Wisconsin Five-Year Regional Haze Progress Report

Wisconsin Department of Natural Resources

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1. Introduction

The Wisconsin Department of Natural Resources (WDNR) submitted its regional haze State Implementation Plan (haze SIP) for the first implementation period (2008–2018) to the U.S. Environmental Protection Agency (EPA) on January 18, 2012, with a supplemental submittal on June 7, 2012.[1] EPA approved Wisconsin's haze SIP (including the June 2012 supplement) on August 7, 2012 (*77 FR 46952*). WDNR developed its haze SIP to address the requirements in Clean Air Act (CAA) section 169A and the regional haze rule (40 CFR 51.308). Section 2 provides a summary of Wisconsin's haze SIP, including how Best Available Retrofit Technology (BART) was addressed for point sources, the establishment of reasonable progress goals (RPGs), and the adoption of limitations necessary to implement a long-term strategy for reducing visibility impairment at the affected Class I areas.

The regional haze rule requires a five-year progress report that provides an assessment of whether the approved regional haze SIP is being implemented appropriately and whether reasonable visibility progress is being achieved consistent with the projected visibility improvement in the SIP (40 CFR 51.308(g) and (h)). EPA issued guidance in 2013 to provide assistance to states in the development of five-year progress reports.[2] The guidance contains recommendations for addressing the following report requirements:

Progress Report Elements

- Status of Control Strategies in the Regional Haze SIP
- Emission Reductions from Regional Haze SIP Strategies
- Visibility Progress
- Emissions Progress
- Assessment of Changes Impeding Visibility Progress
- Assessment of Current Strategy
- Review of Visibility Monitoring Strategy
- Determination of Adequacy

Procedural Requirements

- Administrative Process
- Consultation with Federal Land Managers

Section 3 addresses each of the required progress report elements and supports the determination that further revision of Wisconsin's haze SIP is not needed at this time. Section 4 addresses the procedural requirements for this progress report.

[1] Wisconsin's regional haze SIP and supporting information for the January 2012 submittal to EPA can be found on the WDNR's website: http://dnr.wi.gov/topic/airquality/particles.html (see "Visibility" tab). WDNR's June 2012 supplemental submittal to EPA is available upon request.

[2] General Principles for the 5-Year Regional Haze Progress Reports for the Initial Regional Haze State Implementation Plans. April 2013. U.S. Environmental Protection Agency – OAQPS.

2. Summary of Wisconsin's Regional Haze SIP for the First Implementation Period (2008–2018)

Wisconsin's haze SIP for the first implementation period (2008-2018) described regional haze in the upper Midwest, including the identification of affected Class I areas, the calculation of baseline and natural visibility for those areas, and the statutory and regulatory background. The SIP provided a lengthy description of how regional haze plan requirements were met, including how Wisconsin consulted with other states through the Midwest Regional Planning Organization (MRPO) process to establish goals for reasonable further progress to mitigate anthropogenic visibility impairment. Analysis performed by the MRPO determined that emission sources in Wisconsin contribute to visibility impairment at four MRPO Class I areas: the Isle Royale National Park and Seney Wilderness Area in northern Michigan; and Boundary Waters Canoe Wilderness Area and Voyageurs National Park in northern Minnesota.[3]

The MRPO states affecting the northern Class I areas agreed that the priority sources and emissions to be addressed were: sulfur dioxide (SO_2) from point sources (electric generating units, or EGUs, and non-EGUs); nitrogen oxides (NOx) from point sources (EGUs and non-EGUs) and mobile sources (on-road and off-road); and ammonia (NH_3) from agricultural operations. Wisconsin's haze SIP further identified the facilities subject to BART and mandated emission reductions to meet the applicable BART requirements. The SIP also met other regional haze requirements, including establishing RPGs, developing a long-term strategy showing how Wisconsin intends to progress towards meeting the RPGs, and providing a monitoring strategy.

Wisconsin's haze SIP concluded that several EGUs and the Georgia-Pacific paper mill in Green Bay were subject to BART requirements, based on a modeled visibility impact at a Class I area(s) greater than 0.5 deciviews (dv) due to emissions of NOx and SO_2.[4] For Georgia-Pacific, an administrative order established a cap on the amount of NOx and SO_2 emissions from the various boilers at the facility, including two boilers subject to the BART requirement and other boilers not subject to this requirement. Wisconsin relied on the Clean Air Interstate Rule (CAIR) and Cross-State Air Pollution Rule (CSAPR) as a trading program alternative to mandating source-specific BART for NOx and SO_2 for the nine EGUs that were subject to BART. Wisconsin addressed BART for particulate matter (PM) for EGUs by supplementing existing limits with a more stringent PM emission limit for one plant. The BART control measures for NOx, SO_2 and PM are discussed further in section 3.1.

EPA's regional haze guidance directed states to determine a "uniform rate of visibility improvement" (URI) that, starting from the baseline visibility conditions, would be

[3] Regional Air Quality Analyses for Ozone, $PM_{2.5}$, and Regional Haze: Technical Support Document. Lake Michigan Air Directors Consortium. Online. http://www.ladco.org/reports/technical_support_document/tsd/tsd_version_iv_april_25_2008_final.pdf . November 2, 2016.

[4] See Wisconsin's haze SIP ("BART" section, pages 20-26) for a complete list of these point sources.

maintained during each decade-long implementation period in order to attain natural visibility conditions by 2064.[5] The MRPO helped Michigan and Minnesota determine both baseline and natural visibility conditions for their respective Class I areas (see Figure 1), in accordance with requirements laid out in the regional haze rule. The URI can be viewed as a "glide path" from the baseline to natural visibility conditions. Under the haze rule, the URI line is the primary means for states to determine if they are meeting the RPGs.

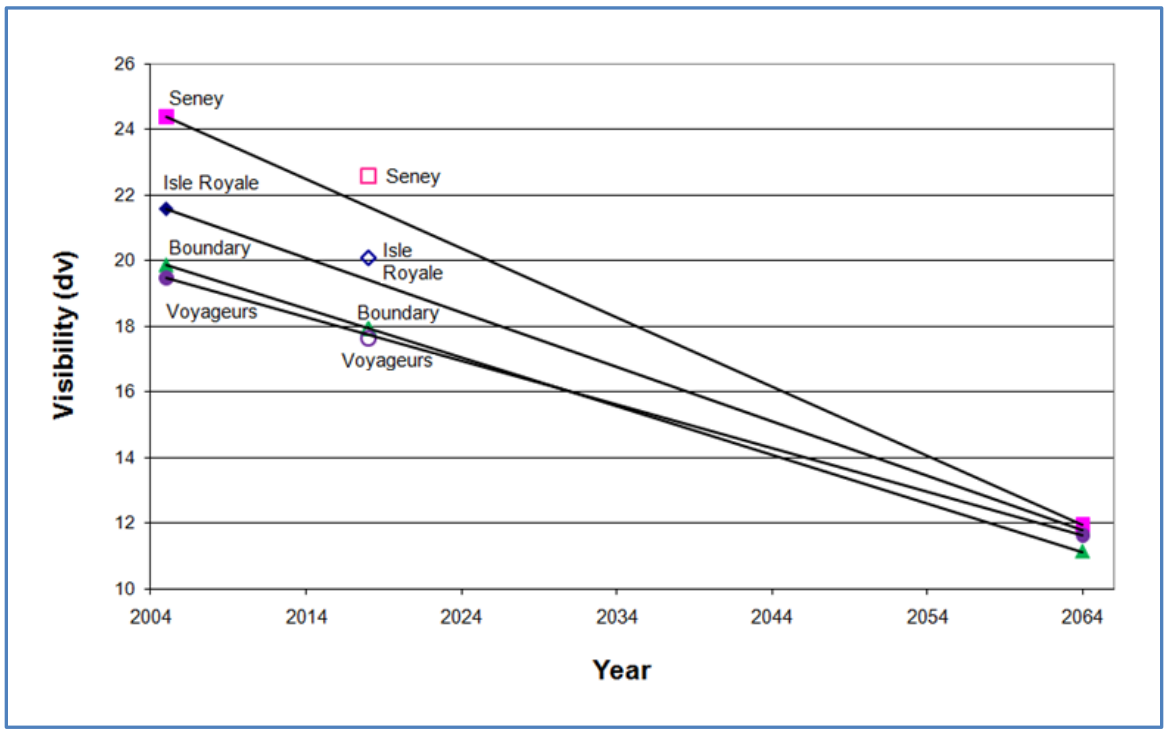
In its haze SIP, Wisconsin determined that the RPGs were met at the Boundary Waters and Voyageurs Class I areas in Minnesota since they were at or below the URI line (see Figure 1) based on the "on the books" 2018 emission inventory.[6] Wisconsin determined that the RPGs for Isle Royale and Seney in Michigan, although above the URI line, were met due to the following factors:

- Projected emissions were lower than modeled emissions. Wisconsin showed that overall emissions were projected to be below the modeled inventories for important source sectors; in particular, emissions were projected to be below modeled inventories for the individual point sources with the greatest impact on Isle Royale and Seney. Thus, the modeled visibility impacts shown in Figure 1 for 2018 would be closer to the URI line when considering projected emissions.
- The compliance timeframe limited further reductions. Additional visibility progress for Isle Royale and Seney was limited by the time necessary for compliance, rather than potential control levels and cost. For EGUs, CAIR was being implemented as fast as possible and CSAPR was likely to ensure reductions by 2018 at least equivalent to those caused by implementation of CAIR. For non-EGU point sources, Wisconsin found it would not be able to implement deeper emission reductions more rapidly than the current regulatory program efforts – $PM_{2.5}$ Reasonably Available Control Technology (RACT), NO_2 and SO_2 National Ambient Air Quality Standards (NAAQS), and Industrial, Commercial and Institutional Boiler Maximum Available Control Technology (ICI Boiler MACT) – which have compliance timeframes consistent with the 2018 RPG date.
- The state met its contribution and reduction obligations. Wisconsin sources were achieving NOx and SO_2 emission reductions as rapidly as Michigan and Minnesota, in particular through anticipated BART and CSAPR emission reductions.
- The state fulfilled requests by other states. Minnesota's request that Wisconsin reduce EGU emission rates for SO_2 was met, primarily through anticipated CSAPR emission reductions.

Additional details about Wisconsin's BART determinations, the setting of RPGs for the northern Class I areas, and satisfaction of other regional haze rule requirements can be found in Wisconsin's haze SIP.

[5] See the preamble to the current regional haze rule at 64 FR 35730-35734.
[6] See Appendix 1 for a list of the "on-the-books" control measures.

Figure 1. Visibility "Glide Paths" and 2018 Modeled Deciview Values for Northern Class I Areas.[a]



Source: Regional Air Quality Analyses for Ozone, $PM_{2.5}$, and Regional Haze: Technical Support Document. Lake Michigan Air Directors Consortium.

[a] Visibility estimates are for the 20% worst days. The visibility estimates for 2018 reflect "on-the-books" controls for the 2005 base year.

3. Elements of Wisconsin's Regional Haze Periodic Report

3.1. Status of Measures in SIP

40 CFR 51.308(g)(1) requires that the five-year periodic report contain: "*A description of the status of implementation of all measures included in the implementation plan for achieving reasonable progress goals for mandatory Class I Federal areas both within and outside the State.*"

As mentioned in section 2, Wisconsin included several control measures in its haze SIP for achieving the RPGs for the Class I areas in Michigan and Minnesota. The following is a description of the status of these measures.

BART and CSAPR for EGUs

Wisconsin's haze SIP relied on NOx and SO_2 emission reductions from CAIR or its replacement, CSAPR. Wisconsin emissions under CSAPR are lower than CAIR statewide. EPA determined that CSAPR fully satisfied EGU BART requirements under the regional haze rule (*77 FR 33642*). Individual EGUs across all of the major utilities in

Wisconsin are also subject to specific NOx and SO_2 emission limitations as entered under federal consent decrees, and many of the controls that have been implemented or planned to be implemented as a result of CAIR requirements are also included as part of these consent decrees.[7] The significant contribution towards reasonable progress through implementation of CAIR and CSAPR in Wisconsin is indicated by the large NOx and SO_2 emission reductions from these sources as described in section 3.2. EPA also recently finalized an update to CSAPR on October 26, 2016 (*81 FR 74504*) which is expected to further reduce NOx emissions during the ozone season. This reduction in NOx emissions would further improve visibility at the federal Class I areas.

