

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter of:)
)
AMENDMENTS TO) **R18-20**
35 ILL. ADM. CODE 225.233,) **(Rulemaking – Air)**
MULTI-POLLUTANT STANDARDS (MPS))

NOTICE OF FILING

To: ALL PARTIES ON THE ATTACHED SERVICE LIST

PLEASE TAKE NOTICE that I have today electronically filed with the Office of the Clerk of the Illinois Pollution Control Board the attached **DYNEGY'S RESPONSES TO QUESTIONS**, copies of which are herewith served upon you.

/s/ Ryan Granholm
Ryan Granholm

Dated: February 16, 2018

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See electronic filing for exhibits/attachments

*Exhibit 24
R18-20
3/6/18
ms*

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter of:)
)
AMENDMENTS TO) **R18-20**
35 ILL. ADM. CODE 225.233,) **(Rulemaking – Air)**
MULTI-POLLUTANT STANDARDS (MPS))

RESPONSES TO QUESTIONS FOR DYNEGY’S WITNESSES

NOW COME Dynegy Midwest Generation, LLC, Illinois Power Generating Company, Illinois Power Resources Generating, LLC and Electric Energy, Inc. (collectively, “Dynegy”), by their attorneys, Schiff Hardin LLP, and hereby respond to questions raised during the January 17 and 18, 2018 hearings and the January 29, 2018, Hearing Officer Order.

I. Questions for Dynegy Witnesses from the First Hearing

1. Does Dynegy sponsor environmental projects in its host community? (IPCB Technical Staff, Alisa Liu, Jan. 18, 2018 Tr., pg. 110-11)

Dynegy sponsors a number of projects related to the environment. As one example, we undertook one of the largest reforestation projects in the world for the sole purpose of carbon offset. Specifically, in 1999, Dynegy partnered with the U.S. Fish and Wildlife Service and others to restore more than 45,000 acres of hardwood forests. The project involved planting more than two million hardwood seedlings on state and federally protected lands in Arkansas, Kentucky, Louisiana, Mississippi, Tennessee, Alabama, and Oklahoma in the Lower Mississippi River Valley and is projected to remove more than 6 million tons of carbon dioxide (“CO₂”) over its 60-year term. In 2012, the project was registered under the Verified Carbon Standard, the first U.S. forest carbon offset project to receive this certification. This project was not performed in connection

with Dynegy meeting its obligations under a Consent Decree entered with the United States to resolve alleged Clean Air Act violations.

In Illinois, Dynegy has funded prairie, bottomland hardwood and savannah restoration projects in partnership with the Illinois Conservation Foundation. We also beneficially reuse coal combustion residuals (“CCR”) produced at our coal-fired generation units, including through agreements with cement manufacturers that incorporate the material into cement products, helping to reduce CO₂ emissions from the cement manufacturing process. In addition, working with the Illinois Department of Natural Resources (“IDNR”), Dynegy allows public access to many of our cooling ponds/lakes for recreational use, including fishing and boating.

Dynegy has also sponsored environmental projects in connection with Consent Decree obligations, including truck stop electrification projects to reduce particulate matter, NO_x, volatile organic compounds, and CO₂ emissions; clean diesel retrofits for school busses and municipal fleets; and donation of more than 1,000 acres of land to the IDNR.

Attached as Exhibit A is a list of voluntary environmental and community projects performed by or at our coal-fired generating stations located in Illinois.

2. Would Dynegy be willing to produce a report with dates and times when the Duck Creek and Coffeen Plants were run at a loss for purposes of MPS compliance over a three-year period? (IL AG, James Gignac, Jan. 18, 2018 Tr., pg. 133)

Dynegy is providing a chart depicting the percentage of time units at Coffeen and Duck Creek were bid into MISO as “must-run” units, primarily to ensure compliance with the MPS, and a table showing the number of days when the units were bid as “must-run” and they operated at a loss. The chart and table are included as Exhibit B.

3. Can you provide a written analysis supporting your claim that the scrubbed plants will not be retired or mothballed if the proposal is granted? (Env. Groups, Lindsay Dubin, Jan. 18, pg. 152)

Illinois EPA's proposal would grant Dynegy needed flexibility, improving the viability of the entire Illinois fleet. Dynegy's goal in supporting the proposal is to make the entire fleet, including each individual plant, cash-flow positive. *Id.* at 103:12-14. Currently, as set forth in Exhibit B, Dynegy is forced to dispatch Duck Creek and Coffeen at a loss. Dynegy does not intend or expect to retire or mothball any units solely as a result of the adoption of the proposal. *See* Jan. 18, 2018 Tr. 115:10-13.

4. How much of the time did Duck Creek and Coffeen receive an energy price at or above their marginal cost of operation? (IL AG, James Gignac, Jan. 18, 2018 Tr., pg. 150)

See Exhibit B, which shows each time Duck Creek and Coffeen were bid into MISO and received an energy price below their marginal cost. At all other times the Duck Creek and Coffeen units were bid into MISO they received an energy price at or above their marginal cost.

5. Can you put an analysis into writing regarding your answer to environmental groups' pre-filed question 6.a., that 3000 MW of generation in the MPS are cash flow neutral to negative and effectively at risk? (Env. Groups, Lindsay Dubin, Jan. 18, 2018 Tr., pg. 156-57)

Dynegy cannot provide the specific information requested because it contains highly confidential business information that has competitive value. As a whole, the Illinois fleet is cash-flow negative. Specifically, for the nine months ending September 30, 2017, the "MISO" segment reported an operating loss of \$90 million and the "IPH" segment reported an operating income of \$ 40 million, for a total net operating loss of \$50 million for the MPS fleet. For the year ending 2016, the "MISO" segment reported an operating loss of \$745 million and the "IPH" segment reported an operating loss of \$87 million. For the year ending 2015, the "MISO" segment reported an operating loss of \$92 million, and the "IPH" segment reported an operating income of \$49

million, for a total net operating loss of \$43 million for the MPS fleet. The operating income/loss does not include the cost of capital expenditures.

6. Can you provide Dynegy's 5-year forecasts which would include, if possible, capacity factor forecasts, some metric of how often the units run, etc.? (IL AG, Andrew Armstrong, Jan. 18, 2018, pg. 158)

Dynegy cannot provide this information because it contains highly confidential business information that would give our competitors significant information about how we view the operations of our plants. Furthermore, we believe the appropriate metric for evaluating the environmental benefits of the proposal is to compare the allowable emissions under the current MPS with the proposal. The proposal will result in an approximate 17% reduction in allowable SO₂ emissions and 24% reduction in allowable NO_x emissions.

7. Questions from IPCB Assistant Attorney Tanya Rabczak (Jan. 18, 2018 Tr., pg. 179 and 186):

a) How [does Dynegy] control [its] capacity?

Dynegy performs regular maintenance to ensure that its units are available when called upon by MISO. When Dynegy bids units into MISO, it identifies the capacity that is available. However, not all available capacity will necessarily be utilized by MISO. MISO, not Dynegy, determines which units will run and how much they will run.

b) How [does Dynegy] decide which plants run at which time?

As discussed during the first hearing (Jan 18, 2018 Tr., pg. 180), for the most part, MISO determines which units run. For example, as set forth on Exhibit B, Dynegy can bid units in as "must-run." However, as depicted on Exhibit B, when the units are bid in as "must run" they often operate at a loss.

c) Which plants run at what capacity?

We are obligated to offer the units up to the capacity that we've sold into the MISO capacity market. There are a number of factors that affect each unit's available capacity, including, for example, ambient air temperatures, river temperatures, and slagging and fouling in the boiler components. As discussed above, MISO determines how much of Dynegy's available capacity will be needed.

d) How [does Dynegy] control the emission rates?

Emission rates are dependent on the various inputs and outputs of each unit. Jan. 18, 2018 Tr. at 182:7-9. Specifically, SO₂ emissions are primarily dependent upon the sulfur content of the coal and the control efficiency of any pollution controls. All of Dynegy's MPS plants have switched from the use of high sulfur coal to low sulfur coal which alone can result in up to 85% lower SO₂ emissions. In 2017, all of the coal delivered to Dynegy's MPS units came from mines in the Powder River Basin ("PRB") coal region located near Gillette, Wyoming. In addition to using low sulfur coal, the Coffeen and Duck Creek generating stations utilize Flue Gas Desulfurization (FGD) devices and the Baldwin and Havana generating stations utilize Spray Dryer Absorbers (i.e. dry scrubbers) to reduce SO₂ emissions.

NO_x emissions at each of the MPS plants are reduced by combustion controls, post-combustion controls or a combination of the two. Dynegy units use three primary means to reduce NO_x emissions: low NO_x burners, overfire air, and Selective Catalytic Reduction.

e) How [does Dynegy] control capacity factor?

The capacity factor is determined by how many megawatt hours the unit produces, which is primarily determined by MISO. MISO selects offers from all of the available resources and, through an algorithm, determines on a day-ahead and hourly basis which units to run.

- f) How does [the] MPS change what and how [Dynergy bids] into both capacity markets and energy markets, and how does that affect specifically the units that are under threat of shutdown?**

Dynergy closely monitors each MPS group's fleet average emission rate. On a number of occasions, in order to meet the fleet-wide average emission rate set by the MPS, Dynergy has bid lower-rate units into MISO as "must-run" units at a price that does not cover costs. This is typically done several times a year, in a variety of circumstances. Jan. 25, 2018 Tr. at 131:17-18. Exhibit B contains more detailed information about when Dynergy has bid units into MISO at a loss, often to ensure compliance with the emission rate set by the MPS. The practice of operating certain units at a loss is detrimental to the overall viability of Dynergy's fleet. Pre-filed Test. of R. Diericx at 11.

- g) [W]ould that change what happens to the unit that is under threat of shutdown if the proposal as proposed is accepted?**

The proposal would allow Dynergy to operate its Illinois coal-fired generation fleet in a more economically rational manner. Specifically, if adopted, Dynergy will no longer need to bid units at Coffeen and Duck Creek into the market at a loss to ensure compliance with the MPS. Instead, Dynergy will be able to bid units into MISO in a way that will ensure those units cover their costs when they are called upon. This will increase the economic viability of the Illinois fleet as a whole. However, neither the MPS nor the MPS revision alone will determine whether any units are or are not mothballed or retired.

II. Questions from the January 29, 2018, Hearing Officer Order

- 1. [D]oes Dynergy, IEPA, or any other participant plan to provide testimony at the next hearings, which are scheduled in Edwardsville in March 2018, to address the proposed rules' health effects from exposure to SO₂ and NO_x emissions from MPS sources?**

In response to this question, IEPA stated that allowable emissions will decrease and actual emissions may increase, decrease or stay the same under both the current MPS as well as the

proposal. On February 6, 2018, the Environmental Groups submitted pre-filed testimony of Brian Urbaszewski, which asserts, without any support, that the proposal will adversely affect human health.

In response to the Hearing Officers' question and the Environmental Groups' pre-filed testimony, Dynege engaged toxicologist Dr. Lucy Frasier to provide an expert opinion on the health effects of SO₂ under the proposed rule. Dr. Frasier's report is attached as Exhibit C. The report also provides a toxicologist's perspective of the protectiveness of the SO₂ NAAQS. *Dr. Frasier will be available at the March 6, 2018 hearing* to answer any questions on the attached report. As Dr. Frasier and IEPA conclude, there will be no adverse impact on human health as a result of adopting the proposed amendments to the MPS.

