

DRAFT

TECHNICAL SUPPORT DOCUMENT

**REGIONAL HAZE
STATE IMPLEMENTATION PLAN
FOR ILLINOIS**

AQPSTR 09-02

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**Appendix A Draft List of Class I Areas Located Within (or Impacted by) Midwest
RPO States, Lake Michigan Air Directors Consortium, June 26, 2007**

**Appendix B Regional Air Quality Analyses for Ozone, PM_{2.5}, and
Regional Haze: Final Technical Support Document, States of Illinois,
Indiana, Michigan, Ohio, and Wisconsin, Lake Michigan Air
Directors Consortium, April 25, 2008**

Appendix C Illinois Air Monitoring Network - 2008

List of Acronyms

BART	Best Available Retrofit Technology
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CO	Carbon Monoxide
CPS	Combined Pollutant Standards
EGAS	Economic Growth Analysis System
EGU	Electrical Generating Unit
FGD	Flue Gas Desulfurization
IPM	Integrated Planning Model
LADCO	Lake Michigan Air Directors Consortium
LNB	Low NO _x Burner
MRPO	Midwest Regional Planning Organization
MPS	Multi-Pollutant Standards
NH ₃	Ammonia
NO _x	Oxides of Nitrogen
OFA	Over-Fire Air
PAMS	Photochemical Assessment Monitoring Sites
PM	Particulate Matter
PM _{2.5}	Particulate Matter 2.5 microns in diameter
PM ₁₀	Particulate Matter 10 microns in diameter
RPO	Regional Planning Organization
SCR	Selective Catalytic Reduction
SDA	Spray Dryer Absorbers
SIP	State Implementation Plan
SLAMS	State/Local Air Monitoring Station
SNCR	Selective Non-Catalytic Reduction
SO ₂	Sulfur Dioxide
SPM	Special Purpose Monitors
U.S. EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds
VOM	Volatile Organic Material

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Executive Summary

The federal Regional Haze Rule was published by the United States Environmental Protection Agency (“U.S. EPA”) on July 1, 1999 (64 FR 35714) to address visibility impairment in 156 protected parks and wilderness areas. The Clean Air Act (“CAA”) identifies these areas as “mandatory Class I Federal areas” (CAA Section 169A(a)(1)). Even though there are no Class I areas in Illinois, the Regional Haze Rule requires that each state submit a State Implementation Plan (“SIP”) to provide for reasonable progress toward improving visibility, with the eventual goal of achieving pristine visibility conditions in these protected areas by 2064. The states’ initial strategy must contain enforceable emission reduction measures that achieve the reasonable progress goals in 10 to 15 years, with reassessment and revision of the goals in 2018 and every 10 years thereafter.

The purpose of this document is to describe Illinois’ strategy for meeting the reasonable progress goals by 2018 for Class I areas where emission sources in Illinois have been shown to cause adverse visibility impacts. Technical analyses conducted by the Midwest Regional Planning Organization (“MRPO”) and others have shown that sources in Illinois are causing or contributing to visibility impairment in several Class I areas in the eastern United States, including Mammoth Cave National Park in Kentucky, the Mingo Wilderness Area in Missouri, and Isle Royale National Park in Michigan. Illinois is therefore required to submit revisions to its SIP to address the contributions made by emission sources located in Illinois.

To address the Regional Haze Rule requirements, Illinois has developed a long-term emission reduction strategy to address visibility impairment in nearby Class I areas. This strategy is described in this document. An element of that strategy is the application of Best Available Retrofit Technology (“BART”) for a specific subset of emission sources, as required by U.S. EPA’s Guidelines for BART Determinations under the Regional Haze Rule (“BART Guidelines”) (70 Fed Reg 39104, July 6, 2005). The Illinois EPA has determined that Illinois has 59 emission units located at 11 major emission sources

that are subject to BART. These sources have committed to enforceable emission reduction measures that will meet or exceed the BART requirements on or before 2018.

The federal Regional Haze Rule requires consultation between the states, tribes, and Federal Land Managers (“FLMs”) responsible for managing Class I areas. This multi-state and multi-agency consultation process has been facilitated by Regional Planning Organizations (“RPOs”) established specifically for this purpose. Illinois fully participated in the planning and technical development efforts of the Midwest Regional Planning Organization (“MRPO”), which also includes the States of Indiana, Michigan, Ohio, and Wisconsin. States in other parts of the country participated in similar RPOs. Illinois has also participated in consultations with other RPO’s and states that have requested Illinois’ participation in their planning process.

The Illinois EPA, in conjunction with the MRPO, has made adequate plans to meet the requirements of the Regional Haze Rule by performing the necessary modeling to determine its impact on visibility in Class I areas, setting goals to reduce the impact of Illinois sources on these areas, and achieving the identified emission reduction targets. Further, Illinois commits to implement the long term strategy for meeting Regional Haze Rule goals and requirements. Illinois also commits to maintain adequate monitoring networks, and will continue to provide required progress reports, emissions inventories, and future SIP revisions, as required, to meet the requirements of the Regional Haze Rule.