EGUs under Wisconsin's haze SIP were required to implement BART for PM control. WDNR determined that existing PM control equipment (electrostatic precipitator or baghouse) and permit limitations satisfied BART for all but two units. BART PM at those two remaining units (Alliant Energy – Columbia boilers B21 and B22) was determined to be a combination of dry flue gas scrubber and baghouse filtration to be placed into service in 2014. The current, federally-enforceable permit PM limitations for the Columbia units reflect these controls and are much lower than what was included in Wisconsin's haze SIP (0.025 instead of 0.6 Lb/mmBtu on boiler B21, and 0.0195 instead of 0.1 Lb/mmBtu on boiler B22).[8]

BART for Non-EGUs

WDNR determined that the Green Bay Georgia-Pacific facility was the only non-EGU source subject to BART. The BART control evaluation was required by s. NR 433, Wis. Adm. Code. A key element of Wisconsin's haze SIP is an Administrative Consent Order establishing emission limits satisfying the BART requirements for Georgia-Pacific.[9] Georgia-Pacific's BART controls and emission limitations for the BART affected boilers are provided in Table 1.

Georgia-Pacific's Administrative Consent Order provided a baseline set of emission limits and three alternative sets of emission limits (Table 2), and required the company to select an alternative and notify WDNR and EPA Administrator by July 15, 2013 such that one of these sets of emission limits for Georgia-Pacific would become permanent and enforceable. The BART requirements would then become effective January 1, 2016. Georgia-Pacific notified WDNR and EPA on July 9, 2013 that it would comply with the "Mass Cap 2" alternative limits from Table 2.[10]

[7] See Appendix 2 for the consent decree control measures and emission limitations.
[8] Permit Number 111003090-P32 , issued by the Wisconsin Department of Natural Resources on October 12, 2016, to Wisconsin Power & Light for its Columbia Energy Center.
[9] Administrative Consent Order Number 405032870, issued by the Wisconsin Department of Natural Resources on June 8, 2012, to Georgia-Pacific Consumer Products LP.
[10] The notification letter is included as Appendix 3.

Table 1. BART Determination and Emission Limitations for Boilers B26 and B27 at Georgia-Pacific.[a]

Unit		NOx BART	NOx BART Limit [b]	SO_2 BART	SO_2 BART Limit [b]
Stoker boiler	B26	Overfire Air/Flue Gas Recirculation/Selective Non-catalytic Reduction	110 tons per 30-day period on stack S10; 977 tons per 12-month period on stack S10	Dry FGD	268 tons per 30-day period on stack S10; 2,340 tons per 12-month period on stack S10
Cyclone boiler	B27	Overfire Air/Regenerative Selective Catalytic Reduction			

FGD = Flue gas desulfurization.

[a] The finalized PM BART requirement for BART coal boilers B26 and B27 is the existing baghouse emission limitation of 0.30 Lb/mmBtu.

[b] Flue gas from B26 and B27 are combined into a common flue duct with flue gas from two non-BART coal boilers (B25 and B28), en route to stack S10. Note: boiler B25 was shut down in 2013.

Table 2. NOx and SO_2 BART Alternate Compliance Requirements at Georgia-Pacific.[a]

	30-day rolling		12-month rolling	
	SO_2	NOx	SO_2	NOx
BART	268	110	2,340	977
Mass Cap 1	246	121	2,150	1,072
Mass Cap 2 [b]	195	147	1,700	1,297
Mass Cap 3	143	172	1,250	1,522

[a] Mass caps are applied to the common stack S10.

[b] Georgia-Pacific's chosen compliance alternative.

Other Federal and State Programs

In addition to meeting the EGU CSAPR program and other EGU and non-EGU BART requirements described above, Wisconsin relied on several other control measures in its haze SIP for achieving the RPGs. These control measures were used for the "on the books" 2018 emission inventory generated as part of the MRPO-state consultation process.[11] The status of these different control measures is described below.

EGU Point Sources

Title IV (Phases I and II) – The Acid Rain Program (ARP), established under Title IV of the 1990 CAA Amendment requires major emission reductions of NOx and SO_2 from the

[11] See Appendix 1 for a list of these control measures.

power sector. The SO_2 program sets a permanent cap on the total amount of SO_2 that may be emitted by EGUs in the contiguous United States. The program was phased in, with the final 2010 SO_2 cap set at 8.95 million tons. NOx reductions under the ARP are achieved through a program that applies to a subset of coal-fired EGUs and is closer to a traditional, rate-based regulatory system. Since the program began in 1995, the ARP has achieved significant emission reductions and continues to limit emissions of NOx and SO_2.

NOx SIP Call – This was the first transport rule, promulgated by EPA in 2003. These EGU requirements were subsequently subsumed by the CAIR rule.

Mercury and Air Toxics (MATS) National Emission Standard for Hazardous Air Pollutants (NESHAP) – On February 16, 2012 EPA promulgated the MATS rule under part 63 subpart UUUUU. Emission requirements were fully applicable by April 16, 2015. Affected sources were required to conduct energy assessments and combustion tuning to ensure complete combustion of organic HAPs.

Other Point Sources

State NO_x RACT – Wisconsin has implemented RACT for major NO_x sources (sources with a potential to emit of 100 tons or greater per year) in southeast Wisconsin as part of compliance requirements for the 1997 ozone NAAQS. The NOx RACT requirements are codified under ss. NR 428.20 to 428.25, Wis. Adm. Code and became applicable May 1, 2009. The largest sources of NOx in the state – coal-fired boilers larger than 1,000 mmBtu/hr – were subject to a deeper RACT control level beginning May 1, 2013.

Volatile Organic Compound (VOC) MACT Standards – A number of federal NESHAP rules – also known as MACT rules – have been implemented to control HAPs. These rules include requirements to control organic HAPs by ensuring complete combustion of fuels or implementing requirements for emissions of total hydrocarbons. Under either approach, the rules act to reduce total VOCs (also known as reactive organic gases, or ROGs) emitted by the affected sources. VOCs can also contribute to haze formation. These NESHAP rules apply to both major and area source facilities. Major sources are those facilities emitting more than 10 tons per year of a single HAP or more than 25 tons per year of all HAPs in total. Area sources are those facilities that emit less than the major source thresholds for HAPs. The key NESHAP rules relied on for Wisconsin's haze SIP are as follows:

- Major Source ICI Boiler and Process Heater NESHAP. On March 21, 2011 EPA promulgated the "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters" under part 63 subpart DDDDD. This NESHAP requires all boilers and process heaters, including natural gas fired units, at major source facilities to perform an initial energy assessment and perform periodic tune-ups by January 31, 2016. This action is intended to ensure complete combustion of organic HAPs.

- Area Source (Non-Major Point Sources) ICI Boiler and Process Heater NESHAP. On March 21, 2011 EPA promulgated the "National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers" under part 63 subpart JJJJJJ. This NESHAP requires solid fuel and oil fuel fired boilers operated by sources that are below the major source threshold to begin periodic combustion tuning by March 21, 2014.

- Internal Combustion Engine Rules. EPA has promulgated three rules which limit the total amount of hydrocarbon emissions from internal combustion engines. These rules implement limitations both prior to and after 2011 based on compliance dates. These rules also act to continuously reduce emissions as existing stationary engines are replaced by new, cleaner-burning engines:
    - "National Emission Standards for Hazardous Pollutants for Reciprocating Internal Combustion Engines" (RICE MACT) was promulgated on June 15, 2004 under Part 63, subpart ZZZZ and revised in January 2008 and March 2010, with the two revisions impacting additional RICE units;
    - "Standards of Performance for Stationary Spark Ignition Internal Combustion Engines" promulgated on January 18, 2008 under Part 60, subpart JJJJ;
    - "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines promulgated on July 11, 2006 under Part 60, subpart IIII.

- Combustion Turbine MACT. On March 5, 2004, EPA issued requirements to reduce VOC emissions from stationary combustion turbines. These requirements apply to turbines used at facilities such as power plants, chemical and manufacturing plants, and pipeline compressor stations. This rule limits the amount of air pollution that may be released from exhaust stacks of stationary combustion turbines built after January 14, 2003.

On-road Mobile Source Programs

Federal Motor Vehicle Emission Control Program – Both NOx and VOC emissions from on-road mobile sources are substantially controlled through federal new vehicle emission standards programs and fuel standards (listed in Table 4). These regulations have continued to reduce emissions in Wisconsin as newer vehicles enter the fleet.

Inspection and maintenance (I/M) programs – The Wisconsin-administered I/M program is an ongoing program that limits onroad NOx and VOC emissions in southeastern Wisconsin counties. The Wisconsin I/M program was first implemented in 1984 and has gone through several modifications and enhancements since that time. The I/M program requirements are codified in ch. NR 485, Wis. Adm. Code. The I/M program reduces average vehicle NOx and VOC emissions and garners some level of continued incremental reduction as fleets turn over to new vehicles.

Reformulated gasoline – The CAA has required the use of reformulated gasoline (RFG) in southeast Wisconsin since 1995. The RFG program has gone through three phases since its initiation. As with the I/M program, the RFG program reduces average vehicle NOx and VOC emissions and garners some level of continued incremental reduction as fleets turn over to new vehicles.

Table 4. Federal On-road Mobile Source Regulations.

On-road Control Program	Pollutants	Model Year [a]	Regulation
Passenger vehicles, SUVs, and light duty trucks – emissions and fuel standards	NOx & VOC	2004 – 2009+ (Tier 2) 2017+ (Tier 3)	40 CFR Part 85 & 86
Light-duty trucks and medium duty passenger vehicle – evaporative standards	VOC	2004 – 2010	40 CFR Part 86
Heavy-duty highway compression engines	NOx & VOC	2007+	40 CFR Part 86
Heavy-duty spark ignition engines	NOx & VOC	2005 – 2008+	40 CFR Part 86
Motorcycles	NOx & VOC	2006 – 2010 (Tier 1 & 2)	40 CFR Part 86
Mobile Source Air Toxics – fuel formulation, passenger vehicle emissions, and portable container emissions	Organic Toxics & VOC	2009 – 2015 [b]	40 CFR Part 59, 80, 85, & 86
Light duty vehicle corporate average fuel economy (CAFE) standards	Fuel efficiency (NOx & VOC)	2012 – 2016 & 2017 – 2025	40 CFR Part 600

[a] The range in model years affected can reflect phasing of requirements based on engine size or initial years for replacing earlier tier requirements.

[b] The range in model years reflects phased implementation of fuel, passenger vehicle, and portable container emission requirements as well as the phasing by vehicle size and type.

Non-road Mobile Source Programs

Similar to onroad sources, NOx and VOCs emitted by non-road mobile sources are significantly controlled via federal standards for new engines. Table 5 lists non-road source categories and applicable federal regulations.

The nonroad regulations continue to slowly decrease average unit and sector total emissions as equipment fleets are replaced each year, pulling the dirtiest equipment out of circulation. The new engine tier requirements are implemented in conjunction with fuel programs regulating fuel sulfur content. The fuel programs enable achievement of various new engine tier NOx and VOC emission limits. The RFG program noted in the onroad control measures also contributes to lower NOx and VOC emissions from the nonroad mobile sector.

Table 5. Federal Non-road Mobile Source Regulations.

Nonroad Control Program	Pollutants	Model Year [a]	Regulation
Compression Ignition [b]	NMHC & NOx	2000 – 2015+ (Tier 4)	40 CFR Part 89 & 1039
Large Spark Ignition	HC & NOx	2007+	40 CFR Part 1048
Locomotive Engines	HC & NOx	2012 – 2014 (Tier 3) 2015+ (Tier 4)	40 CFR Part 1033
Marine Compression Ignition	HC & NOx	2012 – 2018	40 CFR Part 1042
Marine Spark Ignition	HC & NOx	2010+	40 CFR Part 1045
Recreational Vehicle [c]	HC & NOx	2006 – 2012 (Tier 1 – 3) (phasing dependent on vehicle type)	40 CFR Part 1051
Small Spark Ignition Engine < 19 Kw – emission standards [d]	HC & NOx	2005 – 2012 (Tier 2 & 3) (phasing based on both Tier and engine size)	40 CFR Part 90 & 1054
Small Spark Ignition Engine < 19 Kw – evaporative standards	HC & NOx	2008 – 2016 (phasing based on both engine size and category)	40 CFR Part 1045, 54, & 60

HC = Hydrocarbon (VOCs)
NMHC = Non-Methane Hydrocarbon (VOCs)
[a] The range in model years affected can reflect phasing of requirements based on engine size or initial years for replacing earlier tier requirements.
[b] Compression ignition applies to diesel non-road compression engines including engines operated in construction, agricultural, and mining equipment.
[c] Recreational vehicles include snowmobiles, off-road motorcycles, and ATVs.
[d] Small spark ignition engines include engines operated in lawn and hand-held equipment.