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MULTI-POLLUTANT STANDARDS (MPS))

NOTICE OF FILING

PLEASE TAKE NOTICE that I have filed today with the Illinois Pollution Control Board the attached **ENVIRONMENTAL GROUPS' PREFILED QUESTIONS FOR DYNEGY'S WITNESSES**, copies of which are served on you along with this notice.

Respectfully Submitted,



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Dated: March 2, 2018

*See electronic filing for attachments/
Exhibits*

*Exhibit 25
R18-20
3/6/18
MV*

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter of:)	
)	R2018-20
AMENDMENTS TO)	(Rulemaking – Air)
35 ILL. ADM. CODE 225.233,)	
MULTI-POLLUTANT STANDARDS (MPS))	

**ENVIRONMENTAL GROUPS’ PREFILED QUESTIONS FOR DYNEGY’S
WITNESSES**

The Environmental Groups hereby files its additional pre-filed questions for Dynegy’s witnesses in this matter pursuant to the Hearing Officer Order issued on January 29, 2018.

1. Turn to Attachment A below, which is Dynegy’s 10-K SEC filing for 2017 (“2017 10-K”). On pages 2-3 of the 2017 10-K, can you confirm that Dynegy combined the MISO segment and IPH segment into a single MISO segment?

2. Turn to Attachment B below, which Dynegy’s 8-K SEC filing filed with the SEC on February 21, 2018 and provides a summary of Dynegy’s Full-Year 2017 Financial Results (“8-K”). Turn to Exhibit 99.1 in the 8-K. Dynegy provided the 2017 year-end “Operating Cash Flow” and “Adjusted Free Cash Flow” for the entire Company.
 - a. Can you provide the value for “Operating Cash Flow” for the MISO segment (combining the former IPH and MISO segments) for the same period?

 - b. Can you provide the value for “Adjusted Free Cash Flow” for the MISO segment (combining the former IPH and MISO segments) for the same period?

 - c. If the answer is no to the previous two questions, can you provide working capital requirements for the MISO segment (combining the former IPH and MISO segments) for this time period?

 - d. Can Dynegy provide a breakdown of the 2017 year-end “Operating Cash Flow” and “Adjusted Free Cash Flow” for each plant in the MISO segment?

3. Turn to Attachment C below, which is Dynegy’s Schedule 14A filed with the SEC on January 25, 2018 (“Schedule 14A”). Turn to page 316 of the 2018 Schedule 14A, which is the UNAUDITED PRO FORMA CONDENSED COMBINED CONSOLIDATED BALANCE SHEET of Vistra Energy and Dynegy.
 - a. Property, plant, and equipment belonging to Dynegy is listed here at a historical value of \$8,929 million, correct?

- b. Does the \$308 million next to that under “Pro Forma Adjustment” reflect Vistra valuing Dynegey’s property, plant, and equipment more highly than the value that Dynegey historically placed on it?
 - c. Turn to page 322, heading Q. Is the \$308 million increase attributable to recording “Dynegey’s property, plant and equipment, at their respective estimated fair values”?
 - d. Does the \$308 million described above indicate the “fair value of Dynegey’s property, plant and equipment is estimated to be approximately \$9.2 billion”?
 - e. Is any of this increase attributable to the MISO segment (or formerly MISO and IPH segments)?
4. On page 3 of Dynegey’s Responses to Questions for Dynegey’s Witnesses filed on February 16, 2018 in this rulemaking, Dynegey states that the “Illinois fleet is cash-flow negative” and provides financial information detailing the operating loss or operating income of the MISO and IPH segments for over the 2015-2017 time period.
- a. Does Dynegey treat “cash-flow negative” and “operating loss” as the same concept? In other words, does Dynegey use these two terms as synonyms?
 - i. If yes, how does Dynegey calculate “cash-flow negative” or “operating loss?”
 - ii. If no, how does Dynegey calculate “cash-flow negative”? How does Dynegey calculate “operating loss”?
 - b. Does Dynegey’s 2017 10-K (Attachment A) contain any information that documents the negative cash flow for the MISO segment (or formerly MISO and IPH segments)?
 - i. If not, can Dynegey provide to the parties in this rulemaking any other document that establishes that the Illinois fleet is cash-flow negative?
 - c. Does Dynegey’s 2017 10-K (Attachment A) contain any information that documents the negative cash flow for any of the individual plants in the MISO segment (or formerly MISO and IPH segments)?
 - i. If not, can Dynegey provide to the parties in this rulemaking any other document that establishes that individual plants in the MISO segment are cash-flow negative?

5. Exhibit B of Dynegey's Responses to Questions for Dynegey's Witnesses filed on February 16, 2018 in this rulemaking includes a summary by unit of the number of days that units were dispatched at a loss. Please provide the gross margin for each of those units for each year.
6. On page 108 of the January 18, 2018 Hearing Transcript, Dean Ellis responded to the following question: "Does Dynegey use adjusted EBITDA as its measure when representing to the SEC and its shareholders the success of the fleet's operating performance?" Mr. Ellis stated: "We report our adjusted EBITDA as one metric, but it's not the only metric."
 - a. What are all the other metrics Dynegey uses when reporting the fleet's operating performance to the SEC?
 - b. What are all the other metrics Dynegey uses when reporting the fleet's operating performance to shareholders?
7. On page 144 of the January 18, 2018 transcript, Mr. Ellis discusses marginal cost of production.
 - a. How does Dynegey define "marginal cost of production?"
 - b. Is "marginal cost of production" the same as "operating costs" listed in Attachment A at page 57?
 - i. If not, for the last reporting period, what was the marginal cost of production for the Illinois fleet?
 - c. For the last reporting period, what was the gross margin for each plant in the Illinois fleet?
8. Turn to Attachment D¹ below, which is Form 425 filed with the SEC on February 27, 2018, the transcript of Vistra Energy's most recent earnings call on February 26, 2018.
 - a. On p. 24-25 where Curt Morgan, Vistra's CEO, responds to Michael Lapidès' of Goldman Sachs' question and refers to MISO, is it Dynegey's understanding that he is referring to Dynegey's Illinois fleet?²
 - b. What is Dynegey's understanding of Curt Morgan's statement regarding "shrinking of the size of our generation"?
 - c. What is Dynegey's understanding of Curt Morgan's statement that "we've got a

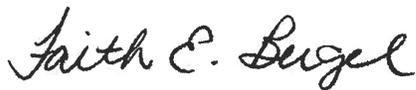
¹ Page numbers have been added to the document for convenience.

² The transcript has a typo of "MICO" rather than "MISO" throughout this section.

portfolio optimization exercise to do no different than what we did in Texas”?

- d. Is Curt Morgan’s assessment of the Illinois Fleet that it had “decent financial performance as of late”?
- e. Please turn to page 5, which discusses Vistra creating a new segment called the Asset Closure segment. What is Dynegey’s understanding of the Asset Closure segment?
- f. Can Dynegey provide in this rulemaking the additional analysis related to Dynegey’s MISO assets that Dynegey provided FERC on February 5 as referenced on page 8?

Respectfully submitted,



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Dated: March 2, 2018

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter of:)
)
AMENDMENTS TO) R2018-20
35 ILL. ADM. CODE 225.233,) (Rulemaking – Air)
MULTI-POLLUTANT STANDARDS (MPS))

CERTIFICATE OF SERVICE

The undersigned certifies that a true copy of the foregoing **NOTICE OF FILING and ENVIRONMENTAL GROUPS' PREFILED QUESTIONS FOR DYNEGY'S WITNESSES** on behalf of the Environmental Law & Policy Center in R2018-20 were served upon the attached service list by e-mail on March 2, 2018.



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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
AMENDMENTS TO) R18-20
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MULTI-POLLUTANT STANDARDS)
(MPS))

NOTICE OF FILING

PLEASE TAKE NOTICE that I have filed with the Illinois Pollution Control Board the Additional Pre-Filed Questions of the Illinois Attorney General’s Office for Dynegey’s Witnesses, a copy of which is hereby served upon you.

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS,

BY: LISA MADIGAN,
Attorney General of the State of Illinois

BY: /s/ James P. Gignac
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Dated: March 2, 2018

*See electronic filing for attachments/
Exhibits*

*Exhibit 26
R18-20
3/6/18
MS*

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CERTIFICATE OF SERVICE

I, JAMES P. GIGNAC, an attorney, do certify that on March 2, 2018, I caused the Additional Pre-Filed Questions of the Illinois Attorney General's Office for Dynegy's Witnesses and the Notice of Filing to be served upon the persons listed in the attached Service List by email for those who have consented to email service and by U.S. Mail for all others.

/s/ James P. Gignac
JAMES P. GIGNAC

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
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AMENDMENTS TO 35 ILL. ADM.) R18-20
) (Rulemaking-Air)
CODE 225.233, MULTI-POLLUTANT)
STANDARDS)

**ADDITIONAL PRE-FILED QUESTIONS OF THE ILLINOIS
ATTORNEY GENERAL’S OFFICE FOR DYNEGY’S WITNESSES**

The Illinois Attorney General’s Office, on behalf of the People of the State of Illinois (“People”), hereby files its additional pre-filed questions for Dynegy’s witnesses in this matter, as provided by the Hearing Officer Order issued on January 29, 2018. The People submit the following questions:

1. With respect to coal ash (referred to by Dynegy as “coal combustion residuals”) discussed at page 2 and Exhibit A of Dynegy’s Response to Questions dated February 16, 2018, does Dynegy receive payments from entities that use coal ash from Dynegy’s plants? If coal ash is not sold to someone else or used by Dynegy in some way, does Dynegy incur costs for storing or disposing of the ash?

2. With respect to the plants that Dynegy says allow public access in Exhibit A, does Dynegy own the property on which the cooling ponds and lakes occur?

3. On page 2 of its responses, Dynegy states that certain units were selected by Dynegy to “bid into MISO as ‘must-run’ units.” For clarification, these units were not being bid because MISO had designated operation of them as being necessary to maintain reliability, correct?

4. Likewise, the bar chart provided in Exhibit B states that the units were “Dispatched as Must-Run,” but that refers to Dynegy’s need for the plants to run to offset the operations of less-controlled plants, not to MISO’s need for the units to operate for purposes of grid reliability, correct?

5. The bar chart in Exhibit B refers to the number of hours that Dynegy bid the plants into the market at an amount below their marginal cost of operation, not to the number of hours that Dynegy received a payment for a megawatt-hour at or below its marginal cost of operation, correct? In other words, Dynegy could bid in a unit at a loss but end up being paid in amounts above the marginal cost of operation due to clearing prices in the market, correct?

6. Related to the above question, could Dynegy please explain for the Board why the bar chart in Exhibit B states that Coffeen Unit 2 was bid by Dynegy below cost 90% of the time in 2017, yet the table says that it operated below cost 33 out of 365 days in 2017 (9%)?

7. If a unit operated at a loss for just 1 hour out of a 24-hour period, did Dynegy include that among the number of days the unit operated at a loss in the table in Exhibit B?

8. Why is the bar chart in Exhibit B expressed in hours but the table is in days?

9. Does calculation of a unit's "marginal cost" include a category of profit to Dynegy?

10. In the January 12, 2018, responses of Rick Diericx to the Illinois Pollution Control Board's pre-filed questions, he testified as follows (page 1):

While our coal contracts for the MPS units currently are for low sulfur coal and we currently plan to continue to burn low sulfur coal, Dynegy would oppose a requirement to burn low sulfur coal at all MPS units. Such a requirement would unnecessarily restrain operational flexibility and is unnecessary for air quality compliance purposes.