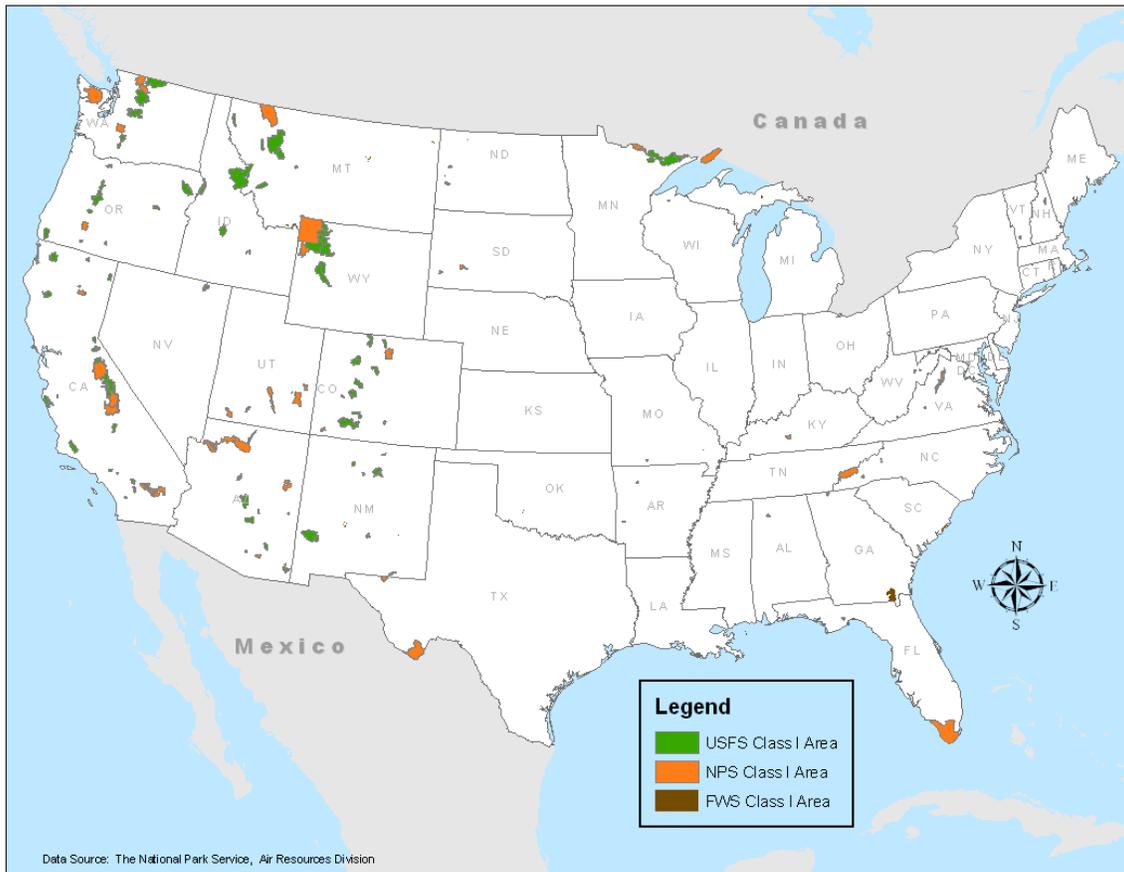
1.0 Introduction

The purpose of this document is to describe Illinois' strategy for meeting the requirements established by the federal Regional Haze Rule, which was published by the United States Environmental Protection Agency ("U.S. EPA") on July 1, 1999 (64 FR 35714) to address visibility impairment in 156 protected national and state parks and wilderness areas. The Clean Air Act ("CAA") identifies these areas as "mandatory Class I Federal areas" (CAA Section 169A(a)(1)). The protected Class I areas are shown in Figure 1.1. As illustrated in Figure 1.1, there are no Class I areas in Illinois. However, the Regional Haze Rule requires that all states submit State Implementation Plans ("SIP") to provide for reasonable progress toward improving visibility, with the eventual goal of achieving pristine visibility conditions in these protected areas by 2064. The states' initial strategy must contain enforceable emission reduction measures that achieve the reasonable progress goals in 10 to 15 years, with reassessment and revision of the goals in 2018 and every 10 years thereafter.

Specifically, the Regional Haze Rule provides several general planning provisions that states must address in the SIPs. Pursuant to 40 CFR 51.308, these requirements include: (1) setting reasonable progress goals; (2) calculating baseline and natural visibility conditions; (3) providing a long-term strategy for regional haze; (4) submission of a plan for the application of Best Available Retrofit Technology ("BART") for a specific subset of emission sources, as required by U.S. EPA's Guidelines for BART Determinations under the Regional Haze Rule ("BART Guidelines") (70 FR 39104, July 6, 2005); and (5) providing a monitoring strategy and other implementation plan requirements.

The Illinois EPA, in conjunction with the Midwest Regional Planning Organization ("MRPO"), has made adequate plans to meet the requirements of the Regional Haze Rule by performing the necessary modeling to determine its impact on visibility in Class I areas, setting goals to reduce the impact of Illinois sources on these areas, and achieving the identified emission reduction targets. Illinois commits to implement the long term strategy for meeting Regional Haze Rule progress goals and requirements. Illinois has developed a long-term emission reduction strategy to address the requirements of the

Figure 1.1 Mandatory Class I Federal Areas



Regional Haze Rule, including the application of BART for a specific subset of emission sources in Illinois. Illinois will continue in its efforts to maintain monitoring networks and emissions inventories, and will continue to provide required progress reports and future SIP revisions for the Regional Haze Rule.

The federal Regional Haze Rule also requires consultation between the states, tribes, and Federal Land Managers (“FLM”) responsible for managing Class I areas. This multi-state and multi-agency consultation process has been facilitated by Regional Planning Organizations (“RPOs”) established specifically for this purpose. Illinois fully participated in the planning and technical development efforts of the MRPO, which also includes the States of Indiana, Michigan, Ohio, and Wisconsin. States in other parts of the country participated in similar regional planning organizations. Illinois has also

participated in consultations with other RPOs and states that have requested Illinois' participation in their planning process.

2.0 Regional Planning

The State of Illinois is a member of the MRPO, and has fully participated in the MRPO's planning, analysis, and consultation efforts. The MRPO, which in addition to Illinois includes the States of Indiana, Michigan, Ohio, and Wisconsin, is one of five regional planning organizations funded by the U.S. EPA to address regional haze concerns.

Figure 2.1 - The Regional Planning Organizations



The analyses conducted by the MRPO included preparation of regional emissions inventories, meteorological data, evaluation and application of regional chemical transport models, and collection and analysis of ambient monitoring data.

