of Affected Sources Owned by Small Businesses	Average Total Annualized Cost Per Entity (\$10 <sup>3</sup> 2008)	Costs as Percentage of Sales for Facilities Owned by Firms with <500 Employees
Asphalt Hot Mix	500	1	\$9.44	0.15%
Auto Body Refinishing	\$7	10	\$9.44	1.30%
Beef Cattle Complex, Slaughter House and Meat Packing Plant	500	1	\$18.47	0.24%
Chemical Preparation	1,000	1	\$9.44	0.07%
Clay and Ceramics Operations (Kilns)	750	5	\$9.44	0.55%
Concrete Batching Plant	500	1	\$135.13	2.94%
Crude Petroleum and Natural Gas Extraction	500	1,557	\$9.44	0.22%
Electric Power Generation	—	1	\$9.44	0.04%
Fabricated Metal Products	500	1	\$9.44	0.26%
Fabricated Structural Metal	500	1	\$9.44	0.27%
Gasoline Station (Storage Tanks, Refueling)	\$27	26	\$9.99	0.51%
Grain Elevator	100	3	\$69.36	NA
Machinery Manufacturing	500	3	\$9.44	0.22%
Natural Gas Distribution	500	2	\$9.44	0.04%
Oil and Gas Production/Operations	500	1	\$9.44	0.22%
Other (Natural Gas-Fired Boilers)-Used Casino/Hotels	\$30	28	\$18.47	0.30%
Printing Operations (Lithographic)	500	4	\$11.64	0.63%
Professional, Scientific, and Technical Services	500	4	\$18.47	0.60%
Sand and Gravel Mining	500	2	\$49.35	2.65%
Sand and Shot Blasting Operations	\$14	4	\$19.77	1.77%
Sawmills	500	2	\$49.35	1.13%
Sewage Treatment Facilities	\$7	1	\$9.44	0.93%
Solid Waste Landfill	\$12.5	1	\$49.58	2.40%
Surface Coating Operations	500	8	\$9.44	0.30%
Other (Costs Not Estimated)		62		
<b>Total</b>		<b>1,730</b>		

Based on its analysis, EPA concludes that the rule is not expected to result in significant economic impacts for a substantial number of small companies (no SISNOSE). This conclusion is reached because the number of small companies affected in most industries is expected to be small and because the costs for most industries are expected to be low. Small businesses investing in new minor sources in six industries (auto body refinishers, concrete batching plants, sand and gravel mining, sand and shot blasting, solid waste landfills, and sawmills) may incur costs between 1% and 3% of their sales to comply with the rule. Because at most 20 small companies may experience costs exceeding 1% of sales (when upper-bound costs are considered) and no small company is projected to experience costs exceeding 3% of sales, and because the upper-bound costs overestimate costs for most minor sources, EPA does not believe that a substantial number of small companies will experience significant economic impacts.