Attached as Attachment 1 is a letter received by the Illinois Attorney General's Office. Did Dynegy send this letter to the Illinois Attorney General's Office? Is it an accurate description of Dynegy's "unknowingly" burning higher sulfur coal at the Baldwin plant? Is it correct that, when Dynegy "unknowingly" burned higher sulfur coal at the Baldwin plant, that action very quickly caused the plant's emission rate to approach the emission limit for SO2 required by the Consent Decree referenced in the letter?

Dated: March 2, 2018

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS,
by LISA MADIGAN,
Attorney General of the State of Illinois,

MATTHEW J. DUNN, Chief
Environmental Enforcement/
Asbestos Litigation Division

By: /s/ James P. Gignac
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Attachment 1

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
AMENDMENTS TO) R18-20
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MULTI-POLLUTANT STANDARDS)
(MPS))

NOTICE OF FILING

PLEASE TAKE NOTICE that on this 16th day of February, 2018, I caused to be filed with the Clerk of the Illinois Pollution Control Board the Illinois Attorney General's Office Responses to January Hearing, a copy of which is hereby served upon you.

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS,

BY: LISA MADIGAN,
Attorney General of the State of Illinois

BY: /s/ Stephen J. Sylvester
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Dated: February 16, 2018

Exhibit 27
R18-20
3/16/18
MJ

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CERTIFICATE OF SERVICE

I, STEPHEN J. SYLVESTER, an attorney, do certify that on February 16, 2018, I caused the Illinois Attorney General's Office Response to January Hearing and the Notice of Filing to be served upon the persons listed in the attached Service List by email for those who have consented to email service and by U.S. Mail for all others.

/s/ Stephen J. Sylvester
STEPHEN J. SYLVESTER

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
AMENDMENTS TO 35 ILL. ADM.) R18-20
) (Rulemaking-Air)
CODE 225.233, MULTI-POLLUTANT)
STANDARDS)

**THE ILLINOIS ATTORNEY GENERAL'S
RESPONSES TO QUESTIONS RAISED DURING FIRST SET OF HEARINGS**

Pursuant to the Hearing Officer Order issued on January 29, 2018, the Illinois Attorney General's Office, on behalf of the People of the State of Illinois ("People"), hereby responds to questions raised during the first set of hearings in this matter held on January 17-18, 2018. Specifically, the People respond to questions asked by Tanya Rabczak of the Illinois Pollution Control Board on January 18th. *See* Tr. 1/18/18, pages 83-84.

Question 1: "Do you understand how each unit gets to whatever capacity factor they actually get to?" Tr. 1/18/18, page 83, lines 12-14.

Answer: The capacity factor of a power plant is the ratio of its actual electricity production over a period of time to its potential production if it had been operating at full nameplate capacity continuously during that time. For example, taking the gross load of a unit in megawatt-hours for a particular year and comparing it to the megawatt-hours that would have been produced if the unit had run at its nameplate capacity in megawatts for 8,760 hours (365 days times 24 hours) results in the annual capacity factor of a unit expressed as a percentage.

How Dynegy's MPS units arrive at their annual capacity factors involves a series of choices first by Dynegy and then by the Midcontinent Independent System Operator's ("MISO") economic dispatch process. The process begins with Dynegy deciding what it wants the status of its units to be (*i.e.*, operational, mothballed, or retired). For each operational unit, Dynegy then decides how it wants to allocate the capacity of the unit (capacity is the promise of a power plant to be available

in the future). MISO offers several options. The capacity can be assigned to a bilateral contract, it can be assigned to a fixed resource adequacy plan, it can be offered by Dynegy into MISO's Planning Resource Auction, or it can remain uncommitted. If the capacity is committed and Dynegy receives a capacity payment, then Dynegy agrees to offer power from the unit into the energy market and to operate when called upon by MISO. *See, e.g.,* Testimony of Dean Ellis, Tr. 1/18/18, pages 146-47. If capacity is uncommitted, then Dynegy decides when to offer the plant into the market—which could be all the time, some of the time, or not at all.

When a unit is offered into the market, Dynegy decides at what price it is willing to generate power and that is Dynegy's "bid" into the market. MISO then selects resources according to lowest price until the demand is satisfied with all generators receiving the price offered by the last resource needed to meet the load (i.e., "the clearing price"). If Dynegy's bids are higher than those of other generators who are needed to fulfill demand, Dynegy's units will not be dispatched, will not run, and their capacity factors will be lower. Conversely, if Dynegy's units *are* selected, they will run and will increase their capacity factors and will be paid the clearing price for the power they generate (which will be at or above the price Dynegy offered pursuant to the process described above). If Dynegy wants to be as sure as it can that one or more of its units are dispatched by MISO, Dynegy can bid \$0 or a similarly low amount to place its units as early as possible in the bid stack and they will be paid the market clearing price for the power they generate if they are selected.

Question: "Do you understand how and why the emission rates fluctuate year to year? For instance, what the Dynegy representatives were asking, how would 2016 would look compared to 2017 and '18 in gross capacity factor and emission rates factor?" Tr. 1/18/18, page 83, lines 14-19.

Answer: With respect to capacity factors, please see above for our explanation of how they are determined. Capacity factors can change year-by-year depending on the outcomes of the process described above. Exhibit 1 attached hereto contains ten years of capacity factor data for the current MPS units as calculated using the following methodology: the annual gross load of the unit in megawatt-hours (obtained from <https://ampd.epa.gov/ampd/>) divided by the unit's nameplate capacity (obtained from Form EIA-860 data) in megawatts times 8,760 (total number of hours in a year) (Formula: Capacity Factor in % = annual gross load in megawatt-hours ("MWh") / (MW nameplate capacity x 8,760)). For the past three years, the annual capacity factors of the current MPS units, combined, have been 59% (2015), 55% (2016), and 57% (2017) (i.e. 57% average capacity over the past three years).

Emission rates are expressed in the MPS as the pounds of a particular pollutant emitted per million British Thermal Units ("mmBtu") of heat input. The MPS has standards for sulfur dioxide ("SO₂") and nitrogen oxide ("NO_x") that apply to *groups* of plants. Dynegy, however, decides what the emission rates of its *individual* MPS units will be because Dynegy decides what pollution controls to install and operate and what type of coal to burn at the units in order to meet legal requirements. These factors are what lead to how much pollution a unit produces per amount of coal that it is burning (*i.e.*, its heat input). And once these decisions are implemented, the emission rates should not change significantly unless the pollution controls are turned off or removed, new controls are put on, or Dynegy changes its coal supply. The tons of pollution and the tons of coal burned will go up and down depending on how much the unit is operated (*i.e.*, its capacity factor), but the *rate* should be static absent the changes just mentioned.

Question: "Do you understand who controls the capacity factor, who controls the emission rate and how? Can Dynegy decide which plant to run? Can Dynegy decide at which capacity

factor they run? Can they decide at which emission rate they run? What do they have to do to get to those?" Tr. 1/18/18, page 83, line 24-page 84, line 5.

Answer: As described in greater detail above, with respect to capacity factors, Dynegy decides the price at which it is willing to generate power from a given unit at a certain time, and MISO will dispatch that unit if the unit is selected in the bid stack. With respect to individual unit emission rates, Dynegy controls what these are based on what pollution controls are implemented and what type of coal is burned. Finally, with respect to MPS compliance and fleet-wide emission rates, Dynegy controls how this is achieved by managing the units that exist in each group, deciding what the individual emission rates of the units will be, and then deciding whether the units are offered into the market and at what price.

Dated: February 16, 2018

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS,
by LISA MADIGAN,
Attorney General of the State of Illinois,

MATTHEW J. DUNN, Chief
Environmental Enforcement/
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Electronic Filing Received, Clerk's Office 2/16/2018

Facility Name	Unit ID	2017 Gross Load (MW-h)	2016 Gross Load (MW-h)	2015 Gross Load (MW-h)	2014 Gross Load (MW-h)	2013 Gross Load (MW-h)	2012 Gross Load (MW-h)	2011 Gross Load (MW-h)	2010 Gross Load (MW-h)	2009 Gross Load (MW-h)	2008 Gross Load (MW-h)	Nameplate Capacity (MW)	2017 Capacity Factor	2016 Capacity Factor	2015 Capacity Factor	2014 Capacity Factor	2013 Capacity Factor	2012 Capacity Factor	2011 Capacity Factor	2010 Capacity Factor	2009 Capacity Factor	2008 Capacity Factor
Baldwin	1	4256973	3579945	3929009	3612677	4353264	4382095	4256142	4922426	4719810	4365766	625	78%	65%	72%	66%	80%	80%	78%	90%	86%	80%
Baldwin	2	4248869	4142070	3016142	4529481	4977489	4063944	4872441	5076725	3740462	4874545	635	76%	74%	54%	81%	89%	73%	88%	91%	67%	88%
Baldwin	3	0	2907612	4220738	4531695	4211091	4794276	5232122	3547576	4500586	4634595	635	0%	52%	76%	81%	76%	86%	94%	64%	81%	83%
Coffeen	1	2149649	1645863	1663873	2151742	1821705	1945318	2286431	2300356	1586382	2415664	389	63%	48%	49%	63%	53%	57%	67%	68%	47%	71%
Coffeen	2	3960975	3436013	3324374	3635208	333747	3620176	3213509	3073162	2948670	3515473	617	73%	64%	62%	67%	62%	67%	59%	57%	55%	65%
Duck Creek	1	2166840	2338467	2363610	2477495	2766167	3075539	2327215	2827797	2137973	2482081	441	56%	61%	61%	64%	72%	80%	60%	73%	55%	64%
E D Edwards	2	1262963	1089069	1698538	1854000	1838296	1879308	1916844	1818425	1878918	1565992	281	51%	44%	69%	75%	75%	76%	78%	74%	76%	64%
E D Edwards	3	2046863	1938365	1475139	2111602	2302982	1937026	2332239	2446622	2390773	2187691	364	64%	61%	46%	66%	72%	61%	73%	77%	75%	69%
Havana	9	2848787	2671713	2115992	2850484	3153270	3023729	3290873	3356096	2280409	3060557	488	67%	62%	49%	67%	74%	71%	77%	79%	53%	72%
Hennepin	1	438327	416864	439325	459685	359877	515218	577749	573819	533447	397677	75	67%	63%	67%	70%	55%	78%	88%	87%	81%	61%
Hennepin	2	1378893	1158049	1246904	1379725	1411586	1808108	1804087	1868434	1775299	1399958	231	68%	57%	62%	68%	70%	89%	92%	88%	66%	66%
Joppa	1	875026	752282	956900	1312296	1292822	1260495	1418830	1456298	1424827	1151113	183	55%	47%	60%	82%	81%	79%	89%	91%	89%	72%
Joppa	2	801348	736600	871481	1320187	1256764	1233258	1194562	1397275	1318607	1516512	183	50%	46%	54%	82%	78%	77%	75%	87%	82%	95%
Joppa	3	685802	428451	840144	1247131	1186607	1102056	1361558	1341577	1365346	1497672	183	43%	27%	52%	78%	74%	69%	85%	84%	85%	93%
Joppa	4	530810	682622	921854	1333425	1267827	1225340	1437495	1439559	847003	1478670	183	33%	43%	58%	83%	79%	76%	90%	90%	53%	92%
Joppa	5	627033	382421	930759	1191697	1231189	1027743	1416709	1373654	1324612	1485316	183	39%	24%	58%	74%	77%	64%	88%	86%	83%	93%
Joppa	6	729089	476243	810991	1317637	1215881	1151848	1444091	1407797	1346374	1504067	183	45%	30%	51%	82%	76%	72%	90%	88%	84%	94%
Newton	1	3546555	2348892	2842906	3490220	3336394	3637379	3964715	4200305	4374462	4386205	617	66%	43%	53%	65%	62%	67%	73%	78%	81%	81%
TOTAL		32554802	31131541	33668679	40806386	41316958	41682856	44347613	44427903	40493961	43859554	6496	57%	55%	59%	72%	73%	73%	78%	78%	71%	77%