One of the analyses prepared by the MRPO identified the Class I areas that were impacted by each of the states in the MRPO. Using several technical approaches, including modeling and back trajectories, the MRPO prepared a list of Class I areas

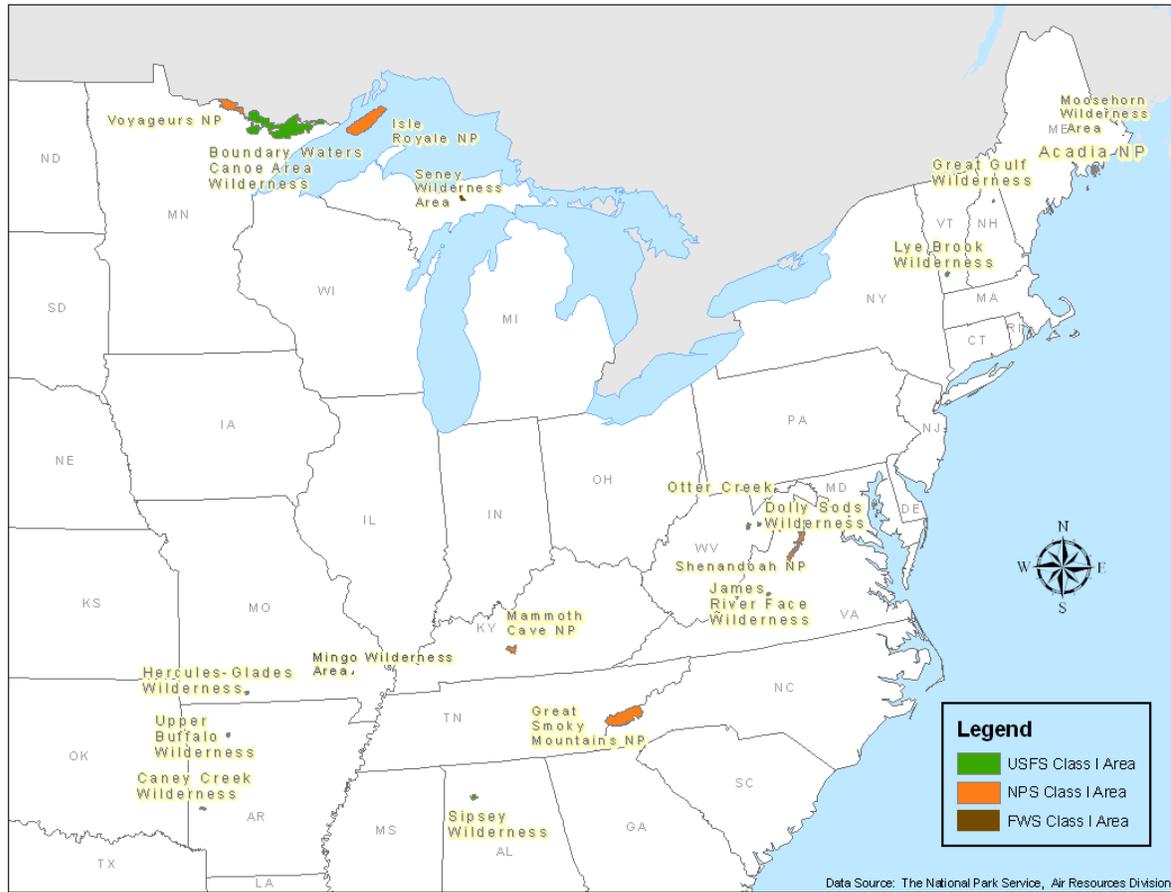
impacted by the five Midwestern states. This analysis, “Draft List of Class I Areas Located Within (or Impacted by) Midwest RPO States” (June 26, 2007), is included as Appendix A. According to the MRPO analyses, sources in Illinois are causing or contributing to visibility impairment in several Class I areas in the eastern United States, including Mammoth Cave National Park in Kentucky, the Mingo Wilderness Area in Missouri, and Isle Royale National Park in Michigan. These areas are listed below and are shown in Figure 2.2:

- Sipsey Wilderness Area, Alabama
- Caney Creek Wilderness Area, Arkansas
- Upper Buffalo Wilderness Area, Arkansas
- Mammoth Cave National Park, Kentucky
- Acadia National Park, Maine
- Moosehorn Wilderness Area, Maine
- Isle Royale National Park, Michigan
- Seney Wilderness Area, Michigan
- Boundary Waters Canoe Area Wilderness, Minnesota
- Voyageurs National Park, Minnesota
- Hercules-Glades Wilderness Area, Missouri
- Mingo Wilderness Area, Missouri
- Great Gulf Wilderness Area, New Hampshire
- Brigantine Wilderness Area, New Jersey
- Great Smoky Mountains National Park, Tennessee and North Carolina
- Lye Brook Wilderness, Vermont
- James River Face Wilderness Area, Virginia
- Shenandoah National Park, Virginia
- Dolly Sods/Otter Creek Wilderness, West Virginia

Illinois is relying on the MRPO’s technical support document, “Regional Air Quality Analysis for Ozone, PM_{2.5}, and Regional Haze: Final Technical Support Document” (April 25, 2008), (“MRPO TSD”) to address a number of the above-mentioned

requirements of the Regional Haze Rule. The MRPO TSD is included as Appendix B to this document.

Figure 2.2 Class I Areas Impacted by Illinois



3.0 Assessment of Baseline, Current, and Natural Conditions in Class I Areas

To track progress toward the long-term goal of remedying impairment of visibility in mandatory Class I areas, the Regional Haze Rule requires states containing such Class I areas to establish baseline conditions representing visibility for the best and worst days at the time the regional haze program is initiated for each Class I area. The baseline represents the starting point from which reasonable progress is measured. Using available monitoring data from 2000-2004, states with Class I areas are to determine the average visibility for the 20% most impaired days, and for the 20% least impaired days. These values represent the baseline conditions for the worst and best days. Natural conditions are also determined based on the level of visibility on the least impaired days.

Since there are no federal Class I areas located in Illinois, the state is not required to determine and submit baseline, current and natural conditions for any Class I areas. Illinois has participated, however, in the efforts of the MRPO to perform such analyses for Class I areas located in other MRPO states. A detailed description of these analyses can be found in Section 3 of the MRPO TSD (see Appendix B).