Area Sources

Wisconsin has implemented many VOC RACT/Control Techniques Guidelines (CTGs) rules under ss. NR 419 through 424, Wis. Adm. Code. A number of these rules limit VOC emissions from area sources, as noted in Appendix 4. There are also a number of federal programs in place which reduce area source VOC emissions. VOC emission standards for consumer and commercial products were promulgated under 40 CFR Part 59. This program will continue to limit VOCs emitted from this source category. Another federal rule, the area source hazardous air pollutant control rule, also controls area source VOC emissions associated with fuel storage and transfer activities (40 CFR 63, Subparts R, BBBBBB, and CCCCCC).

3.2. Emission Reductions

40 CFR 51.308(g)(2) requires: "*A summary of the emission reductions achieved throughout the State through implementation of the measures described in paragraph (g)(1) of this section.*"

This section discusses historic NOx and SO_2 emissions from elevated point sources in Wisconsin because those pollutants and sources were found by the Lake Michigan Air Directors Consortium (LADCO) to be responsible for most visibility impairment attributable to Wisconsin at the northern Midwest Class I areas. The 2018 emissions target for point sources from Wisconsin's haze SIP is also included for comparison. Historic emissions from EGU point sources (the sources that supply electricity to the grid for sale) were obtained primarily from EPA's Clean Air Markets Division (CAMD) EGU database, or the Wisconsin Air Emissions Inventory (AEI) if CAMD data was not available for the facility (e.g., for EGU facilities less than 25 MW). Non-EGU point source historic emissions were obtained from the Wisconsin AEI.

Overall Point Source Emissions

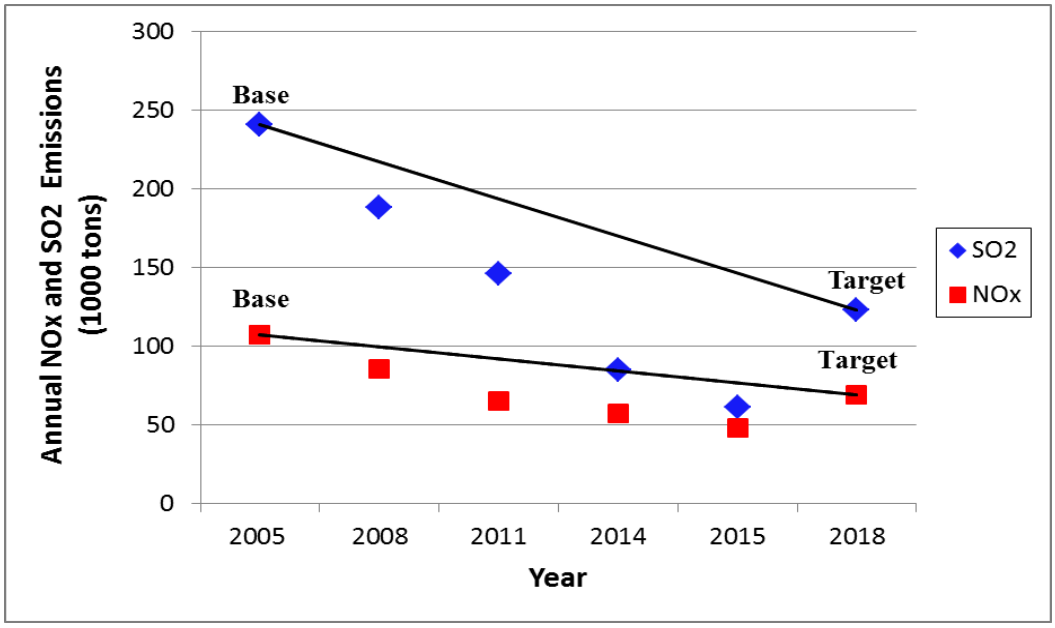
Table 6 provides a summary of the changes in the NOx and SO_2 emissions from Wisconsin EGU and non-EGU point sources since the 2005 base year, and Figure 2 provides this information graphically. Note that total statewide emissions for all sectors are shown in section 3.4.

Table 6. Annual NOx and SO_2 Actual (2005–2015) and Target (2018) Emissions for Wisconsin EGUs and Non-EGUs.

Sector	Emissions (Tons)					
	2005	2008	2011	2014	2015	2018 Target [a]
NOx						
Point – EGU	71,416	47,380	31,003	21,608	20,135	36,047
Point – Non-EGU	36,030	38,097	34,599	35,705	28,365	33,363
TOTAL	**107,446**	**85,477**	**65,602**	**57,313**	**48,500**	**69,410**
SO_2						
Point – EGU	181,430	129,698	91,292	39,939	25,297	75,007
Point – Non-EGU	59,778	58,373	54,685	45,289	36,346	48,147
TOTAL	**241,208**	**188,071**	**145,977**	**85,228**	**61,644**	**123,154**

[a] From Wisconsin's haze SIP (see "Adjusted Emissions" section, pages 15-20). The 2018 target presented here, for the purpose of comparing with historic emission trends, is based in part on the EGU "Case B" projected 2018 emissions which is the lowest of the two primary EGU "Cases" in the haze SIP (lower by 22,778 and 63,697 tons/year NOx and SO_2, respectively, than the EGU "Case A" projected 2018 emissions modeled by LADCO). "Case B" emissions were selected because they are based on more recent (May 2011) committed SO_2 controls.

Figure 2. Annual NOx and SO_2 Emissions (Tons per Year) for Wisconsin EGUs and Non-EGUs from 2005 Base to 2018 Target.[a]



[a] Target is from Wisconsin's haze SIP (see "Adjusted Emissions" section, pages 15-20). The 2018 target presented here, for the purpose of comparing with historic emission trends, is based in part on the EGU "Case B" projected 2018 emissions which is the lowest of the two primary EGU "cases" in the haze SIP (lower by 22,778 and 63,697 tons/year NOx and SO_2, respectively, than the EGU "Case A" projected 2018 emissions modeled by LADCO). "Case B" emissions were selected because they are based on more recent (May 2011) committed SO_2 controls.

Individual Point Source Emissions

As discussed in Wisconsin's haze SIP, the MRPO-states consultation effort (started in 1999) for the first implementation period for regional haze also produced a list of the top 30 sources affecting visibility in each of the northern Class I areas. Wisconsin sources on this list for Seney and Isle Royale are shown in Table 7.

For each source, a relationship of emissions and distance was determined by dividing the emission rate (Q) by the distance to the Class I area (D). The resulting Q/D ratio is a simple metric for assessing the potential contribution of a source to the visibility impact of a specific Class I area. The sources with the largest Q/D values were expected to have the largest visibility impact. In compiling the Q/D information, the MRPO used the "on the books" 2018 inventory, which included any future committed control measures that were known as of 2007. Table 7 provides a comparison between each source's actual emissions in 2005 (the "base" year for Wisconsin's haze SIP) and the most recent actual emissions from 2015. Appendix 2 provides the most recent committed control measures and emission limitations that have contributed to emission reductions at these sources, and shows where the sources are located geographically.

Point Source Emissions Summary

As shown in Figure 2 and Tables 6 and 7, point source NOx and SO_2 emissions decreased significantly from 2005 to 2015 and are already below the 2018 targets. Sector-wide NOx and SO_2 point source emissions have decreased by 55% and 74%, respectively. The large decreases in EGU emissions (72% NOx and 86% SO_2) are from implementation of a combination of shutdowns, fuel switching and emission controls, primarily to comply with the CAIR/CSAPR and federal consent decree emission limitations. Significant NOx and SO_2 decreases at non-EGUs (21% NOx and 39% SO_2) are due to BART at the Georgia-Pacific Green Bay paper mill, as well as facilities shutting down coal boilers (and in some cases replacing with gas boilers) to comply with federal regulations, such as the ICI Boiler MACT (see also Appendix 2).

As shown in Table 7, emissions from the highest impacting Wisconsin point sources for both Seney and Isle Royale have also been significantly reduced (62% for NOx and 70% for SO_2). These large emission reductions are expected to have significantly reduced the visibility impact on the northern Class I areas. There are also several additional committed controls that will be implemented after 2015, which will contribute to Wisconsin being even further below the 2018 emissions targets for point source NOx and SO_2 emissions (see Appendix 2).

Table 7. Wisconsin Sources Contributing to Visibility Impairment at Isle Royale and Seney Class I Areas.[a]

Facility ID	Name	$(Q/D)_{NOx} + (Q/D)_{SO2}$ (Lbs/min/km) [b]	Actual 2005 Emissions (tons) [c]		Actual 2015 Emissions (tons) [c]		% Change, 2005 to 2015	
			SO_2	NO_x	SO_2	NO_x	SO_2	NO_x
460033090	Alliant Energy - Edgewater	0.263	16,844	6,064	10,619	1,453	-37%	-76%
111003090	Alliant Energy - Columbia	0.254	26,099	5,851	1,283	3,350	-95%	-43%
606034110	Dairyland Power Coop – Alma	0.22	16,581	8,305	704	2,072	-96%	-75%
405032870	Georgia Pacific	0.178	12,220	3,910	7,716	2,324	-37%	-41%
737009020	WPSC – Weston	0.175	13,531	8,301	4,099	1,513	-70%	-82%
241007800	We Energies – Valley	0.131	8,483	3,896	1,067	557	-87%	-86%
405031990	WPSC – JP Pulliam	0.129	12,176	9,234	959	524	-92%	-94%
445031180	Expera Specialty Solutions – Kaukauna	0.095	9,090	2,019	7,560	1,699	-17%	-16%
802033320	Xcel Energy – Bay Front	0.094	1,196	1,527	89	318	-93%	-79%
735008010	PCA – Tomahawk	0.091	6,131	1,557	1,757	691	-71%	-56%
663020930	Dairyland Power Coop – Genoa	0.087	13,073	3,716	401	777	-97%	-79%
241007690	We Energies – Oak Creek	0.073	12,903	4,650	713	3,945	-94%	-15%
772009480	Catalyst – Biron Mill [d]	0.054	5,158	2,133	6,861	2,194	33%	3%
744008100	Expera Specialty Solutions – Rhinelander Paper	0.044	2,451	1,618	2,310	1,398	-6%	-14%
438039360	New Page Wisconsin Systems, Inc. – Niagara Mill	0.041	1,327	773	0	0	-100%	-100%
772010690	Domtar A. W. LLC – Nekoosa	0.037	3,728	1,289	938	302	-75%	-77%
405032210	Procter & Gamble Paper – Fox River	0.03	1,650	821	565	583	-66%	-29%

Facility ID	Name	$(Q/D)_{NOx} + (Q/D)_{SO2}$ (Lbs/min/km) [b]	Actual 2005 Emissions (tons) [c]		Actual 2015 Emissions (tons) [c]		% Change, 2005 to 2015	
			SO_2	NO_x	SO_2	NO_x	SO_2	NO_x
772010140	Wisconsin Rapids Mill Fiber and Energy Mill [d]	0.024	1,239	2,147	1,421	1,387	15%	-35%
445030960	Kimberly Mill	0.021	1,835	737	0	0	-100%	-100%
816009590	Calumet Superior	0.021	882	608	21	374	-98%	-39%
737009570	Wausau Paper Mills, LLC [d]	0.017	1,367	618	1,498	725	10%	17%
TOTAL			**167,964**	**69,774**	**50,580**	**26,187**	**-70%**	**-62%**

[a] Also note that the existing/future control measures, known as of October 2016, are shown in Appendix 2.

[b] Q/D values are from MRPO-states consultation process (highest Q/D value between the two Michigan Class I areas is provided). "Q" is emission rate based on "on the books" 2018 inventory which included any future committed control measures known as of 2007. "D" is the distance to the closest class I area. See Appendix 2 for a different, more current set of Q/D values based on 2015 annual emissions.

[c] Reported to the WDNR Air Emissions Inventory.

[d] Although 3 facilities show increased emissions for 2005–2015, there are large NOx and SO_2 reductions overall for the point sources in Table 7 above. In addition, one of these 3 facilities (Catalyst – Biron Mill) will implement control measures by Jan. 2017 (see Appendix 2) that will significantly reduce its emissions below the 2005 emissions.

3.3. Visibility Conditions

The requirements of 40 CFR 51.308(g)(3) relate to assessments of visibility conditions and apply only to states that contain Class I areas. Wisconsin does not have any Class I areas subject to the regional haze rule.