ILLINOIS POLLUTION CONTROL BOARD
March 2, 2018

IN THE MATTER OF:

AMENDMENTS TO 35 ILL. ADM.
CODE 225.233, MULTI-POLLUTANT
STANDARDS (MPS)

R18-20
(Rulemaking - Air)

HEARING OFFICER ORDER

On October 2, 2017, the Illinois Environmental Protection Agency (IEPA) filed a rulemaking proposing amendments to the Multi-Pollutant Standard (MPS) in 35 Ill. Adm. Code 225, Control of Emissions from Large Combustion Sources. The MPS applies to coal-fired electrical generating units in central and southern Illinois, specifically, in the Counties of Fulton, Jasper, Mason, Massac, Montgomery, Peoria, Putnam, and Randolph. On October 19, 2017, the Board accepted the proposed rules for first notice without commenting on the merits. On January 29, 2018, the Hearing Officer set deadlines for prefiling testimony, responses and questions for a hearing scheduled for March 6 and 7, 2018, in Edwardsville. The deadline for the prefiled questions is March 2, 2018.

The Board and Staff have reviewed the responses, additional information and prefiled testimony and submit with this Order their questions to the IEPA and Dynegy Midwest Generation, LLC, Illinois Power Generating Company, Illinois Power Resources Generating, LLC, and Electric Energy, Inc, included as Attachment A.

Anyone may file a comment and anyone may respond to the questions attached, as well as any other prefiled questions in the record. All filings in this proceeding will be available on the Board's web page at www.ipcb.state.il.us and participants may file electronically on the Board's web page.

Exhibit 28
R18-20
3/6/18
MT

Questions for Dynegy Witnesses

- 1) Of the generating units for this MPS proposal, which are pseudo-tied into PJM? For these pseudo-tied units, how does PJM account for MPS regulations?
- 2) Please provide the criteria under which MISO (or PJM) (may) designate a generating facility as a System Support Resource (SSR) or a Reliability Must Run (RMR), respectively.
- 3) Does Dynegy first identify or offer units that could be designated SSRs or RMRs?
- 4) How do current MPS rates affect Dynegy's offer of units as SSRs or RMRs? How would the proposed MPS amendments affect Dynegy's ability to offer units as SSRs or RMRs?
- 5) Is there any way that MISO or PJM can require an MPS group unit to run past its limits as enumerated in state environmental regulations? Why or why not?
- 6) Please clarify your use of term "must run" in Exhibit B to Dynegy's Response to Questions filed on February 16, 2018 (Percent of Annual Hours Dispatched as Must-Run). Are you referring to a PJM or MISO designated unit as SSR or RMR? Or are you referring to a unit that must run in order to balance the emissions rate due to the current MPS?

IT IS SO ORDERED.

A handwritten signature in black ink that reads "Marie E. Tipsord". The signature is written in a cursive, flowing style.

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
AMENDMENTS TO) R18-20
35 ILL. ADM. CODE 225.233,) (Rulemaking – Air)
MULTI-POLLUTANT STANDARDS (MPS))

NOTICE

TO: Don Brown
Clerk
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SEE ATTACHED SERVICE LIST

PLEASE TAKE NOTICE that I have today electronically filed with the Office of the Clerk of the Illinois Pollution Control Board the ILLINOIS ENVIRONMENTAL PROTECTION AGENCY'S RESPONSES AND INFORMATION REQUESTED FROM JANUARY HEARINGS, a copy of which is herewith served upon you.

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: /s/ Gina Roccaforte
Gina Roccaforte
Assistant Counsel
Division of Legal Counsel

DATED: February 16, 2018

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Exhibit 29
R18-20
3/6/18
mt

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
AMENDMENTS TO) R18-20
35 ILL. ADM. CODE 225.233,) (Rulemaking – Air)
MULTI-POLLUTANT STANDARDS (MPS))

**ILLINOIS ENVIRONMENTAL PROTECTION AGENCY'S
RESPONSES AND INFORMATION REQUESTED FROM THE JANUARY HEARINGS**

NOW COMES the Illinois Environmental Protection Agency (“Illinois EPA” or “Agency”), by one of its attorneys, and submits the following responses to questions from the hearings held January 17-18, 2018, in Peoria, as well as additional information requested at those hearings.

- 1) In this rulemaking, the Agency has proposed a sulfur dioxide (“SO₂”) mass emission limitation of 55,000 tons per year, a limit that reflects a lowering of current allowable emissions from affected sources and locks in reductions on a mass basis that have occurred in previous years due to a number of causes, including economic and market factors, in addition to the current MPS. The Agency explained both in its rulemaking proposal and at the first hearing in this matter that this proposed limit does not interfere with Illinois’ ability to meet the pollution reduction goals set forth in the State’s Regional Haze State Implementation Plan (“SIP”) (the only SIP that relies upon the MPS requirements), and that it is sufficient to protect air quality in Illinois to at least the same extent as the current MPS rules. The Agency has further explained both at the first hearing and in more detail below that, while the MPS was never intended to address federal air quality standards, the Agency assessed localized air quality impacts related to this rulemaking by reviewing modeling performed for the Data Requirements Rule (“DRR”); the Agency determined that federal standards are adequately protected by other applicable regulations, including SO₂ limitations in Part 214 adopted by the Board in 2015.

Based on the above, the proposed SO₂ limit of 55,000 tons is appropriate. However, other participants in this rulemaking proceeding have indicated or implied that the Board should lower such limit. For example, the Illinois Attorney General’s Office indicated, “the total maximum allowable SO₂ emissions under the current MPS should be considered no more than 49,305 tons using the 2016 unit-level emission rates.” *Pre-filed Testimony of the Illinois*

Attorney General's Office on the Pollution Control Board's First Notice Proposal at 18.¹

While the Agency's proposed mass emission limitation of 55,000 tons per year is appropriate, based on the information solicited and presented at the first hearing, including the above-referenced testimony of the Illinois Attorney General's Office, the Agency now supports the Board adopting the following amendment to Section 225.233(e)(2)(C).

- C) Except as otherwise provided in subsection (f) of this Section, beginning in calendar year 2018 and continuing in each calendar year thereafter, the owner and operator of the EGUs in an MPS Group must not cause or allow to be discharged into the atmosphere combined annual SO₂ emissions in excess of 49,000~~55,000~~ tons from all EGUs.

This alternative limit represents an annual reduction of 6,000 tons or 10.9% from the Agency's original proposed limitation, and an annual reduction of 17,354 tons or 26% from the total calculated allowable emissions for the current MPS Groups under the existing MPS.

If the Board chooses to lower the SO₂ limitation to 49,000 tons per year, it must also lower the corresponding transfer unit allocations set forth in Section 225.233(f)(2) of the Agency's proposal. In such a case, the Agency recommends a 10% reduction from the original amounts, as follows:

A)	Baldwin	6,000	2,700	<u>5,400</u> 6,000
B)	Havana	1,800	810	<u>1,350</u> 1,500
C)	Hennepin	1,500	675	<u>5,400</u> 6,000
D)	Coffeen	2,000	900	<u>225</u> 250
E)	Duck Creek	1,400	630	<u>225</u> 250
F)	Edwards	3,000	1,350	<u>9,000</u> 10,000
G)	Joppa	5,200	2,340	<u>16,200</u> 18,000
H)	Newton	2,700	1,215	<u>9,000</u> 10,000

¹ Illinois EPA continues to disagree with the arguments and various calculation methodologies that the Illinois Attorney General's Office presented to the Board. Further, as stated in the Agency's Technical Support Document, in testimony, and responses, the methodology used by the Agency to calculate allowable emissions was chosen because it is the method the State is required to use to demonstrate that this SIP revision is approvable by USEPA.

- 2) The Agency was asked when it would select a rate-based limit as opposed to a mass-based limit for regulations for coal plants. January 17, 2018, Transcript, at 87.

Mass-based limits are those which restrict the amount of emissions in a given timeframe, such as an hour or a year. They are generally used to constrain emissions to a more certain environmental outcome in a given timeframe (such as the overall tons per year that would be allowed under this proposal, or the number of pounds per hour allowed from a given emission point under the SO₂ rule). Rate-based limits in terms of pounds per million British thermal units are those which limit the amount of emissions based on the heat input. Such limits generally do not constrain total emissions or the capacity of a source. The total emissions from a source under such a standard are determined by the manner in which the source runs, and overall emissions are limited only by the maximum operations of the source.

- 3) The Agency was asked if there are any other Dynegy plants located in potential environmental justice communities. January 17, 2018, Transcript, at 119.

After consulting with the Agency's Environmental Justice Officer, and as was stated in the Agency's response to the Environmental Groups' Question IV.2.a., there are no other Dynegy plants located in potential environmental justice communities. The Hennepin Power Station is the only Dynegy plant located in an environmental justice community.

- 4) The Agency was asked if it agrees in all respects with Attachment 9 to the *Illinois EPA's Responses to Prefiled Questions*, filed January 12, 2018, or potentially some of it and not the rest of it. January 17, 2018, Transcript, at 136.

The Agency does not agree with the cited document in all respects. Some main points of disagreement include:

The table at the top of page 2 is incorrect in the Agency's opinion. While this table was provided by USEPA in the SIP approval, Illinois EPA found that there were errors between this table and the information provided by Illinois EPA to USEPA; Illinois EPA stands by the original numbers in its SIP submittal, which is why the Agency did not agree with Dynegy that these were the appropriate numbers to use.

The final dot point on page 3 contains reasoning that the Agency did not find compelling. As such, the Agency did not rely upon such reasoning in this proposal. This is similarly true about #1 on page 4.

The Agency partially disagreed with #2 on page 4. Specifically, the Agency disagreed with some of the numbers used and the idea that "expected" emissions reductions were not federally enforceable. While technically true,

the State of Illinois would have been required to take additional actions to reduce emissions if the goals were not being met.

Item #4 on page 5 states that using the 2002 base year was “only one of many ways to forecast expected actual emissions.” The Agency disagreed because that was the way it was done to meet Illinois’ Regional Haze requirements and the way it was approved by USEPA.

For Items #6A and 6E on page 5, the Agency disagrees, as reflected in this proposed rule.

For Item #IA1 on page 7, the Agency disagreed with the SO₂ emissions cap proposed by Dynegy, as reflected in the Agency’s proposal.

For Section B on page 8, the Agency disagreed with Dynegy’s methodology and instead detailed in the TSD the Agency’s position on such methodology.

There are other individual statements throughout the document that the Agency may disagree with in part or whole, so the fact that something is not specifically listed here does not automatically indicate that the Agency agrees. The items discussed above are the main points with which the Agency disagreed and which drove the manner in which this proposal was written.