## SECTION 5

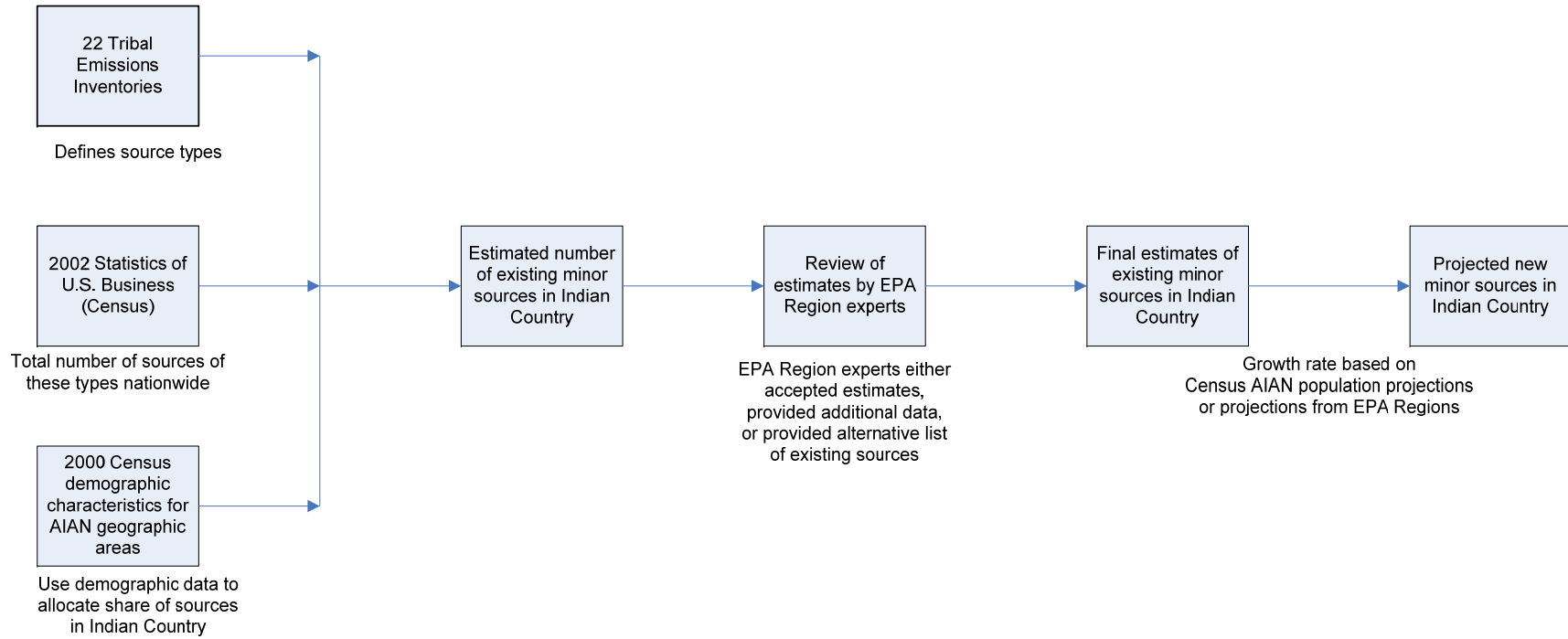
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**APPENDIX A:**  
**METHOD FOR ESTIMATING EXISTING TRUE MINOR SOURCES AND**  
**PROJECTING NEW TRUE MINOR SOURCES**

The figure below depicts a schematic presentation of the methods EPA used to first estimate the number of existing minor sources in Indian Country and then to project the number of new minor sources in Indian Country during the first 6 years following the effective date of the rule. EPA's methods combined information from existing Tribal emissions inventories to identify typical minor source types, then used Economic Census data to estimate the number of such sources nationwide, and then allocated a share to Indian Country based on Census demographic data. EPA then requested review from Tribal experts in EPA Regions and revised the estimated number of existing sources of each type based on this feedback. Finally, EPA projected the number of new minor sources during the first 6 years following the effective date of the rule based on projected annual growth rates for the AIAN population. This process is discussed in greater detail in Section 2.

## Methodology for Estimating Existing Minor Sources and Projecting New Minor Sources



**APPENDIX B:**  
**ESTIMATED CONTROL COSTS FOR AFFECTED MAJOR AND MINOR SOURCES**  
**IN INDIAN COUNTRY**

**Table B-1. Estimated Control Costs for Affected Major and Minor Sources in Indian Country**

Source Category	NAICS	Process Throughput Capacity	Baseline Control Technology	Baseline Emissions	BACT	BACT Emissions	BACT Capital Cost (2008 Dollars)	BACT Total Annualized Cost (2008 Dollars)
Animal Food Manufacturing	311119	3,650 tpy	No control	16.9 tpy PM	Fabric filter or cyclone	0.84 tpy PM	\$32,188	\$5,565
Asphalt Hot Mix	324121	100,000 tpy	Fabric filter	1.3 tpy PM 0.2 tpy VOC	Same as baseline	1.3 tpy PM 0.2 tpy VOC	\$0	\$0
Auto Body Refinishing	81112		Filter technology, ventilated spray booth enclosures, use of low-VOC coatings, work practices	3 tpy VOC	Same as baseline	3 tpy	\$0	\$0
Beef Cattle Complex, Slaughter House and Meat Packing Plant	3116	<10 MM Btu/hr	No control	6.7 tpy NO <sub>x</sub> 3.0 tpy CO	FGR or low NO <sub>x</sub> burners	3.5 tpy NO <sub>x</sub> 3.0 tpy CO	\$37,435	\$9,040
Casting Foundry (Iron)	331511	16,606 tpy	Fabric filter, wet scrubber, triethylamine (TEA) scrubber	4.6 tpy PM, .014 tpy SO <sub>2</sub> , 11.19 tpy VOC	Baseline controls plus binder substitution and carbon adsorption	4.6 tpy PM, .014 tpy SO <sub>2</sub> , 4.5 tpy VOC	\$2,448	\$1,247
Chemical Preparation	3251	30,000 (tons/year)	Wet scrubber	1.2 tpy CO, 0.73 tpy NO <sub>x</sub> , 0.27 tpy PM, 1.27 tpy SO <sub>x</sub> , 0.37 tpy VOC	Same as baseline	1.2 tpy CO, 0.73 tpy NO <sub>x</sub> , 0.27 tpy PM, 1.27 tpy SO <sub>x</sub> , 0.37 tpy VOC	\$0	\$0