4.0 Monitoring Strategy

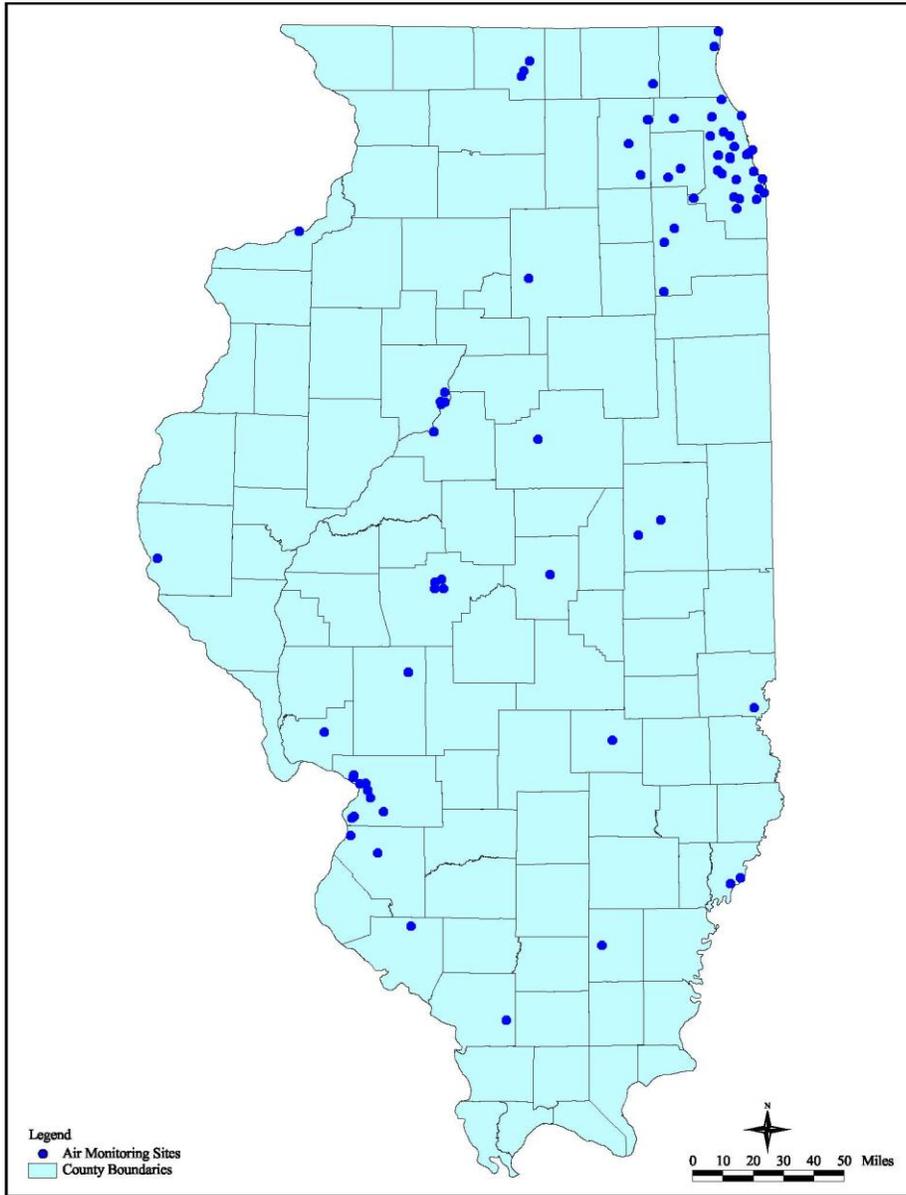
Pursuant to 40 CFR 51.308(d)(4) of the federal Regional Haze Rule, Illinois currently maintains a monitoring network to measure and report levels of various pollutants, including those that contribute to impairment of visibility in Class I areas. The monitoring program relies upon Illinois' network of monitoring sites that include SLAMS (State and Local Air Monitoring Sites), SPM (special purpose monitors), PM_{2.5} speciation sites (trend and State), and PAMS (photochemical assessment monitoring sites). Since there are no Class I areas located in the state, Illinois does not operate any monitoring sites under the federal IMPROVE (Interagency Monitoring of Protected Visual Environments) program. However, the Illinois State Water Survey operates a monitoring site at Bondville, which is a rural location near Champaign in central Illinois, that conforms with the IMPROVE protocol.

Figure 4.1 illustrates Illinois' ambient monitoring network. Specific site information, including the pollutants measured, site locations (address and latitude/longitude), and the sampling schedule, are included as Appendix C.

Illinois is required, pursuant to 40 CFR 51.308(d)(4)(iii), to establish procedures for using monitoring data, along with other information, to determine the contribution of emissions from Illinois sources to visibility impairment at all affected Class I areas outside of the state. These procedures were established in conjunction with the MRPO and are discussed in detail in Sections 3 and 4 of the MRPO TSD (see Appendix B).

The monitoring network in Illinois will be maintained and will continue to measure pollutants that contribute to visibility degradation. In addition, Illinois will continue to determine its contribution to visibility impairment in mandatory Class I Federal areas, and to assess whether reasonable progress goals addressing regional haze are being achieved.

Figure 4.1 Illinois Monitoring Locations



5.0 Emissions Inventory

Pursuant to 40 CFR 51.308(d)(4)(v), Illinois is required to provide a statewide inventory of pollutants that could reasonably be anticipated to cause or contribute to visibility impairment in Class I areas. These pollutants include volatile organic compounds ("VOCs"), NO_x, PM, ammonia ("NH₃"), and SO₂. Table 5.1 is a summary of statewide emissions of the relevant pollutants from each emission source category based on the "Illinois Particulate Matter and Haze Inventory for 2002".¹ Note that point source emissions are separated into those from electric generating units (EGUs), and other non-EGU point sources.

Table 5.1 Illinois Statewide Emissions for 2002

Category	CO	NH₃	NO_x	PM₁₀	PM_{2.5}	SO₂	VOM
EGU	16,7968	99	182,377	9,027	4,637	369,082	1,666
Non-EGU	75,042	521	84,944	27,546	6,751	138,015	75,002
Area	94,116	29,905	47,435	507,268	113,102	5,264	222,390
On-Road	2,165,756	10,773	309,868	7,854	5,760	8,934	143,495
Off-Road	884,602	108	209,361	13,334	12,295	9,304	92,609
Animal	---	44,180	---	---	---	---	---
Biogenic	79,459	---	38,772	---	---	---	528,583
Total	3,315,774	85,590	872,760	565,031	142,548	530,600	1,063,747

The 2018 emission projections are listed in Table 5.2. Statewide emissions for 2002 were used to project 2018 emissions for the same categories using the Economic Growth Analysis System ("EGAS"). The projected emissions from EGUs reflect the implementation of Illinois Multi-Pollutant Standards (MPS), Combined Pollutant Standards (CPS), and agreements to implement BART. Table 5.3 provides a comparison of 2002 and 2018 statewide emissions for the same pollutants and emission categories.