3.4. Emissions Tracking

40 CFR 51.308(g)(4) requires: "*An analysis tracking the change over the past 5 years in emissions of pollutants contributing to visibility impairment from all sources and activities within the State. Emissions changes should be identified by type of source or activity. The analysis must be based on the most recent updated emissions inventory, with estimates projected forward as necessary and appropriate, to account for emissions changes during the applicable 5-year period.*"

To satisfy the required analysis of emissions over the past 5 years, this section first looks at the change in emissions from the different sectors for two EPA National Emissions Inventory (NEI) years, 2008 and 2014. Total emissions for 2005 (base year) and 2018 (target year) from Wisconsin's haze SIP are then included for comparison in order to provide a fuller context for evaluating the recent historic emission trends.

2008 to 2014 Emission Trends

The methodology and sources of information used for estimating Wisconsin's 2008 and 2014 emissions for each sector are as follows:

- EGU and non-EGU point source NOx and SO_2 emissions were estimated as described in section 3.2. The Wisconsin AEI was used for point source NH_3, PM_{10}, $PM_{2.5}$ and ROG emissions, except for EGU $PM_{2.5}$ emissions. To estimate EGU $PM_{2.5}$ emissions, WDNR staff used the EGU $PM_{2.5}/PM_{10}$ ratio (0.843) of projected 2018 emissions from Wisconsin's haze SIP (see Table 3B of the haze SIP).[12]
- Area source 2008 emissions are from the 2007/2008 inventory developed by LADCO based on 2008 NEI data.[13] Since LADCO's 2014 inventory was not yet available, area source 2014 emission estimates were interpolated from LADCO's 2011 (constructed based on the 2011 NEI version 2 data) and 2021 inventories, except for PM_{10} emissions. WDNR staff used LADCO's 2014/2008 ratio (1.024) for area source $PM_{2.5}$ to grow the 2008 PM_{10} emissions to 2014.
- Mobile on-road and off-road 2014 emissions were estimated using 2014 NEI version 1. On-road and off-road 2008 emission estimates were back-casted from

[12] This methodology is consistent with the methodology used in Wisconsin's haze SIP to estimate EGU $PM_{2.5}$ emissions for 2005.
[13] LADCO's BaseC Version 8 2007/2008 Inventory (November 2011). Online. http://www.ladco.org/tech/emis/current/index.php. November 4, 2016.

2014 NEI version 1 using MOVES2014a, due to significant changes in the MOVES model since the 2008 NEI was built.

- Marine and rail emissions were estimated using 2008 NEI version 3 and 2014 NEI version 1. Aircraft 2014 emissions were estimated using 2014 NEI version 1; however, aircraft 2008 emission estimates were set equal to the 2011 NEI version 2 values, due to changes in the aircraft emission estimate methodology from 2008 to 2014.
- Animal emissions were based on 2008 NEI version 3 and 2014 NEI version 1.

Wisconsin's sector-level emissions for 2008 and 2014 are shown in Tables 8 and 9.

Table 8. Summary of Wisconsin Emissions for 2008.

Category	2008 Emissions (Tons)					
	NH_3	NOx	PM_{10}[a]	$PM_{2.5}$[a]	ROG	SO_2
Point – EGU	520	47,380	4,231	3,568	1,117	129,698
Point – Non-EGU	428	38,097	8,723	Not reported	26,170	58,373
Area	2,865	26,734	40,023	38,256	124,298	6,232
On-road	2,441	142,166	7,869	5,195	66,686	616
Off-road	58	46,773	5,018	4,753	98,567	808
Animal	82,453	0	0	0	0	0
MAR	11	25,807	1,047	587	643	1,250
TOTAL	**88,776**	**326,956**	**66,912**	**52,358**	**317,483**	**196,977**

MAR = Marine, aircraft, and rail.
[a] Direct PM emissions only.

Table 9. Summary of Wisconsin Emissions for 2014.

Category	2014 Emissions (Tons)					
	NH_3	NOx	PM_{10}[a]	$PM_{2.5}$[a]	ROG	SO_2
Point – EGU	1,273	21,608	3,396	2,864	831	39,939
Point – Non-EGU	884	35,705	10,214	184	23,388	45,289
Area	2,913	22,936	40,998	39,187	109,324	2,858
On-road	2,044	103,016	6,381	3,733	51,710	585
Off-road	64	35,214	3,897	3,682	72,261	92
Animal [b]	32,456	0	0	0	0	0
MAR	8	18,088	690	627	1,096	303
TOTAL	**39,642**	**236,568**	**65,576**	**50,278**	**258,611**	**89,067**
% change from 2008	-55.3%	-27.6%	-2.0%	-4.0%	-18.5%	-54.8%

MAR = Marine, aircraft, and rail.
[a] Direct PM emissions only.
[b] The large decrease in NH_3 emissions was due in part to a change in modeling methodology for the animal sector between the 2008 NEI and 2014 NEI.

Tables 8 and 9 show that NOx and SO_2 emissions decreased significantly from 2008 to 2014: NOx emissions decreased by 27.6% and SO_2 emissions decreased by 54.8%. The significant decreases in point source NOx emissions (54% at EGUs and 6% at non-EGUs) and SO_2 emissions (69% at EGUs and 22% at non-EGUs) are discussed in section 3.2. Mobile source (on-road and off-road) controls resulted in significant NOx emissions reductions of 27%. For the other pollutant emissions: PM_{10} and $PM_{2.5}$ emissions decreased by 2.0% and 4.0%, respectively; ROG and NH_3 emissions decreased by 18.5% and 55.3%, respectively.

2005 Base and 2018 Target Emissions from Wisconsin's Haze SIP

Wisconsin's sector-level emissions for 2005 and 2018 are provided in Tables 10 and 11. These emission estimates are from Wisconsin's haze SIP.

Table 10. Summary of Emissions for 2005 from Wisconsin's Haze SIP.[a]

Category	2005 Emissions (Tons)					
	NH_3	NOx	PM_{10}[b]	$PM_{2.5}$[b]	ROG	SO_2
Point – EGU	510	71,416	3,970	3,348	1,667	181,430
Point – Non-EGU	332	36,030	7,590	48	27,186	59,778
Area	2,242	21,906	41,596	41,339	113,965	8,909
On-road	6,501	150,975	1,155	2,574	57,783	3,036
Off-road	52	48,962	5,409	5,145	97,237	4,955
Animal	113,611	0	0	0	0	0
MAR	12	20,047	774	689	1,392	2,448
TOTAL	**123,260**	**349,336**	**60,494**	**53,143**	**299,230**	**260,556**

MAR = Marine, aircraft, and rail.

[a] See Table 3A of Wisconsin's haze SIP.

[b] Direct PM emissions only.

Table 11. Summary of Projected Emissions for 2018 from Wisconsin's Haze SIP.

Category	2018 Emissions (Tons) [a]					
	NH_3	NOx	PM_{10}[b]	$PM_{2.5}$[b]	ROG	SO_2
Point – EGU	683	36,047	8,827	7,445	1,179	75,007
Point – Non-EGU	419	33,363	9,109	47	34,204	48,147
Area	2,856	22,804	50,047	49,744	109,427	7,998
On-road	7,326	45,705	1,221	1,287	22,572	660
Off-road	58	25,611	2,712	2,555	60,720	70
Animal	103,388	0	0	0	0	0
MAR	8	9,346	315	275	704	1,157
TOTAL	**114,738**	**172,876**	**72,231**	**61,353**	**228,806**	**133,039**

MAR = Marine, aircraft, and rail.

[a] NH_3, PM_{10}, $PM_{2.5}$ and ROG emissions are from Table 3B of the haze SIP. NOx and SO_2 emissions are from the "Adjusted Emissions" section (pages 15-20) of the haze SIP.

[b] Direct PM emissions only.

Comparison of 2008 to 2014 Emission Trends with 2005 Base and 2018 Target Emissions from Wisconsin's Haze SIP

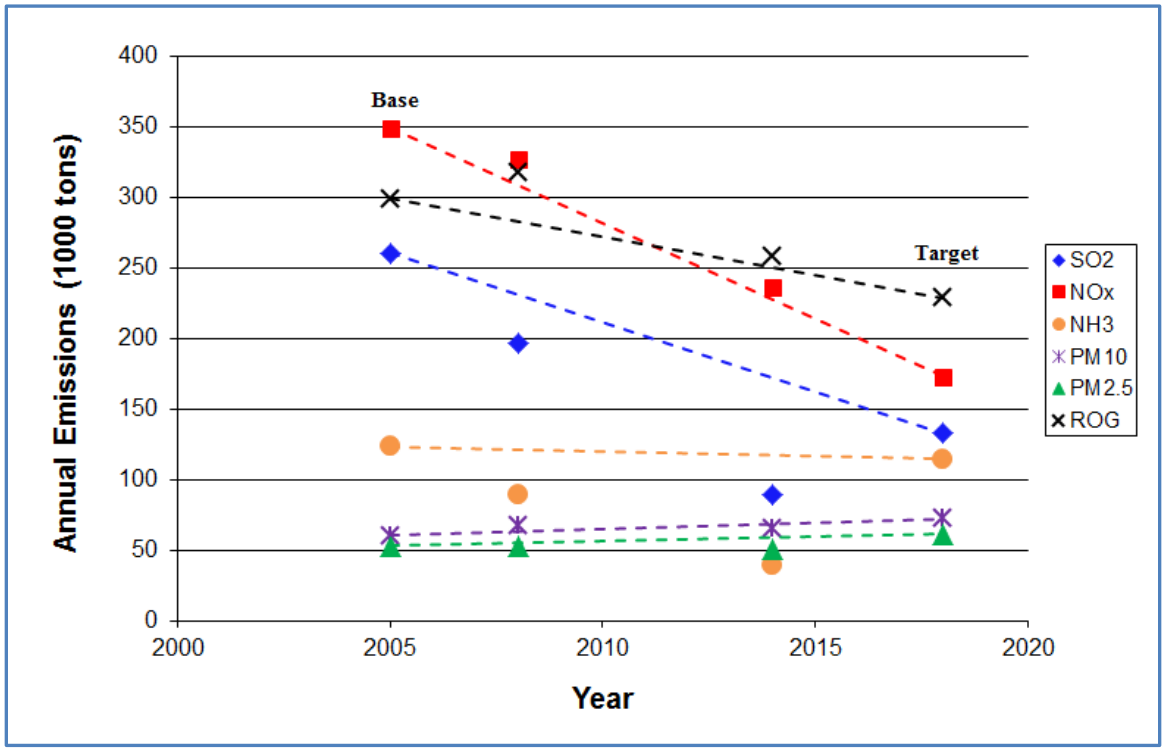
Table 12 shows Wisconsin total emissions for 2005, 2008, 2014 and projected 2018. Figure 3 shows the changes in Wisconsin's total emissions graphically from 2005 to 2018.

Table 12. Comparison of Wisconsin Emissions from 2005 to 2018.

Year	Emissions (Tons)					
	NH_3	NOx	PM_{10}[a]	$PM_{2.5}$[a]	ROG	SO_2
2005 Base from Haze SIP	123,260	349,336	60,494	53,143	299,230	260,556
2008	88,776	326,956	66,912	52,358	317,483	196,977
2014	39,642	236,568	65,576	50,278	258,611	89,067
2018 Target from Haze SIP	114,738	172,876	72,231	61,353	228,806	133,039
% change, 2005-2014	-67.8%	-32.3%	8.4%	-5.4%	-13.6%	-65.8%
% change, 2005-2018	-6.9%	-50.5%	19.4%	15.4%	-23.5%	-48.9%

[a] Direct PM emissions only.

Figure 3. Comparison of Wisconsin Emissions from 2005 Base to 2018 Target.[a]



[a] The NOx and ROG 2008 and 2014 emissions being higher than the 2005-2018 trend line is expected to be due to changes in the regulatory mobile source models after 2005.

As shown in Table 12 and Figure 3, the 2018 target emissions have already been met for NH_3 and SO_2, due to the sector-specific control measures and emission reductions discussed above for the 2008–2014 time period.

The 2014 NOx and ROG emissions shown in Table 12 and Figure 3 – while having decreased from 2005 – are slightly above the 2005–2018 glidepath. This is because the 2005 mobile on-road and off-road NOx and ROG emission estimates are significantly underestimated (as are the 2018 projected emission estimates, which use the 2005 emissions as a baseline to project from) compared to 2008 and 2014. These underestimates are due to a change in the regulatory mobile source emissions models after 2005.[14] WDNR staff did not adjust the 2005 or 2018 emissions to account for the change in models, but notes these significant underestimations here, as allowed in EPA's 2013 guidance for the five-year progress reports. If these underestimated 2005 and 2018 emissions were corrected, and "revised" 2005–2018 NOx and ROG trend lines developed from this data were shown in Figure 3, then the 2008 and 2014 NOx and ROG emission estimates would likely be below those "revised" trend lines and thus shown to be making more than sufficient progress in emission reductions.