(continued)

**Table B-1. Estimated Control Costs for Affected Major and Minor Sources in Indian Country (continued)**

Source Category	NAICS	Process Throughput Capacity	Baseline Control Technology	Baseline Emissions	BACT	BACT Emissions	BACT Capital Cost (2008 Dollars)	BACT Total Annualized Cost (2008 Dollars)
Clay and Ceramics Operations (Kilns)	32711	NA	None	None	None	None	NA	\$0
Concrete Batching Plant	327320	120,780 tpy	Bin vent filter	7.3 tpy PM <sub>10</sub> , 14.6 tpy PM	Baseline controls plus fabric filter	5.1 tpy PM, 1.6 tpy PM <sub>10</sub>	\$143,000	\$125,700
Crude Petroleum and Natural Gas Extraction	2111	250 hp	Best management practices	4.8 tpy NO <sub>x</sub> , 9.7 tpy CO, 3.4 tpy VOC	Same as baseline	4.8 tpy NO <sub>x</sub> , 9.7 tpy CO, 3.4 tpy VOC	\$0	\$0
Electric Power Generation	22111	4,000 MMBtu/hr	Fabric filter, SCR, sorbent injection, flue gas desulfurization (FGD)	179 tpy PM, 2,234 tpy CO, 968 tpy NO <sub>x</sub> , 1,191 tpy SO <sub>2</sub> , 54 tpy VOC	Same as baseline	179 tpy PM, 2,234 tpy CO, 968 tpy NO <sub>x</sub> , 1,191 tpy SO <sub>2</sub> , 54 tpy VOC	\$0	\$0
Fabricated Metal Products	3329	NA	No control	NA	Comply with equipment standards	2 tpy PM	NA	NA
Fabricated Structural Metal	3323	NA	No control	NA	Comply with equipment standards, use low- emitting and pollution- preventing spray gun technology	2 tpy PM	NA	NA

(continued)

**Table B-1. Estimated Control Costs for Affected Major and Minor Sources in Indian Country (continued)**

Source Category	NAICS	Process Throughput Capacity	Baseline Control Technology	Baseline Emissions	BACT	BACT Emissions	BACT Capital Cost (2008 Dollars)	BACT Total Annualized Cost (2008 Dollars)
Fiber Glass Operations	3279	25,000 tpy	Baghouse, incinerator, and wet scrubber	6.9 tpy PM, 68.8 NO <sub>x</sub> , 1.7 tpy CO	Same as baseline	6.9 tpy PM, 68.8 NO <sub>x</sub> , 1.7 tpy CO	\$0	\$0
Gasoline Bulk Plant	242710	6,500 gallons/day	Submerged loading controls	18.5 tpy VOC	Vapor balancing systems	1.9 tpy VOC	\$38,426	\$6,495
Gasoline Station (Storage Tanks, Refueling)	4471	1,200 gal/day	No control	2.2 tpy VOC	Stage I vapor balance	0.1 tpy VOC	\$2,288	\$558
Grain Elevator	424510	10,000 tpy (4MM Bu/yr)	Work practices	5 tpy PM <sub>10</sub>	Baghouse	.05 tpy PM <sub>10</sub>	\$166,310	\$59,929
Machinery Manufacturing	33311	Need more information to estimate costs (e.g., what type of machinery?)						
Millwork (Wood Products Mfg)	32191	66,000 m <sup>3</sup> per year	Wet electrostatic precipitator (WESP)	13.1 tpy CO, 44.3 tpy VOC, 3.31 tpy NO <sub>x</sub> , 5.78 tpy PM	Regenerative thermal oxidizer/ regenerative catalytic oxidizer (RTO/RCO)	1.91 tpy CO, 10.5 tpy VOC	\$138,096	\$36,026
Oil and Natural Gas Extraction (Major Source)	2111	4000 hp	No control	557.3 tpy NO <sub>x</sub>	Nonselective catalytic reduction	11.1 tpy NO <sub>x</sub>	\$189,617	\$29,029