From Table 5.3, it is expected that emissions of NH₃ and PM (both PM₁₀ and PM_{2.5}) will increase from 2002 to 2018 due largely to increases in area source emissions of these pollutants. These increases are offset, however, by substantial decreases of the primary visibility impairing pollutants, SO₂ and NO_x, expected in Illinois by 2018. These

Table 5.2 Projected Illinois Statewide Emissions for 2018

Category	CO	NH₃	NOx	PM₁₀	PM_{2.5}	SO₂	VOM
EGU	24,620	100	34,085	11,313	4,698	123,874	1,926
Non-EGU	94,570	568	76,326	36,737	7,916	129,014	98,822
Area	106,716	42,958	54,162	744,042	162,256	5,968	230,151
On-road	1,000,229	11,757	61,019	3,686	1,820	1,155	41,882
Off-road	970,732	810	188,997	8,927	8,260	9,612	74,083
Animal	---	63,211	---	---	---	---	---
Biogenic	79,459	---	38,772	---	---	---	528,583
Total	2,276,326	119,404	453,361	804,705	184,950	269,623	975,447

Table 5.3 Comparison of Illinois Statewide Emissions, 2002 to 2018

Category	CO	NH₃	NOx	PM₁₀	PM_{2.5}	SO₂	VOM
2002	3,315,774	85,590	872,760	565,031	142,548	530,600	1,063,747
2018	2,276,326	119,404	453,361	804,705	184,950	269,623	975,447
Difference	-1,039,448	+33,814	-419,399	+239,674	+42,402	-260,977	-88,300

reductions are largely due to Illinois' MPS/CPS and BART regulatory requirements affecting coal-fired EGU's, as well as significant reductions from on-road and off-road mobile sources. Illinois' regulatory programs for EGUs are more stringent than the federal Clean Air Interstate Rule (CAIR), and do not rely on the CAIR interstate trading program. This ensures that Illinois will achieve its long term strategy needed to meet the Reasonable Progress Goals established for eastern and midwestern Class I areas regardless of the outcome of litigation affecting CAIR. The Reasonable Progress Goals and Illinois' Long Term Strategy are discussed in Sections 7 and 8.

6.0 Best Available Retrofit Technology

The Regional Haze Rule requires stationary emission units that were constructed from 1962 to 1977 that have not been subject to other provisions of the CAA, to install and operate BART on those units, or implement another program that achieves greater visibility improvements. U.S. EPA's BART Guidelines² describe how BART determinations are made with regard to the cost of retrofit technology, the remaining useful life of an emission unit, alternative emission reduction strategies, and other factors to be considered in making BART determinations.

Illinois has followed the BART Guidelines in meeting the requirements for emission sources subject to BART, as described in the Illinois EPA's report: "Technical Support Document for Best Available Retrofit Technology Under the Regional Haze Rule", (AQPSTR 09-06, July 31, 2009)³ ("BART TSD"). The BART TSD describes the Illinois EPA's methodologies for determining BART-eligible sources, for modeling the visibility impacts of eligible sources, and for meeting the BART control requirements.

Table 6.1 lists the 11 sources in Illinois that are subject to BART. Of the 11 sources, nine are EGUs and two are non-EGU sources. The two non-EGUs are petroleum refineries located near Chicago (CITGO and Exxon Mobil). The nine power generation sources are spread geographically across Illinois. Table 6.1 provides a list of the sources in Illinois that are subject to BART.

To meet the BART emission reduction requirements for EGUs, Illinois is relying on the MPS/CPS requirements affecting all emission units at sources operated by Midwest Generation, Ameren, and Dynegy; and specific BART-related provisions to be included in federally enforceable permits for Dominion-Kincaid and City Water, Light, and Power (CWLP). The existing emission reduction requirements and commitments for coal-fired EGUs in Illinois that are subject-to-BART include:

- the Multi-Pollutant Standard ("MPS") and Combined Pollutant Standards ("CPS") codified in the Illinois Mercury Rule, 35 Ill. Adm. Code Part 225, that apply to Ameren, Dynegy, and Midwest Generation;

- a multi-pollutant agreement via a Memorandum of Understanding (“MOU”) between the Illinois EPA and Dominion Energy Services, as operator, and Kincaid Generation, LLC, as owner, of the Kincaid Generating Station (collectively “Dominion Kincaid”), to achieve BART-control levels; and
- a similar MOU between the Illinois EPA and City Water, Light & Power (“CWLP”), Springfield, Illinois, to achieve BART-control levels and to shut down one of its existing subject-to-BART units.

Table 6.1 List of Sources Subject to BART

SOURCE NAME	County	SOURCE ID	Category
CITGO Petroleum Corp	Will	197090AAI	11
Exxon Mobil Oil Corp	Will	197800AAA	11
Dynegy Baldwin	Randolph	157851AAA	1
Dominion Kincaid	Christian	021814AAB	1
Ameren Coffeen	Montgomery	135803AAA	1
Ameren Edwards	Peoria	143805AAG	1
Ameren Duck Creek	Fulton	057801AAA	1
Midwest Generation Powerton	Tazewell	179801AAA	1
Midwest Generation Joliet	Will	197809AAO	1
Midwest Generation Will County	Will	197810AAK	1
Springfield CWLP	Sangamon	167120AAO	1

Table 6.2 summarizes the BART requirements for coal-fired EGUs in Illinois for 2018, the progress-related milestone year under the Regional Haze rule. It should be noted that NO_x and SO₂ reduction requirements will be phased in beginning in 2009 through 2019. Illinois EPA’s BART TSD³ provides a more detailed description of these requirements.