Wisconsin's haze SIP projected that directly-emitted PM_{10} and $PM_{2.5}$ would increase by 2018. The PM_{10} emissions increased by 8.4% from 2005 to 2014; this is consistent with the 19.4% projected increase from 2005 to 2018 in Wisconsin's haze SIP. $PM_{2.5}$ emissions – which are more significant than PM_{10} in terms of visibility impact – have decreased by 5.4% from 2005 to 2014, whereas those emissions were projected to *increase* by 15.4% from 2005 to 2018 in Wisconsin's haze SIP. It should be noted that the PM_{10} emission increases for the 2005–2014 time period – along with the projected PM_{10} and $PM_{2.5}$ emissions increases for the 2005–2018 time period from Wisconsin's haze SIP – are deemed by WDNR to be insignificant relative to the visibility improvements from the large reductions of NOx and SO_2 emissions over those same time periods.

3.5. Assessment of Progress and Elements to Meet RPG

40 CFR 51.308(g)(5) requires: "*An assessment of any significant changes in anthropogenic emissions within or outside the State that have occurred over the past 5 years that have limited or impeded progress in reducing pollutant emissions and improving visibility.*"

40 CFR 51.308(g)(6) requires: "*An assessment of whether the current implementation plan elements and strategies are sufficient to enable the State, or other States with mandatory Federal Class I areas affected by emissions from the State, to meet all established reasonable progress goals."*

[14] The 2008 NEI (which used MOVES2010b) was found by WDNR staff to underestimate by over 23,000 tons NOx and over 12,000 tons ROG, compared to the adjusted 2008 estimates from back-casting the 2014 NEI values using MOVES2014a. Similar underestimated emissions are thus expected for the 2005 mobile sector emission estimates (which were based on MOBILE6) in Wisconsin's haze SIP.

The implementation of control measures and associated significant overall downward trends in emissions discussed in sections 3.1 to 3.4 – in particular for the most impactful pollutants and sectors (NOx and SO_2 from point sources, NOx from mobile sources, and NH_3 from agriculture operations) – supports that: 1) there have been no significant changes in anthropogenic emissions within Wisconsin that have limited or impeded progress in reducing pollutant emissions and improving visibility, and 2) the current implementation plan elements and strategies are sufficient to meet the established RPGs for the Class I areas in Michigan and Minnesota.

3.6. Visibility Monitoring

Wisconsin 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. Wisconsin is not required to perform direct haze monitoring. However, Wisconsin's ongoing monitoring efforts and resulting data will be used to certify and quality assure modeling efforts used in evaluating visibility impacts and contribution – with a focus on the Class I areas in Michigan and Minnesota – via the MRPO process. This approach fulfills section 40 CFR 51.308(d)(4)(iii) of the haze rule.[15]

Wisconsin's monitoring network consists of State and Local Air Monitoring Stations (SLAMS), which are a network of monitoring sites whose size and distribution is largely determined by the monitoring requirements for the National Ambient Air Quality Standards (NAAQS) and the needs of monitoring organizations to meet their respective tribal/state implementation plan (TIP/SIP) requirements, which include National Core Monitoring Network (NCore), Photochemical Assessment Monitoring Stations (PAMS), and all other state or locally operated sites that have not been designated as Special Purpose Monitoring (SPM) sites. WDNR also operates additional networks not required under SLAMS including; Chemical Speciation Network (CSN), Special Purpose Monitoring Sites (SPM), National Air Toxics Trends Network (NATTS) and the National Atmospheric Deposition Program (NADP).

Wisconsin does not operate any monitoring sites under the federal Interagency Monitoring of Protected Visual Environments (IMPROVE) program; however, Wisconsin does operate Speciation Trends Network (STN) sites. Figure 4 illustrates Wisconsin's current ambient monitoring network as described above. Specific site information, including the pollutants measured, site locations (address and latitude/longitude), and the sampling schedule, is found in the WDNR's latest monitoring network plan.[16]

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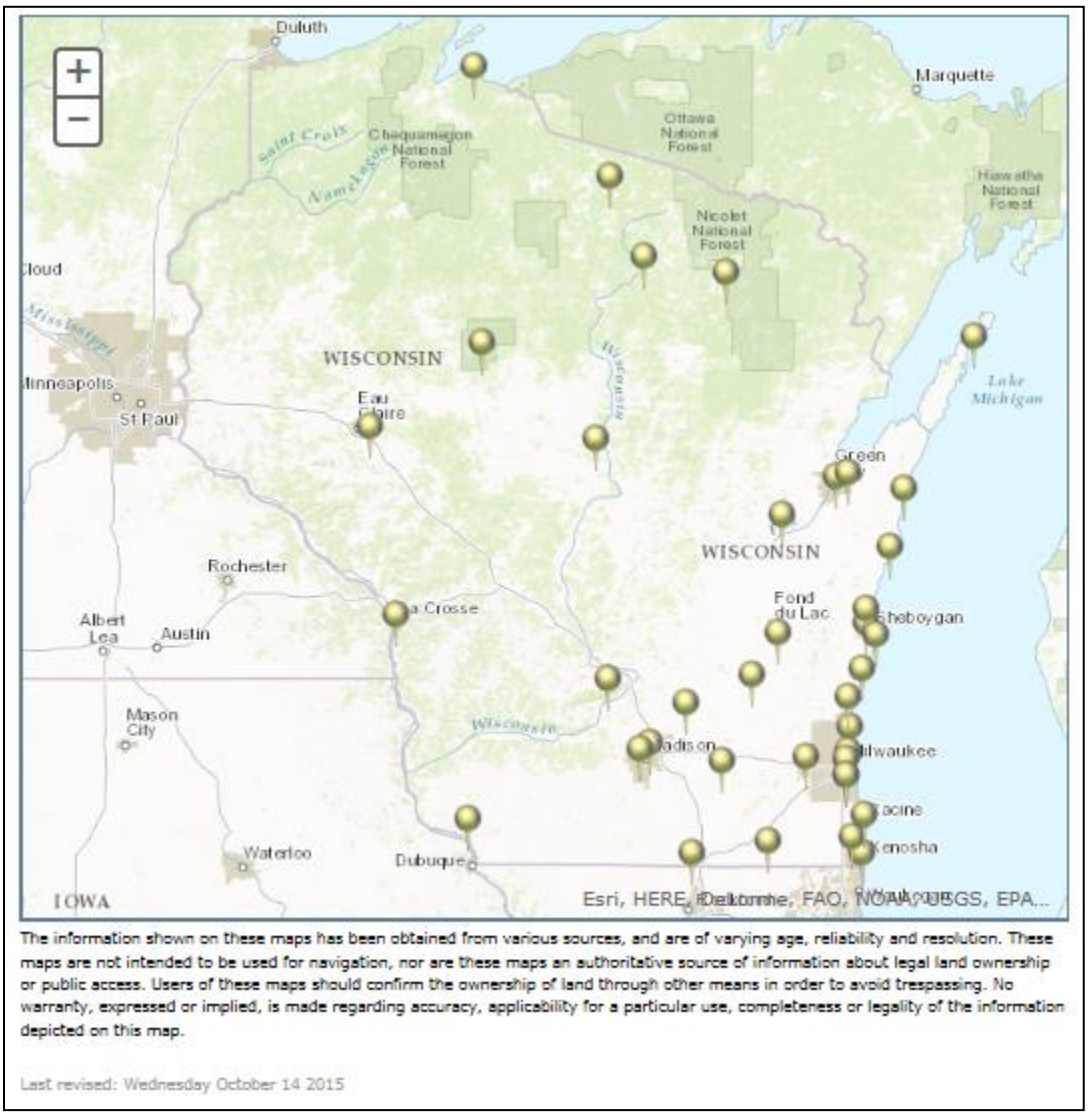
[15] 40 CFR 51.308(d)(4)(iii): *"For a State with no mandatory Class I Federal areas, procedures by which monitoring data and other information are used in determining the contribution of emissions from within the State to regional haze visibility impairment at mandatory Class I Federal areas in other States."*

[16] Network Plan 2016 (June 2015). Wisconsin Department of Natural Resources – Air Monitoring Section. Online. http://dnr.wi.gov/topic/AirQuality/documents/2016NetworkPlanFinal.pdf. November 10, 2016.

Figure 4. Wisconsin Ambient Air Monitoring Locations.[a]



The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. Users of these maps should confirm the ownership of land through other means in order to avoid trespassing. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness or legality of the information depicted on this map.

Last revised: Wednesday October 14 2015

[a] Interactive map can be found at: http://dnr.wi.gov/topic/AirQuality/MonitorMap.html.

3.7. Determination of Plan Adequacy

40 CFR 51.308(h) requires: *"…At the same time the State is required to submit any 5-year progress report to EPA in accordance with paragraph (g) of this section, the State must also take one of the following actions based upon the information presented in the progress report:*

(1) If the State determines that the existing implementation plan requires no further substantive revision at this time in order to achieve established goals for visibility improvement and emissions reductions, the State must provide to the Administrator a negative declaration that further revision of the existing implementation plan is not needed at this time.

(2) If the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources in another State(s) which participated in a regional planning process, the State must provide notification to the Administrator and to the other State(s) which participated in the regional planning process with the States. The State must also collaborate with the other State(s) through the regional planning process for the purpose of developing additional strategies to address the plan's deficiencies.

(3) Where the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources in another country, the State shall provide notification, along with available information, to the Administrator.

(4) Where the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources within the State, the State shall revise its implementation plan to address the plan's deficiencies within one year."

Based upon the evidence presented in this document and the options above, WDNR has determined that its existing, EPA-approved regional haze SIP is adequate to meet the requirements of the regional haze rule and to ensure achievement of the established RPGs for the Class I areas impacted by Wisconsin emissions (Boundary Waters and Voyageurs in Minnesota; and Isle Royale and Seney in Michigan). The plan requires no further substantive revision to achieve established goals for visibility improvement and emissions reductions. Wisconsin will continue to implement the measures of its existing SIP, and begin preparation for the next scheduled regional haze SIP revision due on July 31, 2021.

As required by 40 CFR 51.308(h)(1), Wisconsin declares that further revision of its existing implementation plan is not needed at this time.

4. Procedural Requirements

4.1. Administrative Process

WDNR noticed the draft progress report on WDNR's Public Hearing Notice website and Air Program Input website on January 13, 2017.[17,18] A public hearing on the draft report was held on February 14, 2017 at 1:30 p.m. in Madison, Wisconsin. The public comment period closed on February 17, 2017. No comments were received during the hearing or public comment period. A copy of the public hearing notice and proof of publication are provided in Attachments 2 and 3 of WDNR's SIP submittal package to EPA.

Comments were received from Federal Land Managers (FLMs) as part of the required consultative process; see section 4.2.

4.2. Consultation with Federal Land Managers

40 CFR Part 51.308(i) requires that:

"...(2) The State must provide the Federal Land Manager with an opportunity for consultation, in person and at least 60 days prior to holding any public hearing on an implementation plan (or plan revision) for regional haze required by this subpart. This consultation must include the opportunity for the affected Federal Land Managers to discuss their:
(i) Assessment of impairment of visibility in any mandatory Class I Federal area; and
(ii) Recommendations on the development of the reasonable progress goal and on the development and implementation of strategies to address visibility impairment.

(3) In developing any implementation plan (or plan revision), the State must include a description of how it addressed any comments provided by the Federal Land Managers..."

WDNR sent the draft progress report to the FLMs for their review on December 12, 2016. Comments received from the FLMs were promptly posted on WDNR's Public Hearing Notice website and Air Program Input website. Appendix 5 contains the notification to FLMs, the comments received, and WDNR's response to these comments.

[17] WDNR's Public Hearing Notice website: www.dnr.wi.gov/calendar/hearings/.
[18] WDNR's Air Program Input website: www.dnr.wi.gov/topic/AirQuality/Input.html.

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APPENDIX 1

On-the-Books Control Measures Used in MRPO Analysis [1]

[1] Regional Air Quality Analyses for Ozone, $PM_{2.5}$, and Regional Haze: Technical Support Document. LADCO. Online. http://www.ladco.org/reports/technical_support_document/tsd/tsd_version_iv_april_25_2008_final.pdf. November 2, 2016.