- 5) The Agency would like to clarify its response at hearing regarding the timing of the Illinois mercury rule and its status as a federal requirement. January 17, 2018, Transcript, at 153-154.

In May 2005, USEPA promulgated regulations requiring reductions of mercury emissions in the Clean Air Mercury Rule (“CAMR”), 70 *Fed. Reg.* 28606 (May 18, 2005). Following promulgation of the CAMR, the Board adopted the Illinois mercury rule. *See, In the Matter of: Proposed New 35 Ill. Adm. Code 225 Control of Emissions from Large Combustion Sources (Mercury)*, R06-25 (Dec. 21, 2006). The Illinois mercury rule established limitations on mercury emissions that were more stringent than required by USEPA in the CAMR. As an alternate added within the Illinois mercury rule, certain specified sources could comply with the MPS, which provided additional time to comply with the mercury limitations in exchange for compliance with mercury control technology requirements and emission limits for SO₂ and NO_x.

In February 2008, the United States Court of Appeals for the District of Columbia vacated the CAMR. *See, State of New Jersey v. Environmental Protection Agency*, 517 F.3d 574 (D.C. Cir. 2008). On May 3, 2011, in response to the vacatur of the CAMR, USEPA proposed mercury and air toxics standards (“MATS”) for coal and oil-fired electric generating units

that set emission limits for mercury, PM, hydrogen chloride, and trace metals, in addition to establishing alternative numeric emissions limits. 76 *Fed. Reg.* 24876 (May 3, 2011). USEPA finalized these standards, effective April 16, 2012. 77 *Fed. Reg.* 9304 (February 16, 2012).

6) Response to Public Comments

A number of commenters made claims that the air quality in the Peoria/Pekin area has deteriorated or at least not improved over the course of years, and/or that the Edwards power plant in particular has not reduced emissions. While the Agency appreciates the concerns of citizens in the area, these statements are simply incorrect.

First, one commenter stated that he lived in the area surrounding the E.D. Edwards facility for 34 years. See, January 17, 2018, Transcript, at 216. “Over that time, I have seen no emission improvements made at the Edwards plant to safeguard my health.” *Id.* Another commenter claimed, “there’s nothing being done about cleaning this air.” *Id.* at 319.

Contrary to these comments, SO₂, NO_x, and PM_{2.5} emissions from the Edwards facility have all significantly decreased. SO₂ emissions from the Edwards source were as high as 76,410 tons in 1997, but have since decreased to a low of 5,890 tons in 2016 – a 92% reduction in emissions. NO_x emissions were as high as 13,523 tons in 1997, while they were only 1,763 tons in 2016 – a decrease of 87%. PM_{2.5} emissions have decreased from 79 tons in 2004 (the earliest year for which the Agency has Annual Emissions Report data) to 23 tons in 2017 – a 71% reduction.

Going beyond the emissions from the Edwards plant, the Agency compiled information on SO₂ air concentrations in the Peoria/Pekin area since 1983, and PM_{2.5} concentrations since 1999 (in both cases, the dates at which monitors were first placed in the areas; there are no NO_x monitors in the area). As can be seen in Attachment A, Figures 1 and 2, since 1983, SO₂ concentrations in Pekin have decreased 82% measured as an annual average, and 90% measured as an hourly 99th percentile. (The hourly 99th percentile measurement is the manner in which attainment/nonattainment is determined and represents the value at which 99% of the hourly concentration readings are below that level – in other words, it is almost the highest hourly value for the year, excluding a few outliers.) Indeed, Figure 2 demonstrates how the recent SO₂ regulations helped bring about a dramatic drop in hourly SO₂ concentrations over the past few years.

Figures 3 and 4 show that SO₂ concentrations have decreased 86% since 1983 in Peoria measured as an annual average and 76% measured as an hourly 99th percentile. Additionally, Figure 5 shows that PM_{2.5} concentrations have decreased 53% in Peoria since 1999. These facts directly contradict the

opinions voiced by some commenters that air quality in the area is worsening or that nothing has been done about it.

The Agency further examined information from other SO₂ monitors near Dynegy facilities, all of which showed great decreases in SO₂ concentrations over time. Figures 6 and 7 show a 98% decrease in East St. Louis SO₂ measured both annually and as the hourly 99th percentile. Figures 8 and 9 show a 70% decrease annually and 95% decrease as the hourly 99th percentile for Oglesby. Figures 10 and 11 show a 96% annual decrease and 98% hourly 99th percentile decrease in Wood River.

Additionally, the Agency reviewed data from other PM_{2.5} and NO₂ monitors near Dynegy facilities, all of which also show large decreases in concentrations. Figures 12 through 16 show the PM_{2.5} annual averages from the monitors in Houston, East St. Louis, Wood River, Granite City, and Alton. As noted on these graphs, PM_{2.5} concentrations decreased 34% in Houston from 1999 to 2017; 39% in East St. Louis from 1999 to 2017; 47% in Wood River from 1999 to 2017; 44% in Granite City from 1999 to 2017; and 46% in Alton from 2000 to 2017. Figures 17 and 18 show monitored NO₂ values in East St. Louis (the only applicable area for which there is an NO₂ monitor nearby). As demonstrated, NO₂ concentrations from 1983 to 2017 decreased 55% when measured on a 98th percentile basis, and 65% when measured on an annual basis.

All of the available data demonstrate improving air quality across the areas near Dynegy facilities.

Second, commenters also requested that the Board “please keep Peoria from becoming a pollution hot spot”; stated, “I heard that there was a proposed rule that could...reduce the air quality of our area”; and claimed, “Peoria, once again, is going to be the one that suffers.” *Id.* at 235, 242, and 244. Once again, as demonstrated by the Figures referenced above and as previously discussed by the Agency, this is simply untrue.

The Board recently enacted hourly SO₂ limits for the Edwards plant and other sources in the area to ensure attainment and maintenance of the SO₂ National Ambient Air Quality Standard (“NAAQS”). No change to the MPS rule under discussion in this proposal will allow the Edwards plant to increase its SO₂ emissions beyond the limits provided in Part 214. As such, emissions will continue to be restricted to ensure the NAAQS is not violated. While the commenters were nonspecific in their use of terminology such as claiming the proposed change to the MPS could “reduce the air quality of our area” or cause the area to become “a pollution hot spot,” the Agency has shown clearly that air quality has improved and will continue to meet the NAAQS, meaning such claims have no basis in fact.

Several comments provided to the Board by members of the public at the end of the first day of hearing cited to the *Chicago Tribune* article from September 27, 2017, as support for their opposition to the proposed rule. For example, one commenter noted “as the *Chicago Tribune* reports, Dynegy could emit nearly double the amount of SO₂ being admitted last year.” *Id.* at 246. Brian Urbaszewski stated, “Dynegy wants to pollute more, up to 30,000 tons more. Otherwise, Dynegy wouldn’t have written IEPA’s proposal the way they did.” *Id.* at 237.

The claims in these comments and the *Chicago Tribune* are incorrect and misleading. As the Agency has noted in its *Responses to Prefiled Questions* and at hearing, the proposed rules would not allow near double the air pollution. As the Agency has stated several times, the proposed rules reduce allowable emissions. The claim that Dynegy could emit double the amount of emissions comes from improperly comparing 2016 actual emissions, which were lower than usual, to the allowable emissions under the MPS.

Furthermore, the claim that Dynegy authored the proposed regulations is false. The Agency has noted that Dynegy approached the Agency to request a revision to the MPS. The proposed rule before this Board was authored by the Agency, not Dynegy.

- 7) All participants were asked by Board Member Zalewski to provide the Board with input on layering a rate-based limit with a mass emission limit. January 18, 2018, Transcript, at 30.

The Agency noted at the first hearing that it does not believe it is necessary to employ fleet-wide annual standards in terms of both mass emission limits and emission rates. At Board Member Zalewski’s request, the Agency once again examined the possibility, but arrived at the same conclusion. Adding another layer of regulation on top of the proposed mass emissions cap is not necessary to meet the Regional Haze State Implementation Plan for which the MPS has been used, and is also unnecessary for protection of the NAAQS.

- 8) The Agency was asked to provide the Board with a summary of the modeling information for the various plants covered by the proposal setting forth specifically which years’ actual emissions were used. January 17, 2018, Transcript, at 28-29.

Modeling Summary

As noted during testimony at the first hearing, the Agency conducted modeling for SO₂ on all but one of the Dynegy sources involved in this rulemaking. The modeling exercises were conducted for one of two purposes, both related to the 2010 1-hour SO₂ NAAQS. Some sources were included in

modeling to satisfy the requirements of the DRR, 40 CFR § 51.1200 *et seq.*, and other sources were modeled in response to monitored nonattainment of the NAAQS in the Pekin area. The Newton, Hennepin, Joppa, and Baldwin sources were modeled to satisfy requirements of the DRR, and were modeled using actual emissions. The Edwards, Havana, and Duck Creek sources were modeled for the Attainment Demonstration for the Pekin nonattainment area (“NAA”), and were modeled at their maximum allowable emission rates to ensure the area would attain the NAAQS. This included the rates adopted for the Edwards plant in the 2015 SO₂ rulemaking amending Part 214 (R2015-021). As such, actual emissions data from specific years were not used for that modeling, but they are shown below for completeness’ sake. As stated in the Agency’s *Responses to Prefiled Questions*, Board Question #8, the Coffeen source was not modeled because its emissions were so low that it fell below the threshold for modeling under the DRR.

The tables below provide the annual emissions from the Dynegy sources and the years for which they were modeled.

Baldwin was modeled (2013-2015) for the DRR: Fourth High Concentration Average = 78.21 µg/m³.

Year	SO ₂ Emissions (TPY)			
	Total Facility	Unit #1	Unit #2	Unit #3
2013	4,803	1,513	1,714	1,576
2014	4,409	1,213	1,490	1,706
2015	4,160	1,503	1,062	1,595

Hennepin was modeled (2012-2014) under the “Consent Decree” phase of the DRR: Fourth High Concentration Average = 94.56 µg/m³.

Year	SO ₂ Emissions (TPY)		
	Total Facility	Unit #1	Unit #2
2012	5,911	1,313	4,593
2013	4,274	883	3,396
2014	3,965	1,002	2,959

Newton was modeled (2012-2014) for the DRR: Fourth High Concentration Average = 138.89 µg/m³.

Year	SO ₂ Emissions (TPY)		
	Total Facility	Unit #1	Unit #2
2012	16,534	10,538	5,981
2013	16,145	7,270	8,865
2014	16,372	8,126	8,291

Joppa was modeled (2012-2014) for the DRR: Fourth High Concentration Average = 168.29 µg/m³.

Year	SO ₂ Emissions (TPY)						
	Total Facility	Unit #1	Unit #2	Unit #3	Unit #4	Unit #5	Unit #6
2013	17,007	3,005	2,918	2,727	3,007	2,521	2,812
2014	16,558	2,843	2,741	2,622	2,783	2,802	2,751
2015	18,229	3,080	3,093	2,950	3,137	2,866	3,154

Duck Creek was modeled (2009-2013) for the Pekin Area Attainment Demonstration.

Year	SO ₂ Emissions (TPY)	
	Total Facility	Unit #1
2009	506	506
2010	756	756
2011	167	167
2012	296	296
2013	231	231

Havana was modeled (2009-2013) for the Pekin Area Attainment Demonstration.