The BART Guidelines provide presumptive emission limits or control levels for coal-fired EGUs, for various boiler types and coal types. The presumptive emission limits for coal-fired EGUs are shown in Table 6.3. The Illinois EPA has compared these presumptive BART emission levels to existing emission reduction requirements and commitments for the subject-to-BART EGUs in Illinois. For coal-fired electric generating units in Illinois, the system-wide emission limits required by the MPS/CPS for

**Table 6.2 Summary of 2018 BART Requirements in Illinois
for Coal-Fired EGUs**

SOURCE NAME	NO _x Emission Rate (lb/mmBTU)		SO ₂ Emission Rate (lb/mmBTU)	
	2002 Base	BART	2002 Base	BART
Dynegy ^a	0.32	0.10	0.63	0.19
Ameren ^a	0.29	0.11	1.10	0.23
Midwest Generation ^a	0.36	0.11	0.52	0.13 ^b
City Water, Light and Power	1.08	0.11	1.09	0.23
Dominion Kincaid	0.65	0.07	0.55	0.18

^a Sources affected by MPS/CPS required to meet emission rates on a system-wide basis.

^b Midwest Generation is required to meet a system-wide SO₂ average emission rate 0.13 lb/mmBTU by 2018 and 0.11 lb/mmBTU by 2019.

Table 6.3 Presumptive BART Emission Limits for Coal-Fired EGUs

Pollutant	Boiler Type	Coal Type	Presumptive Limit (lbs/mmBTU)
SO ₂	All units	All coal types	0.15 (or 95% control)
NO _x	Dry-bottom wall-fired	Bituminous	0.39
		Sub-bituminous	0.23
		Lignite	0.29
	Tangential-fired	Bituminous	0.28
		Sub-bituminous	0.15
		Lignite	0.17
	Cell burners	Bituminous	0.40
		Sub-bituminous	0.45
	Dry-turbo-fired	Bituminous	0.32
		Sub-bituminous	0.23
	Wet-bottom tangential-fired	All	0.62
Cyclone	All	(SCR operated annually)	

Midwest Generation, Ameren, and Dynegy; and the specific BART-related provisions for Dominion-Kincaid and City Water, Light, and Power (CWLP) either meet or exceed the

requirements for BART. As shown in Figures 6.1 and 6.2, Illinois' requirements will provide significantly greater emission reductions for NO_x and SO₂ than will installation of BART controls on just the subject-to-BART emission units, and will provide greater emission reductions than implementation of CAIR.

Figure 6.1 Estimated NO_x Emissions from Coal-Fired EGUs in Illinois

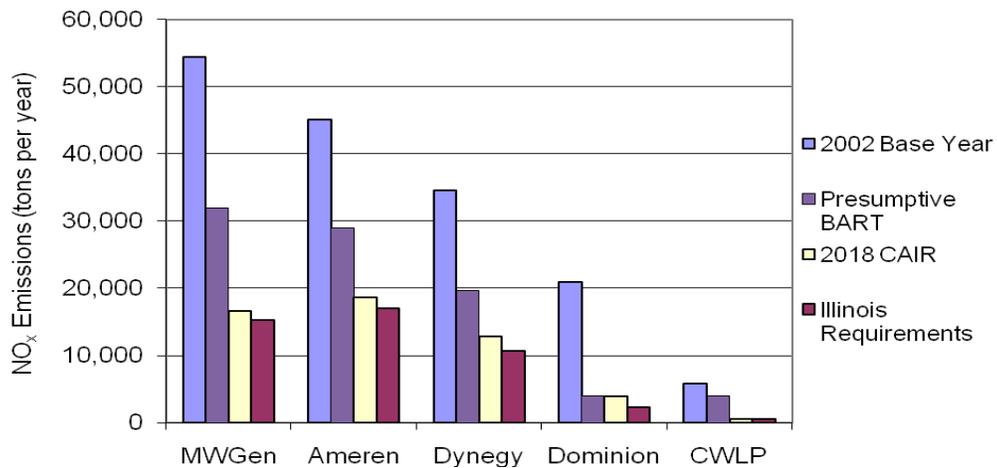
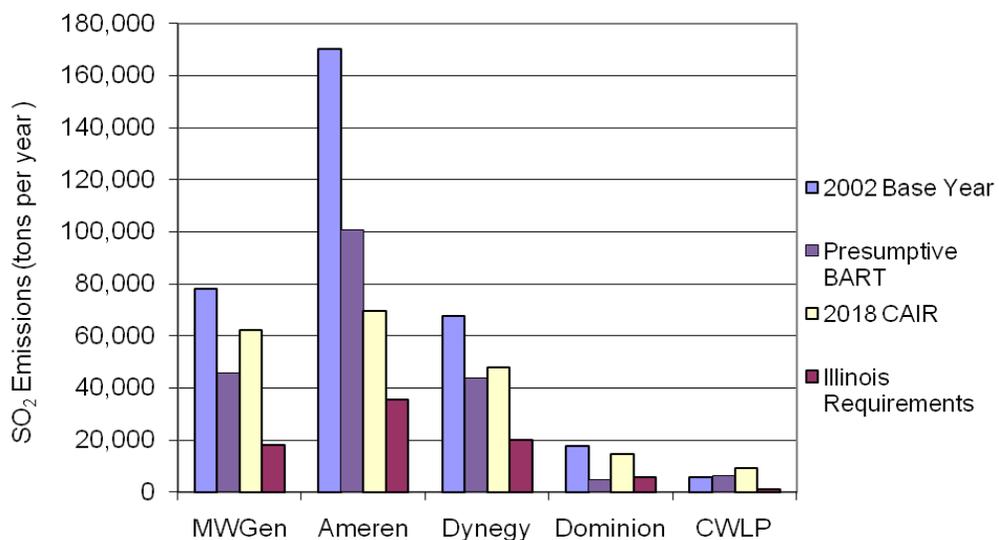


Figure 6.2 Estimated SO₂ Emissions from Coal-Fired EGUs in Illinois



The two non-utility sources that have emission units that are subject to BART are both petroleum refineries located in the Chicago area. These sources are the CITGO refinery at Lemont and the ExxonMobil refinery at Joliet. To meet the BART emission reduction requirements, Illinois is relying on federal consent decrees affecting both sources. Both refineries have been the subject of litigation by USEPA that has resulted in legal settlements as set forth in consent decrees. The consent decrees establish federally enforceable emission limits for these sources that have resulted, or will result, in significant reductions in SO₂ and NO_x emissions. The Illinois EPA considers the requirements of these consent decrees to be sufficient to meet the requirements for BART. Illinois EPA's BART TSD³ provides a more detailed description of these requirements.