Power Plants:

- Title IV (Phases I and II)
- NOx SIP Call
- Clean Air Interstate Rule

On-road Mobile Source Programs:

- Federal Motor Vehicle Emission Control Program
- Inspection – Maintenance Programs
- Reformulated Gasoline

Non-road Mobile Source Programs:

- Federal Control Programs
- 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

Other Point Sources:

- VOC 2-, 4-, 7-, and 10-year MACT Standards
- Combustion Turbine MACT
- Consent Decrees (refineries, ethanol plants, and ALCOA)
- NOx RACT in Illinois, Ohio and Wisconsin

APPENDIX 2

Northern Sources Control Measures for Wisconsin

Table 1. Wiscsonsin Point Source EGU Existing and Future Control Measures.[a]

FID	Facility	Unit(s)	Control Measures	Emissions Limits	Compliance Date	Additional Control Information [b]	2015 Q/D (Tons/km/yr) [c]
460033090	WPL – Edgewater [d]	B3	Retire	N/A	Jan. 2016	Last operated in 2013.	37.1
		B4	Repower from coal to NG; SNCR/OFA for NOx	NOx: 0.15 Lb/mmBtu	Jan. 2019	NOx: SNCR/OFA @ 0.15 Lb/mmBtu limit as of Jan. 2014. SO_2: 0.52 Lb/mmBtu in 2015 based on annual actual emissions and HI; actual emission rate should be less than 0.01 Lb/mmBtu in 2019 due to firing NG.	
				SO_2: 0.70 Lb/mmBtu			
		B5	NOx: SCR/OFA	NOx: 0.07 Lb/mmBtu	NOx: May 2013		
			SO_2: DFGD	SO_2: 0.075 Lb/mmBtu	SO_2: Jan. 2017		
737009020	WPS - Weston [d]	B1	Retire	N/A	June 2015		18.2
		B2	Repower from coal to NG; LNB/OFA for NOx	NOx: 0.28 Lb/mmBtu	June 2015	NOx: LNB/OFA as of Jan. 2013; 0.15 Lb/mmBtu in 2015 based on annual actual emissions and HI. SO_2: Actual emission rate should be less than 0.01 Lb/mmBtu in 2016 due to firing NG.	
				SO_2: 0.75 Lb/mmBtu			
		B3	ReACT; LNB/OFA for NOx	NOx: 0.10 Lb/mmBtu	Jan. 2017	NOx: LNB/OFA @ 0.13 Lb/mmBtu limit as of Jan. 2014.	
				SO_2: 0.08 Lb/mmBtu			
		B4	NOx: LNB/SCR	NOx: 0.06 Lb/mmBtu	Apr. 2013		
			SO_2: DFGD	SO_2: 0.08 Lb/mmBtu			
241007690	WE – Oak Creek [d]	B1,B2 (Elm Road boilers)	NOx: SCR/LNB	NOx: 0.07 Lb/mmBtu	2010	Coal-fired supercritical units installed in 2010.	11.4

FID	Facility	Unit(s)	Control Measures	Emissions Limits	Compliance Date	Additional Control Information [b]	2015 Q/D (Tons/km/yr) [c]
			SO_2: WFGD	SO_2: 0.15 Lb/mmBtu			
		B5,B6	NOx: SCR	NOx: 0.08 Lb/mmBtu	Jan. 2016		
			SO_2: WFGD	SO_2: 0.08 Lb/mmBtu			
		B7,B8	NOx: SCR/LNB/OFA	NOx: 0.08 Lb/mmBtu	Jan. 2016		
			SO_2: WFGD	SO_2: 0.08 Lb/mmBtu			
111003090	WPL - Columbia [d]	B1	NOx: LNB/OFA	NOx: 0.15 Lb/mmBtu	NOx: July 2013		11.2
			SO_2: DFGD	SO_2: 0.075 Lb/mmBtu	SO_2: Jan. 2015		
		B2	NOx: SCR/LNB/OFA	NOx: 0.07 Lb/mmBtu	NOx: Jan. 2019	NOx: LNB/OFA @ 0.15 Lb/mmBtu as of July 2013.	
			SO_2: DFGD	SO_2: 0.075 Lb/mmBtu	SO_2: Jan. 2015		
606034110	DPC - Alma [d]	B4,B5	NOx: SNCR	NOx: 0.35 Lb/mmBtu	July 2012	Boilers B4 and B5 were shut down in 2015.	6.2
			SO_2: DSI/DFGD	SO_2: 1.0 Lb/mmBtu			
		JP Madgett boiler	NOx: SCR	NOx: 0.08 Lb/mmBtu	NOx: June 2016		
			SO_2: DFGD	SO_2: 0.09 Lb/mmBtu	SO_2: Jan. 2015		
405031990	Pulliam	B5,B6	Retire	N/A	June 2015		5.9
		B7,B8	NOx: LNB/OFA	NOx: 0.25 Lb/mmBtu	Jan. 2013		
				SO_2: 0.75 Lb/mmBtu			
241007800	WE - Valley	B1,B2,B3,B4	Repower from coal to NG; LNB for NOx	NOx: 0.08 Lb/mmBtu; 1,261 TPY SO_2: 0.50 Lb/mmBtu; 9.5 TPY	2015		4.1
663020930	DPC –	B1	NOx: SNCR	NOx: 1,140 TPY	NOx: June 2016		2.5

FID	Facility	Unit(s)	Control Measures	Emissions Limits	Compliance Date	Additional Control Information [b]	2015 Q/D (Tons/km/yr) [c]
	Genoa [d]		SO_2: DFGD	SO_2: 0.09 Lb/mmBtu	SO_2: Jan. 2013		
802033320	Excel – Bayfront	B1, B2	NOx: SNCR/OFA/FGR	NOx: monitor with a CEM	N/A	NOx: 0.20 Lb/mmBtu in 2015 based on annual actual emissions and HI. SO_2: 0.06 Lb/mmBtu in 2015 based on annual actual emissions and HI.	1.8
				SO_2: 384 Lb/Hr			
		B5	NG only	NOx: monitor with CEM	Dec. 2014	NOx: 0.18 Lb/mmBtu in 2015 based on annual actual emissions and HI. SO_2: 0.006 Lb/mmBtu in 2015 based on annual actual emissions and HI.	
				SO_2: 3.2 Lb/mmBtu			

CEM = Continuous Emissions Monitor
DFGD = Dry Flue Gas Desulfurization
DSI = Dry Sorbent Injection
HI = Heat Input
LNB = Low NOx Burner
N/A = Not Applicable
NG = Natural Gas
OFA = Over-fire Air
SCR = Selective Catalytic Reduction
SNCR = Selective Non-catalytic Reduction
TPY = Tons per Year
WFGD = Wet Flue Gas Desulfurization

[a] See Figure 1 for a map of where these sources are located.

[b] Additional control information is anything additional to federal consent decree required control measure, emission limitation, or compliance date.

[c] Q/D values based on closest affected Michigan Class I area and 2015 annual emissions reported to the WDNR Air Emissions Inventory. These values are not comparable to the Q/D values in Table 7 of the main document, because the values here are not temporalized; however, they provide a rough indication of where these sources were at in 2015 relative to each other regarding potential visibility impact.

[d] Control measures and emission limitations are part of consent decree with EPA. Note that many controls that have been implemented or planned to be implemented as a result of CAIR requirements are also included as part of consent decrees with EPA.

Table 2. Wisconsin Point Source Non-EGU Existing and Future Control Measures.[a]

FID	Facility	Control Measures	Compliance/ Implementation Date	2015 Q/D (Tons/km/yr) [b]
405032870	Georgia-Pacific – Broadway Mill	BART: 1,700 TPY SO_2 and 1,297 TPY NOx at stack S10; replace coal-fired B27 with a NG boiler B02. SO_2 DRR: Facility SO_2 cap of 1,981 TPY. Boiler MACT: HI limitations on coal boilers B26 (250 mmBtu/hr), B28 (235 mmBtu/hr) and B29 (annual capacity factor of 10% or less). Other: Coal boiler B25 last operated in 2008 and was shut down in 2013.	BART: Jan. 2016 SO_2 DRR: Jan. 2017 Boiler MACT: Jan. 2017	39.1
445031180	Expera Specialty Solutions – Kaukauna	Boiler MACT controls for coal boilers B07, B09 & B11: DSI to control acid gases; a small reduction in SO_2 is expected.	Jan. 2017	32.4
772009480	Catalyst Paper – Biron Mill	Convert coal-fired cyclone boiler B23 to NG. SO_2 DRR: facility SO_2 cap of 1,819 TPY.	Jan. 2017	25.2
744008100	Expera Specialty Solutions – Rhinelander	Replace 4 coal boilers with 2 NG boilers. Install DSI for B26 for acid gas control (Boiler MACT); a small reduction in SO_2 is expected.	2016	16.5
405032210	Procter & Gamble Paper - Fox River	Replace existing coal boilers B05 and B06 with NG boiler B08.	2016	4.5
735008010	PCA – Tomahawk	Retire coal boilers B27 and B28; modify coal boiler B24 to remove coal as a fuel; install NG boiler B12 with LNB, FGR & O2 trim.	2015	9.4
772010140	Wisconsin Rapids Fiber and Energy Mill			7.7
737009570	Expera Specialty Solutions – Mosinee (formerly Wausau Paper Mills, LLC)	Boiler MACT controls for coal boilers B20 and B24: DSI to control acid gases; a small reduction in SO_2 is expected.	2016	6.9
772010690	Domtar A. W., LLC – Nekoosa	Converted all coal boilers B20, B21 & B24 to NG.	2014	3.3

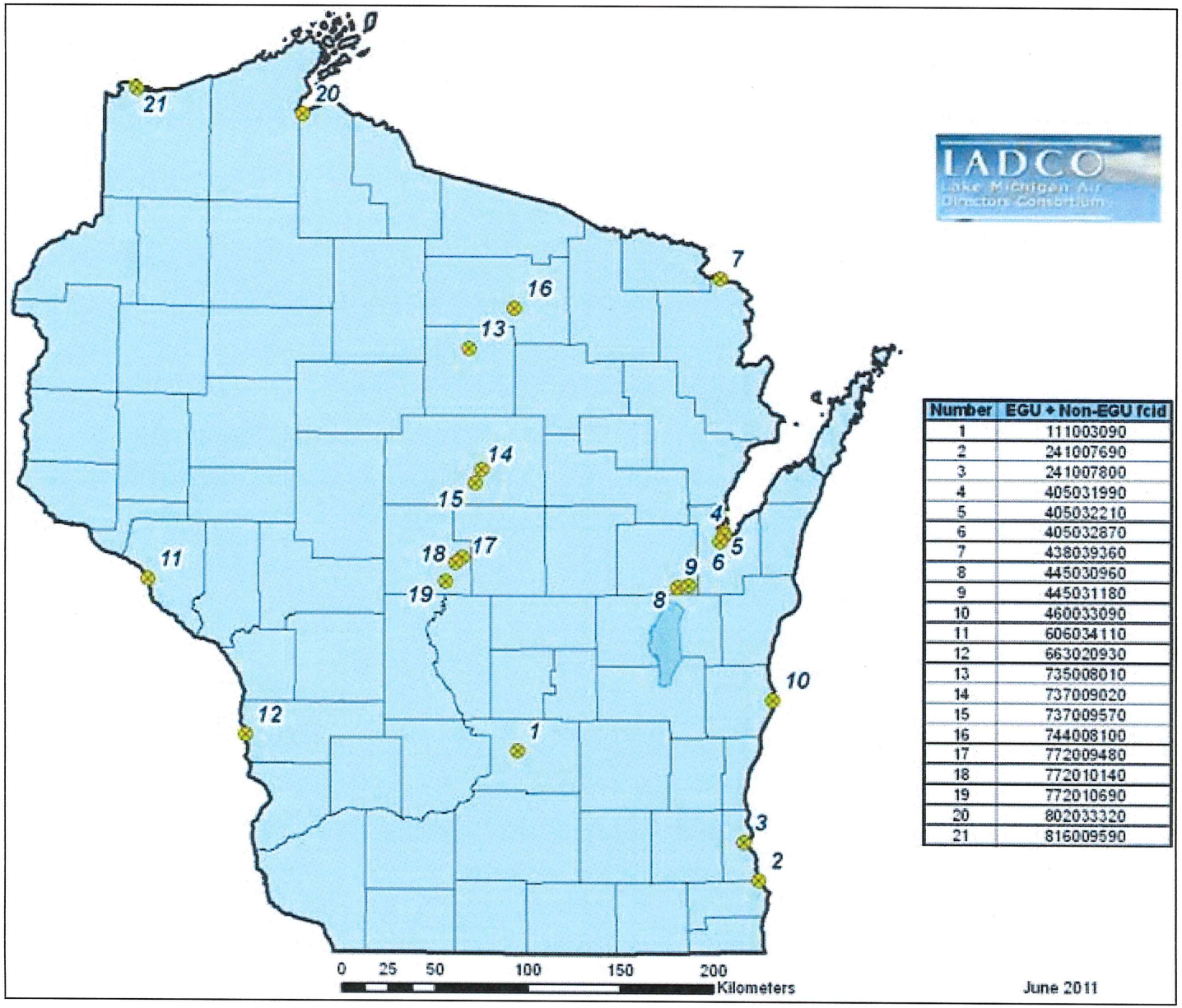
FID	Facility	Control Measures	Compliance/ Implementation Date	2015 Q/D (Tons/km/yr) [b]
816009590	Calumet Superior (formerly Murphy Oil)	2010 Consent Decree: NOx and SO_2 reduction projects/equipment on FCCUs; NOx and SO_2 reductions from heaters and boilers.	2010-2016	1.3
438039360	NewPage Wisconsin Systems, Inc.	Shut down.	2008	N/A
445030960	Kimberly Mill	Shut down.	2009	N/A

DSI = Dry Sorbent Injection
FCCU = Fluidized catalytic cracking units
FGR = Flue Gas Recirculation (NOx)
HI = Heat Input
LNB = Low NOx Burner
NG = Natural Gas
OFA = Over-fire Air
SO_2 DRR = SO_2 Data Requirements Rule

[a] See Figure 1 for a map of where these sources are located.