Year	SO ₂ Emissions (TPY)	
	Total Facility	Unit #1
2009	5,018	5,018
2010	7,458	7,458
2011	7,784	7,784
2012	5,814	5,814
2013	1,130	1,130

Edwards was modeled (2009-2013) for the Pekin Area Attainment Demonstration.

Year	SO ₂ Emissions (TPY)			
	Total Facility	Unit #1	Unit #2	Unit #3
2009	11,734	2,070	4,360	5,304
2010	12,010	2,115	4,338	5,557
2011	12,596	2,148	4,900	5,548
2012	11,803	1,974	4,871	4,958
2013	9,846	887	4,107	4,852

In cases where modeling was conducted pursuant to the DRR, the Agency compared the modeled concentrations to the NAAQS value to determine whether increases in emissions could reasonably threaten the NAAQS. The standard is 75 parts per billion, which is equivalent to 196.32 µg/m³.

- Modeled concentrations at the Baldwin source were 78.21 µg/m³ or 39.8% of the standard. Because the Baldwin units were operating at a capacity factor of approximately 72%, even if the source were able to increase to 100% capacity factor in a year, the linear increase in concentration at similar emission rates would correspond only to concentrations around 108 µg/m³, still only 55% of the standard. Thus, the NAAQS in the Baldwin area is not at risk.
- Modeled concentrations at the Hennepin source were 94.56 µg/m³ or 48.2% of the standard. Because the Hennepin units were operated at a capacity factor of approximately 69%, even if the source were able to increase to 100% capacity factor in a year, the linear increase in concentration at similar emission rates would correspond only to concentrations around 137 µg/m³, still only 70% of the standard. Thus, the NAAQS in the Hennepin area is not at risk.
- Modeled concentrations at the Newton source were 138.89 µg/m³ or 70.7% of the standard. These concentrations were modeled for years in which both Units 1 and 2 were operating. The Newton 2 unit has since been shut down (permits withdrawn), which accounted for approximately 47% of the emissions from the source during the years modeled. Due to the shutdown of Unit 2, even if the remaining unit were operated at a 100% capacity factor, the linear increase in concentration at similar emission rates would correspond only to concentrations around 144 µg/m³, still only 73% of the standard. Thus, the NAAQS in the Hennepin area is not at risk.
- Modeled concentrations from the Joppa source were 168.29 µg/m³ or 85.7% of the standard. The relatively higher percentage of the standard

was the reason the Agency proposed a separate and additional limit for the Joppa source of 19,800 tons per year. This limit ensures that emissions from the Joppa source will never increase more than 15% from the modeled years and therefore that the area will not need to be remodeled in the future due to increases at the Joppa plant pursuant to DRR guidance from USEPA. It should be noted that three other significant sources contributed to concentrations in the study area as well. Lafarge Midwest Inc. nearby in Joppa, Honeywell International Inc. in nearby Metropolis, and the Tennessee Valley Authority Shawnee Power Plant across the Ohio River in Kentucky contributed over 60% of the SO₂ emissions in the study area in the modeled years. These other sources in the study area will also be evaluated for emissions increases in subsequent years.

- For the sources that were modeled in the Attainment Demonstration for the Pekin NAA, 196.24 µg/m³ was the design value of the model, which is very close to the standard. This is because, for the purpose of demonstrating attainment, all sources in the study area must be modeled at their maximum allowable emissions for every hour, using five years of meteorological data, and modeled concentrations in the study area must still fall below the standard. This is a very conservative approach because it is nearly impossible for that scenario to occur, and many sources have much greater allowable emissions than actual emissions. For instance, the Duck Creek source was modeled using an emission rate of 4,455 lbs/hr, but typically only emits in a range around 60 lbs/hr. Likewise, the Havana source was modeled at an emission rate of 1,830 lbs/hr, but typically emits in a range around 300 lbs/hr. Finally, 375 emission units in the study area were also all modeled at maximum allowable emission rates for each hour for the Attainment Demonstration. This makes it unlikely that the Duck Creek, Havana, or Edwards sources could cause local nonattainment in the future. Indeed, the Attainment Demonstration has been recently approved by the USEPA and such approval has been published in the Federal Register.

To provide some context regarding how total statewide emissions from Dynegy's sources may relate to the SO₂ NAAQS, it should be noted that the total emissions modeled for these sources throughout all of these exercises are much higher than the fleet-wide mass emission limit that the Agency has proposed in the current rulemaking. For the sources where the modeling was done for the DRR (Baldwin, Joppa, Hennepin, and Newton), the average combined annual emissions for just those sources in the years that were studied were approximately 42,787 tons per year. For sources modeled as part of the Attainment Demonstration, using maximum allowable emissions (Edwards, Havana, and Duck Creek), the combined allowable emissions from those sources in the study area were 48,800 tons per year. The NAAQS were maintained in all of these areas even though modeled emissions from

the affected sources totaled over 91,000 tons per year, far higher than the proposed emissions cap for all of the Dynegy facilities. This helps to demonstrate how annual standards that cover the entire fleet, whether the rate-based limits found in the current MPS or the annual mass-based limits in the proposed amendments, are not appropriate means to ensure maintenance of a NAAQS that is an hourly standard, such as SO₂ NAAQS. This is why the Agency took additional steps through the modeling reviews discussed above and the additional limit at Joppa.

- 9) The Agency was also asked to provide the Board with information about how it assessed annual emissions in the context of the DRR. January 17, 2018, Transcript, at 32-33.

Data Requirements Rule Annual Emissions Assessments

A question was raised regarding the DRR and ongoing requirements by Illinois EPA. The DRR states, “For any area where modeling of actual SO₂ emissions serve as the basis for designating such area as attainment for the 2010 SO₂ NAAQS, the air agency shall submit an annual report...” 40 CFR § 51.1205(b). This report must document annual SO₂ emissions from the sources and provide an assessment of the cause of any emissions increases. *Id.* The report must also include a recommendation whether additional modeling is needed. *Id.* The recommended guideline for states indicates, “...the air agency should conduct additional modeling (using the most recent actual emissions as inputs) for an area if (1) the original modeling level was equal to or greater than 90 percent of the standard, and there is any increase in emissions in the area; or (2) if the original modeling level was between 50 percent and 90 percent of the standard, and emissions in the area increased by 15 percent or more.” *Id.* at (b)(2).

- 10) Questions were presented at the first hearing regarding the continued operation of scrubbers at Dynegy’s Coffeen and Duck Creek plants.

The Agency reviewed the permits for these facilities. Those permits require that Coffeen and Duck Creek operate their wet flue gas desulfurization control devices at all times in accordance with good engineering practices.²

² Permit condition (3)(b)(ii) in both permits state: “At all times, the Permittee shall, to the extent practicable, maintain and operate Units CB-1 and CB-2 with the FGD systems and associated equipment operations in a manner consistent with good air pollution control practice for minimizing emissions.” Coffeen construction permit 06090019, issued June 26, 2012; and Duck Creek construction permit 06070049, issued November 22, 2006.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: /s/ Gina Roccaforte
Gina Roccaforte
Assistant Counsel
Division of Legal Counsel