7.0 Reasonable Progress Goals

The Regional Haze Rule does not establish presumptive targets for showing reasonable progress goals for Class I areas. Rather, the rule allows states the flexibility to determine reasonable progress goals for Class I areas that improve visibility on the most impaired days and ensure that no degradation occurs on the clearest days. The reasonable progress goals are intended as interim goals that represent incremental progress toward the national goal of mitigating all man-made visibility impairment. The national goal of no man-made impairment is intended to encompass several planning periods of 10 years duration. The first planning period spans from the beginning of the regional haze program until the year, 2018.

Since there are no Class I areas located in Illinois, the Illinois EPA is not required to prepare and submit any analyses regarding the establishment of reasonable progress goals for any Class I areas. Illinois has participated in the efforts of the MRPO to perform such analyses for Class I areas located in other MRPO states. A detailed description of these analyses can be found in Section 5 of the MRPO TSD (see Appendix B).

8.0 Long Term Strategy

Pursuant to 40 CFR 51.308(d)(3) Illinois is required to submit a long term strategy addressing Regional Haze Rule requirements for visibility improvement for the federal Class I areas inside the state, and for those outside the state impacted by Illinois sources. The long term strategy is the compilation of enforceable emissions control measures needed to achieve the reasonable progress goals established for these Class I areas. As required, the Illinois plan details the emission control measures that Illinois is implementing, including measures to comply with BART, to achieve the reasonable progress goals established for Class I areas impacted by emissions sources located in Illinois.

The Regional Haze Rule also requires under 40 CFR 51.308(d)(3)(iv) that states identify all major and minor anthropogenic (stationary, mobile, and area) sources of visibility impairment that were considered by the state in preparing its long term strategy. Illinois EPA's emissions inventory is described in Section 5 of this report, as well as in Section 3.6 of the MRPO TSD (see Appendix B). Additional requirements included in the Regional Haze Rule under 40 CFR 51.308(d)(3)(v) require states to consider the following factors in developing its long term strategy:

- emission reductions due to ongoing air pollution control programs, including measures to address reasonably attributable visibility impairment;
- measures to mitigate the impacts of construction activities;
- emissions limitations and schedules for compliance to achieve the reasonable progress goal;
- source retirement and replacement schedules;
- smoke management techniques for agricultural and forestry management purposes including plans as currently exist within the State for these purposes;
- enforceability of emissions limitations and control measures; and
- the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the long term strategy.

Illinois has considered each of these factors in developing its long term strategy. As documented in the MRPO TSD (see Appendix B, Section 3.6), the reasonable progress goals for the Class I areas in the midwestern and eastern U.S. will be achieved by 2018 from implementation of “on-the-books” control measures in the states contributing to visibility impairment. “On-the-books” control measures include a number of controls that were modeled by the MRPO for power plants, other point sources, area sources, and off-highway and on-highway mobile sources. These control measures have already been adopted by U.S. EPA and/or the states, are fully enforceable, and will be in place by 2018 (except for fleet turnover of certain mobile source measures). Following is a list of “on-the-books” control measures used in the future year modeling prepared by the MRPO:

On-Road Mobile Sources

- Federal Motor Vehicle Emission Control Program, low-sulfur gasoline and ultra-low sulfur diesel fuel
- Inspection - maintenance programs, including Illinois’ enhanced vehicle inspection and maintenance program, Indiana’s vehicle emissions testing program, Ohio’s E-check program, and Wisconsin’s vehicle inspection program (Note: a special emissions modeling run was done for the Cincinnati/Dayton area to reflect the removal of the state’s E-check program and inclusion of low RVP gasoline)
- Reformulated gasoline, including in Chicago-Gary,-Lake County, IL,IN; and Milwaukee, Racine, WI

Off-Road Mobile Sources

- Federal control programs incorporated into NONROAD model (e.g., nonroad diesel rule), plus the evaporative Large Spark Ignition and Recreational Vehicle standards
- Heavy-duty diesel (2007) engine standard/Low sulfur fuel
- Federal railroad/locomotive standards
- Federal commercial marine vessel engine standards

Area Sources

- Consumer solvents

- Architectural and Industrial Maintenance coatings
- Aerosol coatings
- Portable fuel containers

Electric Generating Units

- Title IV (Acid Rain -- Phases I and II)
- NO_x SIP Call
- Clean Air Interstate Rule (“CAIR”)

Other Point Sources

- VOC 2-, 4-, 7-, and 10-year Maximum Achievable Control Technology (“MACT”) standards
- Combustion turbine MACT
- Consent decrees (refineries, ethanol plants, and ALCOA)
- NO_x Reasonably Available Control Technology “RACT”) in Illinois, Wisconsin and Ohio

It should be noted that significant additional emission reductions will be achieved in Illinois that have not been included as “on the books” control measures in the MRPO analysis. These include the regulatory compliance options, such as the MPS and CPS codified in the Illinois Mercury Rule, which provide greater NO_x and SO₂ reductions than the federal CAIR, as well as BART controls for the Dominion - Kincaid and City Water, Light, and Power electric generation facilities. These additional agreements and emission reductions are discussed in detail in the Illinois BART TSD³.

In consideration of construction activities and their effect on regional haze, construction activities in Illinois are subject to federal non-road standards for construction equipment and vehicles. Additionally, a number of large construction projects in Illinois, including the current airport expansion at Chicago’s O’Hare Airport and recent work on the Dan Ryan expressway, have been conducted under contract restrictions requiring additional measures to mitigate environmental impacts. These measures include the following: the use of ultra low-sulfur fuels; idling restrictions for construction vehicles and equipment; U.S. EPA approved controls for off-road diesel equipment; use of newer, cleaner, and

more fuel-efficient engines for equipment; and optimizing earthwork and excavation to limit haul trips to the maximum extent possible. Illinois EPA anticipates that future construction projects will entail similar environmental considerations, and the Illinois EPA will continue to work with other state and federal agencies to ensure that environmental impacts are given due consideration in contracting for similar construction projects.