[b] Q/D values based on closest affected Michigan Class I area and 2015 annual emissions reported to the WDNR Air Emissions Inventory. These values are not comparable to the Q/D values in Table 7 of the main document, because the values here are not temporalized; however, they provide a rough indication of where these sources were at in 2015 relative to each other regarding potential visibility impact.

Figure 1. Map of Wisconsin Facilities Contributing to Visibility Impairment at Northern Class I Areas.



Number	EGU + Non-EGU fcid
1	111003090
2	241007690
3	241007800
4	405031990
5	405032210
6	405032870
7	438039360
8	445030960
9	445031180
10	460033090
11	606034110
12	663020930
13	735008010
14	737009020
15	737009570
16	744008100
17	772009480
18	772010140
19	772010690
20	802033320
21	816009590

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APPENDIX 3

Georgia-Pacific Letter for Selected BART Alternative

Georgia-Pacific

Georgia-Pacfic Corporation
Consumer Products

1919 South Broadway
P.O. Box 19130
Green Bay, WI 54307-9130
(920) 435-8821
(920) 438-2364 fax
ww.gp.com

July 9, 2013

VIA CERTIFIED MAIL / RETURN RECEIPT REQUESTED
Mr. Bart Sponseller
WDNR Bureau of Air Management
PO Box 7921
Madison, WI 53707

Subject: Best Available Retrofit Technology (BART) Limits
Georgia-Pacific Consumer Products LP
Green Bay, Broadway Mill
Facility ID No. 405032870

Dear Mr. Sponseller,

In accordance with 3.(b)ii.(1) in the Boilers B26 and B27: Best Available Retrofit Technology for Nitrogen Oxides section of the attached Administrative Consent Order, Georgia-Pacific specifies that BART for sulfur dioxide and nitrogen dioxides shall be defined to reflect the limits of Alternative 2 as listed in 3(b)ii.(2). Georgia-Pacific will comply with the sulfur dioxide limits and the nitrogen oxide limits of this alternative as shown here:

30-day rolling allowable SO_2 = 195 tons
30-day rolling allowable NO_x = 147 tons
12-month rolling allowable SO_2 = 1700 tons
12-month rolling allowable NO_x = 1297 tons.

Georgia-Pacific's contact for this issue is Rob Bermke (920) 438-2213. Please contact him directly if you have any questions.

Sincerely,

Randall Harbath
Vice President, Manufacturing

Attachment: BART Administrative Consent Order signed by Georgia-Pacific (6/5/12) and Wisconsin Department of Natural Resources (6/8/12)

cc: Dr. Susan Hedman, Administrator
USEPA Region 5
77 West Jackson Blvd.
Mail Code: R-19J
Chicago, IL 60604-3507

APPENDIX 4

Wisconsin VOC RACT Enforceable Control Measures

Table 1. Volatile Organic Compounds (VOCs) Control Technique Guidelines Incorporated into Wisconsin Administrative Code.

Source	Title (Description)	EPA CTG Report No.	Wis. Adm. Code Incorporation	Emissions Inventory Classification [1]
Petroleum and Gasoline Sources				
Bulk Gasoline Plants	Control of Volatile Organic Emissions from Bulk Gasoline Plants [bulk gasoline plant unloading, loading and storage]	EPA-450/2-77-035	NR 420.04(2)	Stationary Point Source
Refinery Equipment - Vacuum Producing Systems, Wastewater Separators, and Process Unit Turnarounds	Control of Refinery Vacuum Producing Systems, Wastewater Separators, and Process Unit Turnarounds	EPA-450/2-77-025	NR 420.05(1), (2) and (3)	Stationary Point Source
Refinery Equipment - Control of VOC Leaks	Control of Volatile Organic Compound Leaks from Petroleum Refinery Equipment	EPA-450/2-78-036	NR 420.05(4)	Stationary Point Source
Refinery Equipment - Control of VOC Leaks	Control of Volatile Organic Compound Equipment Leaks from Natural Gas/Gasoline Processing Plants	EPA-450/3-83-007	NR 420.05(4)	Stationary Point Source
Tanks - Fixed Roof	Control of Volatile Organic Emissions from Storage of Petroleum Liquids in Fixed-Roof Tanks	EPA-450/2-77-036	NR 420.03(5)	Stationary Point Source
Tanks - External Floating Roofs	Control of Volatile Organic Emissions from Petroleum Liquid Storage in External Floating Roof Tanks	EPA-450/2-78-047	NR 420.03(6) and (7)	Stationary Point Source
Gasoline Loading Terminals	Control of Hydrocarbons from Tank Truck Gasoline Loading Terminals	EPA-450/2-77-026	NR 420.04(1)	Stationary Point Source
Tank Trucks	Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems	EPA-450/2-78-051	NR 420.04(4)	Stationary Area Source
Gasoline Delivery - Stage I Vapor Control Systems	Design Criteria for Stage I Vapor Control Systems – Gasoline Service Stations	EPA-450/R-75-102	NR 420.04(3)	Stationary Area Source
Surface Coating				
Automobile & Light-duty Truck	Control Techniques Guidelines for Automobile and Light-Duty Truck Assembly Coatings	EPA 453/R-08-006	NR 422.09	Stationary Point Source

Source	Title (Description)	EPA CTG Report No.	Wis. Adm. Code Incorporation	Emissions Inventory Classification [1]
Cans	Control of Volatile Organic Emissions from Existing Stationary Sources – Volume II: Surface Coating of Cans, Coils, Paper, Fabrics, Automobiles, and Light-Duty Trucks	EPA-450/2-77-008	NR 422.05	Stationary Point Source
Coils	Control of Volatile Organic Emissions from Existing Stationary Sources – Volume II: Surface Coating of Cans, Coils, Paper, Fabrics, Automobiles, and Light-Duty Trucks	EPA-450/2-77-008	NR 422.06	Stationary Point Source
Fabric & Vinyl	Control of Volatile Organic Emissions from Existing Stationary Sources – Volume II: Surface Coating of Cans, Coils, Paper, Fabrics, Automobiles, and Light-Duty Trucks	EPA-450/2-77-008	NR 422.08	Stationary Point Source
Flat Wood Paneling	Control of Volatile Organic Emissions from Existing Stationary Sources – Volume VII: Factory Surface Coating of Flat Wood Paneling	EPA-450/2-78-032	NR 422.13	Stationary Point Source
	Control Techniques Guidelines for Flat Wood Paneling Coatings	EPA-453/R-06-004	NR 422.131	Stationary Point Source
Large Appliances	Control of Volatile Organic Emissions from Existing Stationary Sources – Volume V: Surface Coating of Large Appliances	EPA-450/2-77-034	NR 422.11	Stationary Point Source
	Control Techniques Guidelines for Large Appliance Coatings	EPA 453/R-07-004	NR 422.115	Stationary Point Source
Magnet Wire	Control of Volatile Organic Emissions from Existing Stationary Sources – Volume IV: Surface Coating of Insulation of Magnet Wire	EPA-450/2-77-033	NR 422.12	Stationary Point Source
Metal Furniture	Control of Volatile Organic Emissions from Existing Stationary Sources – Volume III: Surface Coating of Metal Furniture	EPA-450/2-77-032	NR 422.1	Stationary Point Source
	Control Techniques Guidelines for Metal Furniture Coatings	EPA 453/R-07-005	NR 422.105	Stationary Point Source
Metal Parts, miscellaneous	Control Techniques Guidelines for Miscellaneous Metal and Plastic Parts Coatings	EPA 453/R-08-003	NR 422.15	Stationary Point Source

Source	Title (Description)	EPA CTG Report No.	Wis. Adm. Code Incorporation	Emissions Inventory Classification [1]
	Fire Truck and Emergency Response Vehicle Manufacturing - surface coating	(covered under Misc. Metal Parts CTG)	NR 422.151	Stationary Point Source
Paper, Film and Foil	Control of Volatile Organic Emissions from Existing Stationary Sources – Volume II: Surface Coating of Cans, Coils, Paper, Fabrics, Automobiles, and Light-Duty Trucks	EPA-450/2-77-008	NR 422.07	Stationary Point Source
	Control Techniques Guidelines for Paper, Film, and Foil Coatings	EPA 453/R-07-003	NR 422.075	Stationary Point Source
Plastic Parts - Coatings	Control Techniques Guidelines for Miscellaneous Metal and Plastic Parts Coatings	EPA 453/R-08-003	NR 422.083	Stationary Point Source
Traffic Markings	Reduction of Volatile Organic Compound Emissions from the Application of Traffic Markings	EPA-450/3-88-007	NR 422.17	Stationary Area Source
Wood Furniture	Control of Volatile Organic Compound Emissions from Wood Furniture Manufacturing Operations	EPA-453/R-96-007	NR 422.125	Stationary Point Source
Graphic Arts				
Rotogravure & Flexography	Control of Volatile Organic Emissions from Existing Stationary Sources – Volume VIII: Graphic Arts-Rotogravure and Flexography	EPA-450/2-78-033	NR 422.14	Stationary Point Source
Flexible Packaging	Control Techniques Guidelines for Flexible Package Printing	EPA-453/R-06-003	NR 422.141	Stationary Point Source
Letterpress	Control Techniques Guidelines for Offset Lithographic Printing and Letterpress Printing	EPA-453/R-06-002	NR 422.144	Stationary Point Source
Lithographic	Control Techniques Guidelines for Offset Lithographic Printing and Letterpress Printing	EPA-453/R-06-002	NR 422.142 and 422.143	Stationary Point Source
Solvents				
Dry Cleaning	Control of Volatile Organic Emissions from Perchloroethylene Dry Cleaning Systems	EPA-450/2-78-050	NR 423.05	Stationary Area Source

Source	Title (Description)	EPA CTG Report No.	Wis. Adm. Code Incorporation	Emissions Inventory Classification [1]
Dry Cleaning	Control of Volatile Organic Compound Emissions from Large Petroleum Dry Cleaners	EPA-450/3-82-009	NR 423.05	Stationary Area Source
Industrial Cleaning	Control Techniques Guidelines for Industrial Cleaning Solvents	EPA-453/R-06-001	NR 423.035 and 423.037	Stationary Area Source
Metal Cleaning	Control of Volatile Organic Emissions from Solvent Metal Cleaning	EPA-450/2-77-022	NR 423.03	Stationary Area Source
Chemical				
Pharmaceutical	Control of Volatile Organic Emissions from Manufacture of Synthesized Pharmaceutical Products	EPA-450/2-78-029	NR 421.03	Stationary Point Source
Polystyrene	Control of Volatile Organic Compound Emissions from Manufacture of High-Density Polyethylene, Polypropylene, and Polystyrene Resins	EPA-450/3-83-008	NR 421.05	Stationary Point Source
Rubber	Control of Volatile Organic Emissions from Manufacture of Pneumatic Rubber Tires	EPA-450/2-78-030	NR 421.04	Stationary Point Source
Synthetic Organic	Control of Volatile Organic Compound Emissions from Air Oxidation Processes in Synthetic Organic Chemical Manufacturing Industry	EPA-450/3-84-015	NR 421.07	Stationary Point Source
Synthetic Organic	Control of Volatile Organic Compound Emissions from Reactor Processes and Distillation Operations in Synthetic Organic Chemical Manufacturing Industry	EPA-450/4-91-031	NR 421.07	Stationary Point Source
Synthetic Resin	Control of Volatile Organic Compound Leaks from Synthetic Organic Chemical Polymer and Resin Manufacturing Equipment	EPA-450/3-83-006	NR 421.05	Stationary Point Source
Manufacturing				
Asphalt	Control of Volatile Organic Emissions from Use of Cutback Asphalt	EPA-450/2-77-037	NR 422.16	Stationary Area Source

[1]For purposes of this table, an "Area" source is defined as a nonpoint or fugitive emission source.