(continued)



**Table B-1. Estimated Control Costs for Affected Major and Minor Sources in Indian Country (continued)**

Source Category	NAICS	Process Throughput Capacity	Baseline Control Technology	Baseline Emissions	BACT	BACT Emissions	BACT Capital Cost (2008 dollars)	BACT Total Annualized Cost (2008 dollars)
Oil and Gas Production/ Operations (Minor O&G)	2111	500	Best management practices	4.8 tpy NO <sub>x</sub> , 9.7 tpy CO, 3.4 tpy VOC	Same as baseline	4.8 tpy NO <sub>x</sub> , 9.7 tpy CO, 3.4 tpy VOC	\$0	\$0
Other (Natural Gas- Fired Boilers)	921150	<10 MM Btu/hr	No control	6.7 tpy NO <sub>x</sub> , 3.0 tpy CO	FGR or low NO <sub>x</sub> burners	3.5 tpy NO <sub>x</sub> 3.0 tpy CO	\$37,435	\$9,040
Pipeline Transportation of Natural Gas	486210	1,500 hp	Best management practices	5.9 tpy NO <sub>x</sub> , SO <sub>2</sub> , 4.5 tpy	Same as baseline	5.9 tpy NO <sub>x</sub> , SO <sub>2</sub> , 4.5 tpy	\$0	\$0
Printing Operations (Lithographic)	32311	48 tpy (ink use)	No control	6 tpy VOC	Add-on control devices and pollution prevention measures (low- VOC inks and cleaning solutions)	3.5 tpy VOC	NA	\$2,201
Professional, Scientific, and Technical Services	54171	<10 MM Btu/hr	No control	6.7 tpy NO <sub>x</sub> , 3.0 tpy CO	FGR or low NO <sub>x</sub> burners	3.5 tpy NO <sub>x</sub> 3.0 tpy CO	\$37,435	\$9,040
Sand and Gravel Mining	212321	140,000 tpy	No control	12.6 tpy PM <sub>10</sub>	Fugitive dust suppression controls	2.5 tpy PM <sub>10</sub>	\$30,714	\$39,917
Sand and Shot Blasting Operations	238990	10 tpy	No control	0.13 tpy PM <sub>10</sub>	Fabric filter	0.007 tpy PM <sub>10</sub>	\$6,646	\$10,338
Sawmills (Minor Source)	321113	100,000 tpy logs	No control or low efficiency cyclones	31 tpy PM	Fugitive dust suppression controls	1.5 tpy PM	\$30,714	\$39,917

(continued)

**Table B-1. Estimated Control Costs for Affected Major and Minor Sources in Indian Country (continued)**

Source Category	NAICS	Process Throughput Capacity	Baseline Control Technology	Baseline Emissions	BACT	BACT Emissions	BACT Capital Cost (2008 dollars)	BACT Total Annualized Cost (2008 dollars)
Sawmills (Major Source)	321113	300,000 tpy logs	No control or low efficiency cyclones	93 tpy PM	Fugitive dust suppression controls and fabric filter	4.5 tpy PM	\$176,222	\$61,693
Sewage Treatment Facilities	221320	NA	No control	NA	No control	NA	\$0	\$0
Softwood Veneer and Plywood Manufacturing	321212	66,000 m <sup>3</sup> per year	WESP	13.1 tpy CO, 44.3 tpy VOC, 3.31 tpy NO <sub>x</sub> , 5.78 tpy PM	RTO/RCO	1.91 tpy CO, 10.5 tpy VOC	\$138,096	\$36,026
Solid Waste Landfill	562212	< 0.5 million tons (capacity) [3,000 tpy loading] <sup>(c3)</sup>	No control	25 tpy VOC	Gas collection system and control device	6.3 tpy VOC	\$177,446	\$40,148
Surface Coating Operations	332812	General coating operation (e.g., can coating)	Filter technology, ventilated spray booth enclosures, use of low-VOC coatings, work practices	3 tpy VOC	Same as baseline	3 tpy	\$0	\$0
Wood Kitchen Cabinet Manufacturing	337110	66,000 m <sup>3</sup> per year	WESP	13.1 tpy CO, 44.3 tpy VOC, 3.31 tpy NO <sub>x</sub> , 5.78 tpy PM	RTO, RCO	1.91 tpy CO, 10.5 tpy VOC	\$138,096	\$36,026



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