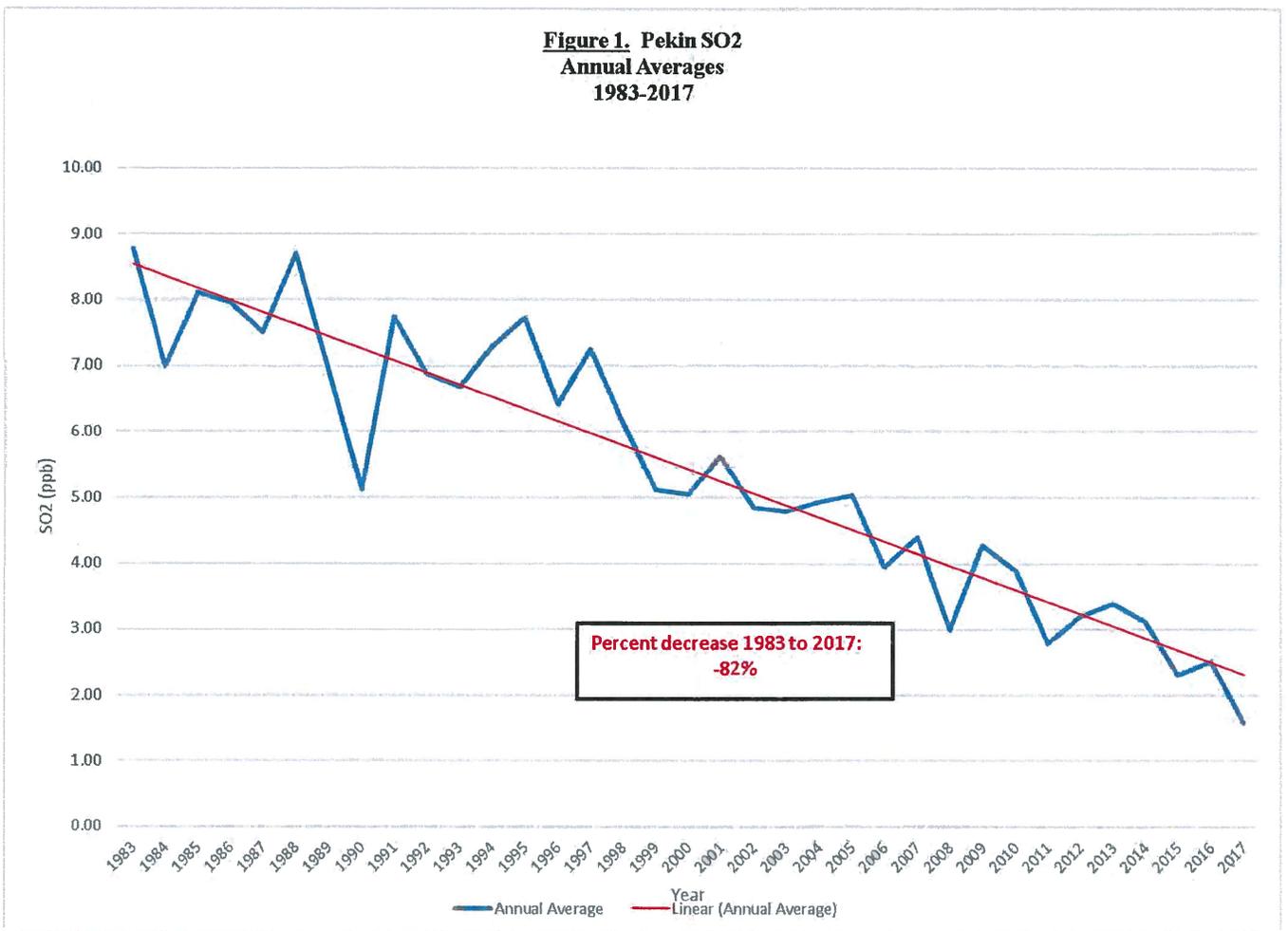
DATED: February 16, 2018

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Springfield, IL 62794-9276

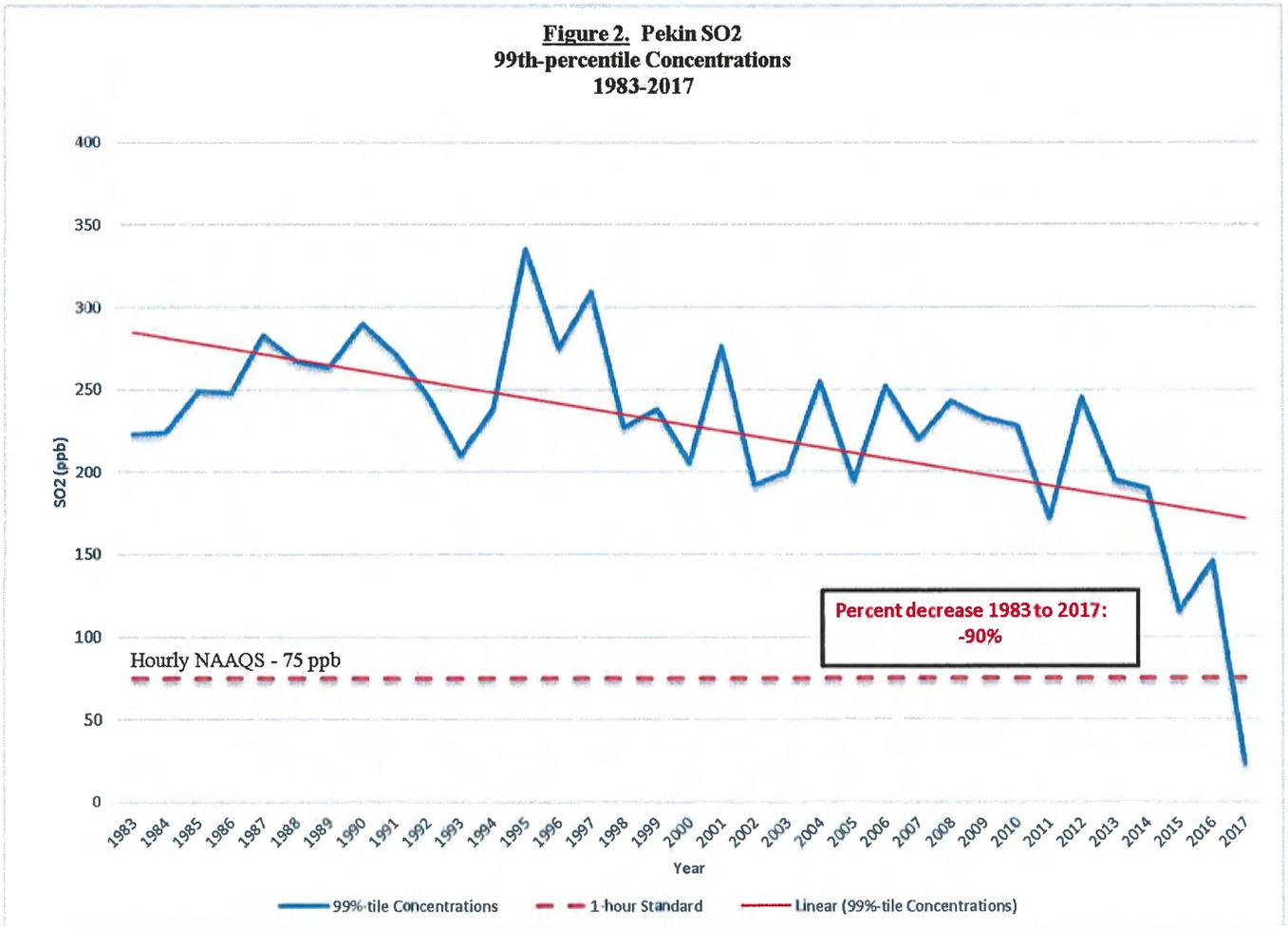
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ATTACHMENT A
AIR QUALITY FIGURES