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APPENDIX 5

Response to Comments on Draft Five-Year Regional Haze Progress Report

The Wisconsin Department of Natural Resources ("The Department") notified Federal Land Managers (FLMs) and the U.S. Environmental Protection Agency (EPA) of the availability of its draft five-year regional haze progress report on December 12, 2016. This notification formally started the required 60-day review process for the FLMs under 40 CFR Part 51.308(i)(2). The Department received written comments from the National Park Service and the U.S. Forest Service.

The Department noticed the draft report for public comment from January 13, 2017 until February 17, 2017 and held a public hearing on February 14, 2017. No additional comments were received during this comment period.

This appendix includes:

Response to Comments on Draft Progress Report

Comments Received on Draft Progress Report

E-mail Notification of Draft Progress Report for EPA/FLM Review

Response to Comments on Wisconsin's Draft Five-Year Regional Haze Progress Report

This document summarizes the comments received on Wisconsin's draft five-year regional haze progress report, the Department's response to the comments, and modifications made to the progress report in response to these comments.

Reasonable Progress Goals

Comment: The Forest Service commented that Wisconsin seems to imply, on page 6, that it sets reasonable progress goals (RPGs) for the Class I areas in which it contributes to visibility impairment, when it is the states containing the Class I areas that set RPGs, in consultation with other states.

Response: The Department revised the report to clarify Wisconsin's relationship to the RPGs for these Class I areas.

Emission Reductions

Comment: The National Park Service requested that the Department review and correct inconsistencies between the 2018 target emission levels in Table 6 and Figure 2.

Response: The Department corrected the 2018 target emission levels in Figure 2 to make them consistent with the 2018 target emission levels in Table 6.

Visibility Progress

Comment: Regarding the requirements of 40 CFR 51.308(g)(3) addressed in section 3.3 of Wisconsin's progress report, the National Park Service requested that the Department discuss visibility trends at Class I areas that are impacted by emissions from Wisconsin as part of its demonstration that the existing SIP is sufficient to meet visibility goals for those Class I areas.

Response: EPA's April 2013 guidance for regional haze progress reports states that the requirement to address visibility progress under 40 CFR 51.308(g)(3) applies only to states which contain Class I areas.[1] Wisconsin does not contain any Class I areas subject to the regional haze rule and therefore has no obligations under this requirement. EPA Region 5 confirmed this interpretation. No revisions were made relative to this comment.

Plan Adequacy

Comment: The National Park Service requested that the Department report any consultation with states other than Michigan and Minnesota that asked Wisconsin to reduce emissions to reduce impacts at Class I areas.

---

[1] General Principles for the 5-Year Regional Haze Progress Reports for the Initial Regional Haze State Implementation Plans. April 2013. U.S. Environmental Protection Agency – OAQPS. See pages 8-11.

Response: Through the regional consultation process with the Mid-Atlantic/Northeast Visibility Union (MANE-VU), Vermont determined that Wisconsin significantly contributes to visibility impairment at the Lye Brook Wilderness Area. In June 2007, Vermont issued a letter requesting the states that contribute to visibility impairment at Lye Brook to consider certain control programs when developing their visibility plans:

- Implementation of Best Available Retrofit Technology (BART).
- 90 percent SO_2 reduction at selected power plants.
- 28 percent SO_2 reduction from non-power plant sources. The 28 percent reduction is relative to 2018 on-the-books emission projections.

As explained in section 3.1 of the report, BART has been fully implemented in Wisconsin. Regarding the 90 percent SO_2 reduction at selected power plants, no power plants in Wisconsin were identified by Vermont. The 28 percent SO_2 reduction from non-power plant sources (relative to the 2018 on-the-books emission projections) has also been met, as evident from the information presented in sections 3.2 and 3.4 of the report. Wisconsin's recent non-EGU SO_2 emissions (2015 emissions for non-EGU point sources; 2014 emissions for area, on-road and off-road mobile, animal, and marine/air/rail sectors) were 40,185 tons – 31% lower than the on-the-books projected emissions of 59,778 tons for these sectors. No revisions were made relative to this comment.

USDA United States Department of Agriculture
Forest Service
Eastern Region Regional Office
626 East Wisconsin Avenue
Suite 800
Milwaukee, WI 53202
414-297-3600

File Code: 2580
Date: JAN 11 2017

Mr. Jonathan Loftus
Engineer
Wisconsin Department of Natural Resources
101 S. Webster Street
P.O. Box 7921
Madison, WI 53707-7921

Dear Mr. Loftus:

Thank you for forwarding the Draft Five-Year Regional Haze Progress Report (Report). We were very involved in Wisconsin's original Regional Haze State Implementation Plan (SIP) which was submitted to the Environmental Protection Agency in 2012. Your Report looks at the steps taken and the outcomes realized since the SIP was submitted.

Overall, the emission reductions that have occurred and will be occurring in the future in Wisconsin are remarkable. From 2005 to 2015, point source Sulfur Dioxide (SO_2) and Nitrogen Oxide (NOx) emissions have dropped 75 percent and 45 percent respectively. These were the two pollutants identified by Lake Michigan Air Directors Consortium (LADCO) as most responsible for haze in the northern Class I areas of Voyageurs National Park (VNP) and Boundary Waters Canoe Area Wilderness in northern Minnesota (BWCAW); Isle Royale National Park and Seney National Wildlife Refuge in northern Michigan. Additional reductions of over 50 percent are expected for on-road NOx emissions by 2018.

It is important to note that emission reductions are happening statewide and at sources in the northern part Wisconsin that most affect the Class I areas. Table 7 and appendix 2 list the facilities thought to be the largest contributors to visibility impairment in the Class I areas. In reviewing this list, almost every single facility is undergoing significant SO_2 and NOx pollutant reductions. Going into the next 10-year plan, the facilities that we would examine closer for emission reductions would be Expera and Kaukauna paper mills. We would also like to ensure the emissions reductions scheduled for the next couple years are implemented as laid out in the Report.

While reviewing the original SIP, we identified a number of issues that we previously commented on. We do not believe it is necessary to review those issues here other than to encourage the Wisconsin Department of Natural Resources (WDNR) to refer to our previous comment letters when preparing the next 10-year Regional Haze SIP.

One item we do want to clarify at this time in the Report is on page 6 in that WDNR appears to assume that it sets Reasonable Progress Goals (RPGs) for the Class I areas--which is incorrect. The Class I owner state does this, but the owner state has to consult with other states which may reasonably be anticipated to cause or contribute to visibility impairment (40 CFR

51.308(d)(1)(iv)). The RPGs are determined based on the four factors (plus a comparison to the uniform rate of progress or improvement - URI) and the Long Term Strategy (LTS) includes measures necessary to achieve the RPGs. Every state was required to develop a LTS.

At the time of the submittal of the Wisconsin SIP in 2012, it was not possible to determine if the 2018 RPG was met. Models were used to make projections of visibility conditions based on emission control programs proposed by the contributing states. In our comments, we noted there were a number of modeling runs to consider and Minnesota chose one that placed its RPGs above the URI in 2018 for both the BWCAW and VNP (18.6 and 18.9 deciview respectively, see Minnesota Regional Haze SIP https://www.pca.state.mn.us/sites/default/files/aq-sip2-12.pdf). In its progress report, Minnesota's two Class I areas are shown to be currently below the URI and are expected to stay below in 2018. A similar conclusion was drawn by Michigan for its two Class I areas.

Thank you for the significant progress you made to improve visibility in your neighboring Class I areas and for working closely with us in preparing this Report. We look forward to working with you on the next 10-year Regional Haze SIP.

Sincerely,

KATHLEEN ATKINSON
Regional Forester Eastern Region

cc: Pat Brewer, Judi Henry, Jill Webster, Trent Wickman

United States Department of the Interior

NATIONAL PARK SERVICE
Air Resources Division
P.O. Box 25287
Denver, CO 80225-0287

TRANSMITTED VIA ELECTRONIC MAIL - NO HARDCOPY TO FOLLOW

N3615 (2350)

January 12, 2017

David Bizot
Chief, Regional Pollutant and Mobile Sources Section
Bureau of Air Management
Wisconsin Department of Natural Resources
101 S. Webster Street
P.O. Box 7921
Madison, WI 53707-7921

Dear Mr. Bizot:

Thank you for the opportunity to review and comment on Wisconsin's draft Regional Haze Five Year Progress Report. Wisconsin Department of Natural Resources (WDNR) has addressed most of the requirements for the regional haze periodic progress report as outlined in 40 CFR 51.308(g) and (h). WDNR's progress report summarizes emissions control measures under Wisconsin's 2012 Regional Haze State Implementation Plan (SIP). The Midwestern states determined that emissions of sulfur dioxide from point sources, nitrogen oxides from point and mobile sources, and ammonia from agricultural sources were the most important to improve visibility. WDNR determined that requirements for Best Available Retrofit Technology (BART) for electric generating units (EGU) were met by controls implemented under the Clean Act Interstate Rule and the Cross State Air Pollution Rule. Controls and installation dates for EGU and industrial facilities are summarized in Appendix 2. WDNR reports that sulfur dioxide and nitrogen oxides from EGU and industrial point sources decreased 75% and 55%, respectively, between 2005 and 2015. These emission reductions are greater than projected in the 2012 SIP. Changes in inventory methods make it more difficult to assess emission improvements for mobile and agricultural sources.

We have the following recommendations to improve WDNR's visibility progress report.

Section 3.2 Emission Reductions: The text indicates that Table 6 and Figure 1 present the same data; however, the 2018 target values are not the same. The footnotes indicate that 2018 target

levels are from "Case B". However, the 2018 Target emission levels illustrated in Figure 1 appear to be consistent with the higher levels reported for "Case A". Please review and correct inconsistencies.

Section 3.3 Visibility Progress: While no Class I areas are located in Wisconsin, WDNR still needs to discuss visibility trends at Class I areas that are impacted by emissions from Wisconsin as part of its demonstration that the existing SIP is sufficient to meet visibility goals for those Class I areas. WDNR should discuss visibility trends from 2000 to 2015 on the 20% haziest and clearest days and compare these trends to the Uniform Rate of Progress for the four northern Class I areas illustrated in Figure 1.

Section 3.7 Plan Adequacy
Please report any consultation with states other than Michigan and Minnesota that asked Wisconsin to reduce emissions to reduce impacts at Class I areas (e.g. Mid Atlantic or Northeastern states).

If WDNR incorporates these recommendations, we would concur that revisions to the 2012 Regional Haze SIP are not needed at this time. We appreciate the opportunity to work with WDNR to improve visibility in Class I national parks and wilderness areas. If you have questions, please contact me at patricia_f_brewer@nps.gov or 303-969-2153.

Sincerely,

Pat Brewer

Cc: John Summerhays, EPA Region 5
David Pohlmann

Loftus, Jonathan P - DNR

From: Bizot, David A - DNR
Sent: Monday, December 12, 2016 3:24 PM
To: Patricia_F_Brewer@nps.gov; twickman@fs.fed.us; tim_allen@fws.gov
Cc: Good, Gail - DNR; Loftus, Jonathan P - DNR; Aburano, Douglas; Alvarez, Gilberto; baanderson02@fs.fed.us; Don_Shepherd@nps.gov
Subject: For FLM review: draft Wisconsin regional haze 5-year progress report

Pat, Trent, and Tim:

Attached for your review is a preliminary draft of Wisconsin's regional haze 5-year progress report. This notification formally starts the required 60-day review process for the Federal Land Managers required under 40 CFR Part 51.308(i)(2). Please direct your comments regarding this report to Jonathan Loftus at (608) 264-8868 or Jonathan.Loftus@wisconsin.gov.

Wisconsin intends notice this report for public comment in late January to expedite our submittal to EPA. We also plan to conduct a public hearing on the draft progress report in March 2017 to support a submittal to EPA around March 31. Please let me know if you have any concerns with this schedule.

I look forward to receiving your feedback on our draft. Thank you for your continued cooperation and support in developing our regional haze 5-year progress report, and do hesitate to contact me know if you have any questions.

Regards,
David

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

David Bizot
Chief, Regional Pollutant and Mobile Sources Section
Bureau of Air Management
Wisconsin Department of Natural Resources
Phone: (608) 267-7543
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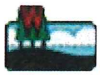
dnr.wi.gov