In consideration of smoke management techniques for conducting prescribed burns for ecological management and restoration, the Illinois EPA has worked with land managers in the state to prepare: “Illinois Smoke Management Plan” (AQPSTR 08-05, May 8, 2009)⁴. This plan provides recommended approaches for minimizing smoke during prescribed burns.

9.0 Consultation

Illinois is required by the Regional Haze Rule to participate in a consultation process with states with Class I areas that have identified emission sources in Illinois that contribute to visibility impairment. Illinois' SIP submittal must also contain documentation of the consultation process.

Pursuant to the consultation requirements in the Regional Haze Rule, Illinois has participated in various consultation processes at the request of the states potentially impacted by Illinois sources. Consultations involved both state-to-state discussions and consultations with and between the RPO's.

Much of Illinois' participation in the consultation process was facilitated by the MRPO, which includes the States of Illinois, Indiana, Ohio, Michigan, and Wisconsin. The MRPO was formed in 1999 to provide technical assessments for its members and a forum to discuss air quality issues. Under the MRPO, the planning and consultation process included the member states, Federal Land Managers (FLMs), U.S. EPA, Tribal representatives from Michigan and Wisconsin, and other interested stakeholders, such as citizens groups and industry. The MRPO also worked cooperatively with other RPOs on administrative, policy, and technical issues related to regional haze.

The MRPO was organized as follows:

- Policy Steering Committee consisted of the Environmental Directors of the member states, tribal leaders, FLMs, and the Regional Administrator of U.S. EPA - Region 5. The Policy Steering Committee provided the overall policy direction for the MRPO, and met, as needed, to oversee the progress of the effort.
- Technical Steering Committee consisted of the Directors of the Air Quality offices of the member states, plus tribal representatives, FLMs, and the Director of the Air and Radiation Division of U.S. EPA - Region 5. The Technical Steering Committee was responsible for the management of the regional planning effort, and met on a regular basis to carry out these duties.

- Project Team consisted of representatives of the member states, participating tribes, FLMs, and U.S. EPA to implement the directions of the Technical Steering Committee and to guide the technical aspects of the planning effort. The Project Team met on a regular basis.

Through the MRPO, Illinois has participated in consultations convened by Minnesota and Michigan that included representatives from the states and tribes that impact visibility in the four Northern Class I areas, Boundary Waters and Voyageurs in Minnesota and Isle Royale and Seney in Michigan. These consultations also included the Central Regional Air Planning Association (CENRAP), and the Western Regional Air Partnership (WRAP) along with FLMs and U.S. EPA representatives involved with the Northern Class I areas. This group engaged in extensive consultation about visibility conditions and control strategies needed to improve visibility at these four Class I areas.

The MRPO, including Illinois, also worked with states from the Mid-Atlantic, Northeast Visibility Union (MANE-VU) region, to address regional haze issues affecting the five MANE-VU Class I areas, Acadia National Park and Moosehorn Wilderness Area in Maine, Great Gulf Wilderness Area in New Hampshire, Brigantine Wilderness Area in New Jersey, and Lye Brook Wilderness in Vermont.

Illinois and the MRPO also participated in the consultation process established by the Central Regional Air Planning Association (CENRAP) to develop coordinated strategies for Class I areas in the Central states, including Mingo, Hercules Glades, Upper Buffalo, and Caney Creek. The consultation was completed based on a determination that reasonable progress was achieved by contributing states.

10.0 Summary

This document describes Illinois' strategy for meeting the requirements established by the federal Regional Haze Rule, which was published by the U.S. EPA on July 1, 1999 (64 FR 35714) to address visibility impairment in 156 protected Class I areas. Even though there are no Class I areas in Illinois, the Regional Haze Rule requires that Illinois prepare and submit a SIP to provide for reasonable progress toward improving visibility, with the eventual goal of achieving pristine visibility conditions in these protected areas by 2064. The states' initial strategy must contain enforceable emission reduction measures that achieve the reasonable progress goals in 10 to 15 years, with reassessment and revision of the goals in 2018 and every 10 years thereafter.

Specifically, the Regional Haze Rule provides several general planning provisions that states must address in the SIPs. Pursuant to 40 CFR 51.308, these requirements include: (1) setting reasonable progress goals; (2) calculating baseline and natural visibility conditions; (3) providing a long-term strategy for regional haze; (4) submission of a plan for the application of BART for a specific subset of emission sources; and (5) providing a monitoring strategy and other implementation plan requirements.

The Illinois EPA, in conjunction with the MRPO, has made adequate plans to meet the requirements of the Regional Haze Rule by performing the necessary modeling to determine its impact on visibility in Class I areas, setting goals to reduce the impact of Illinois sources on these areas, and achieving the identified emission reduction targets. Illinois commits to implement the long term strategy for meeting Regional Haze Rule progress goals and requirements. Illinois has developed a long-term emission reduction strategy to address the Regional Haze Rule requirements, including the application of BART for a specific subset of emission sources in Illinois. Illinois will continue in its efforts to maintain monitoring networks and emissions inventories, and will continue to provide required progress reports and future SIP revisions for the Regional Haze Rule.

The federal Regional Haze Rule also requires consultation between the states, tribes, and FLMs responsible for managing Class I areas. This multi-state and multi-agency

consultation process has been facilitated by the MRPO. Illinois fully participated in the planning and technical development efforts of the MRPO, which also includes the States of Indiana, Michigan, Ohio, and Wisconsin. States in other parts of the country participated in similar regional planning organizations. Illinois has also participated in consultations with other RPOs and states that have requested Illinois' participation in their planning process.

References

1. Illinois Base Year Particulate Matter and Haze Inventory for 2002, Illinois Environmental Protection Agency, AQPSTR 06-04, June 2006.
2. Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations; Proposed Rule , 69 FR 39104-39172, July 6, 2005.
3. Technical Support Document for Best Available Retrofit Technology Under the Regional Haze Rule”, Illinois Environmental Protection Agency, AQPSTR 09-06, July 31, 2009
4. Illinois Smoke Management Plan, Illinois Environmental Protection Agency, AQPSTR 08-05, May 8, 2009.