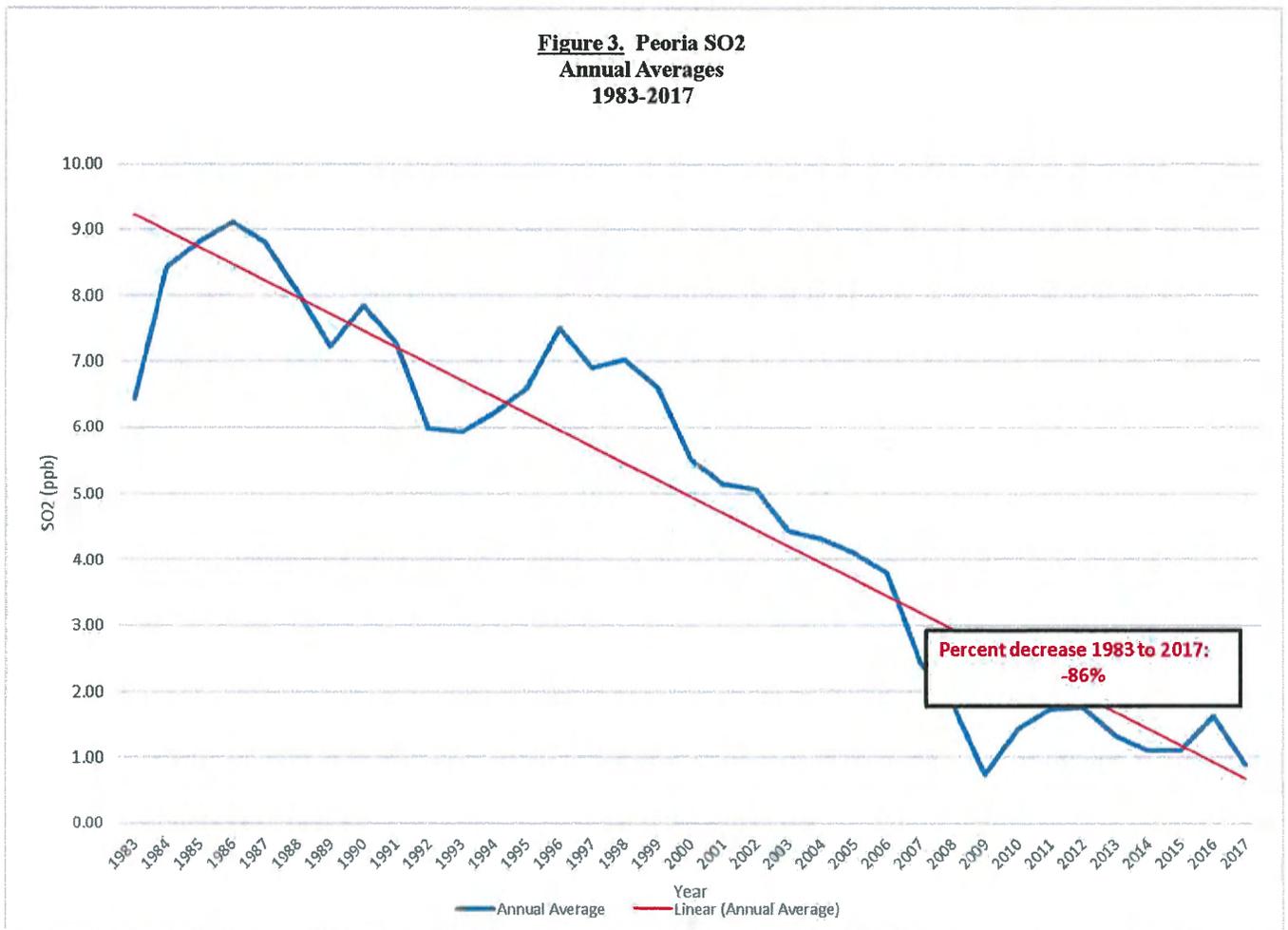
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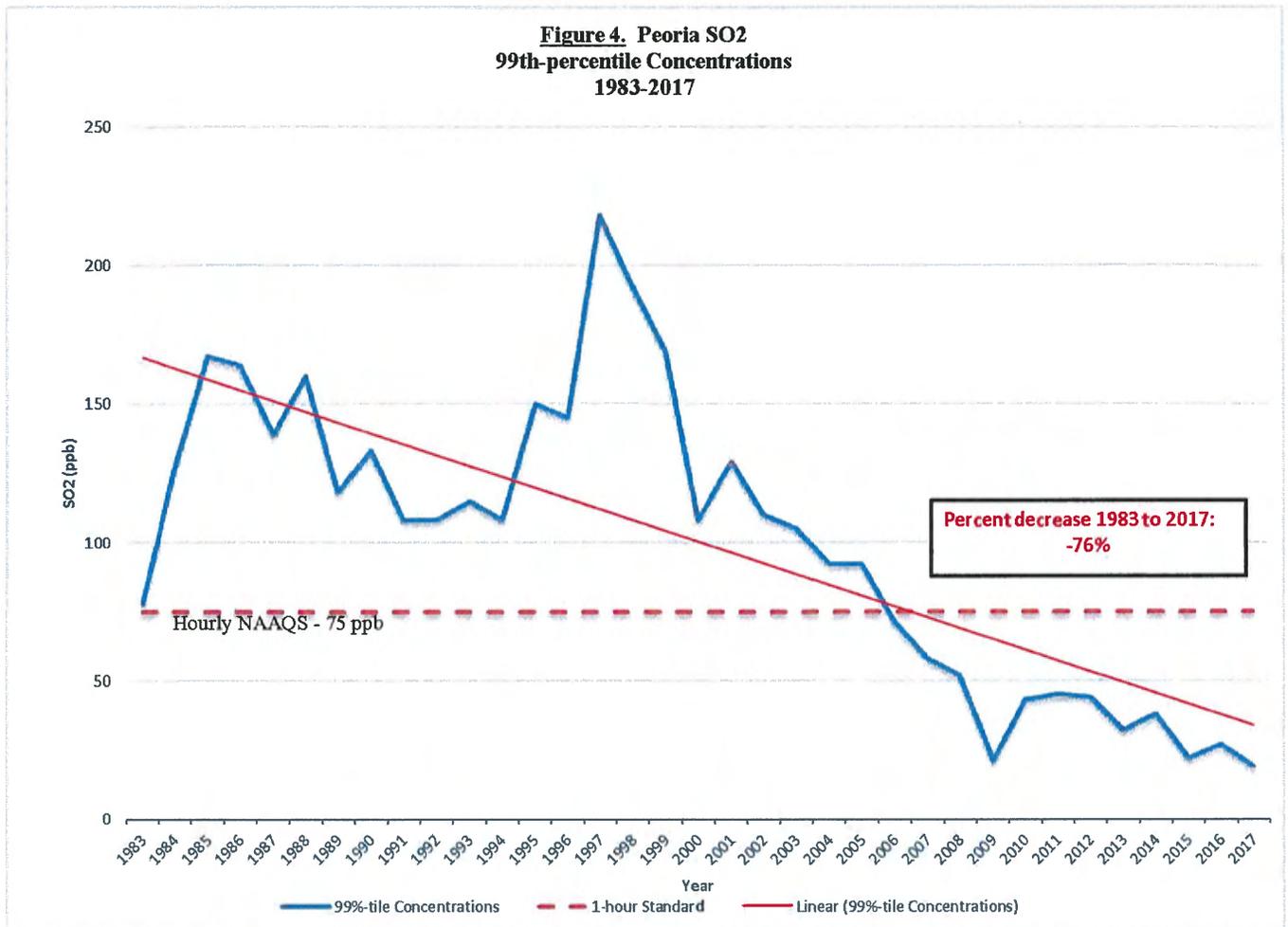
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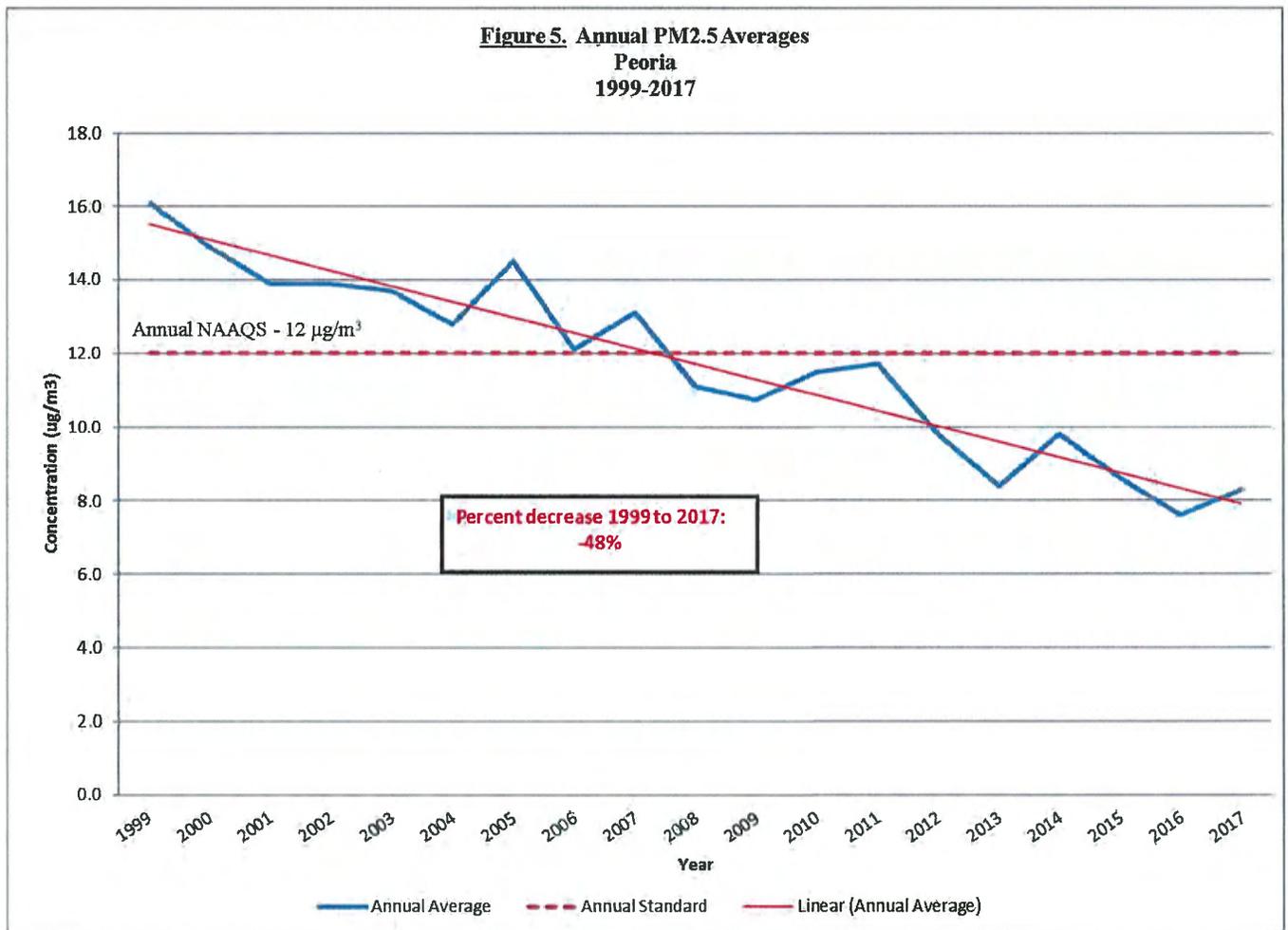
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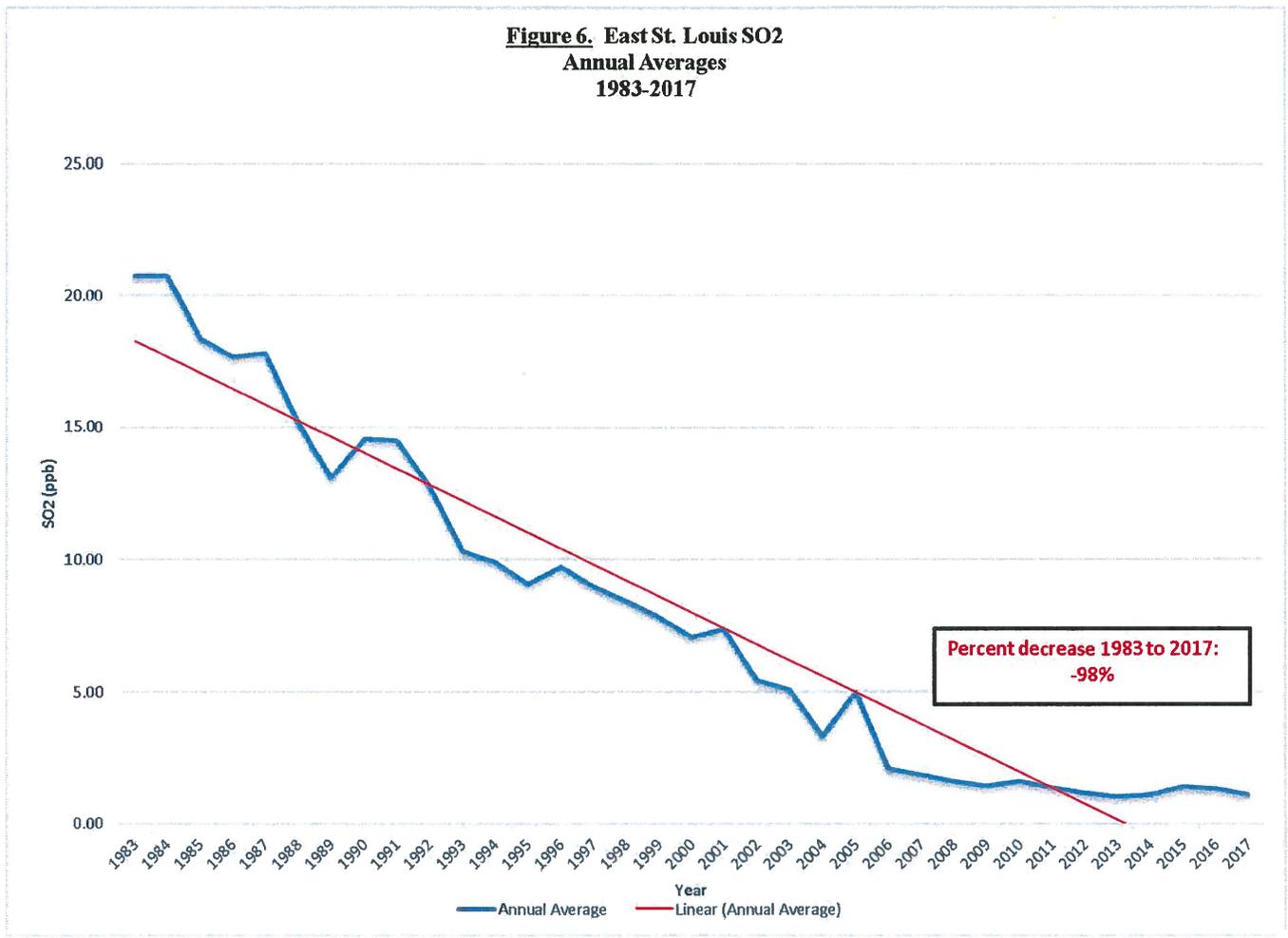
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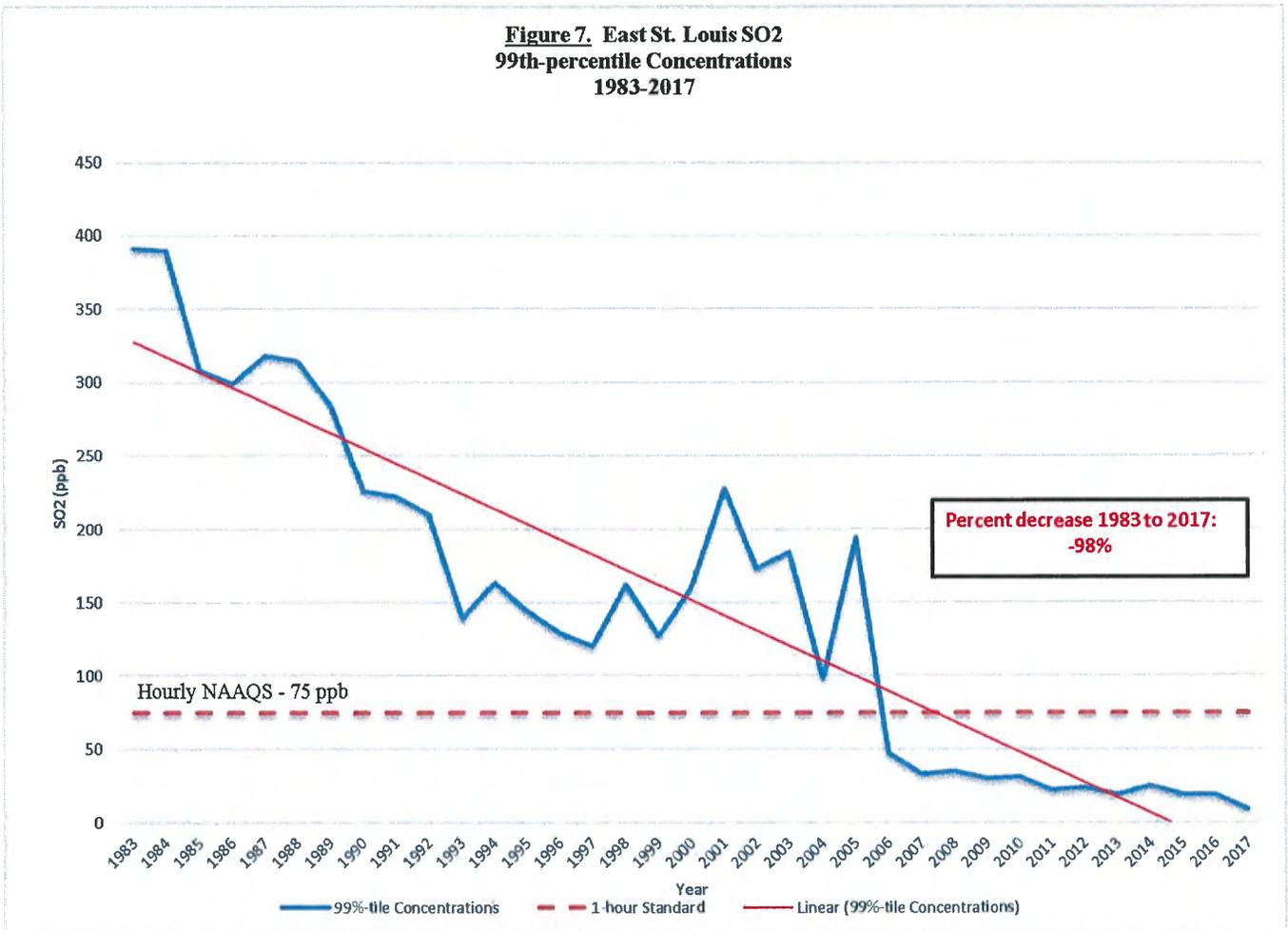


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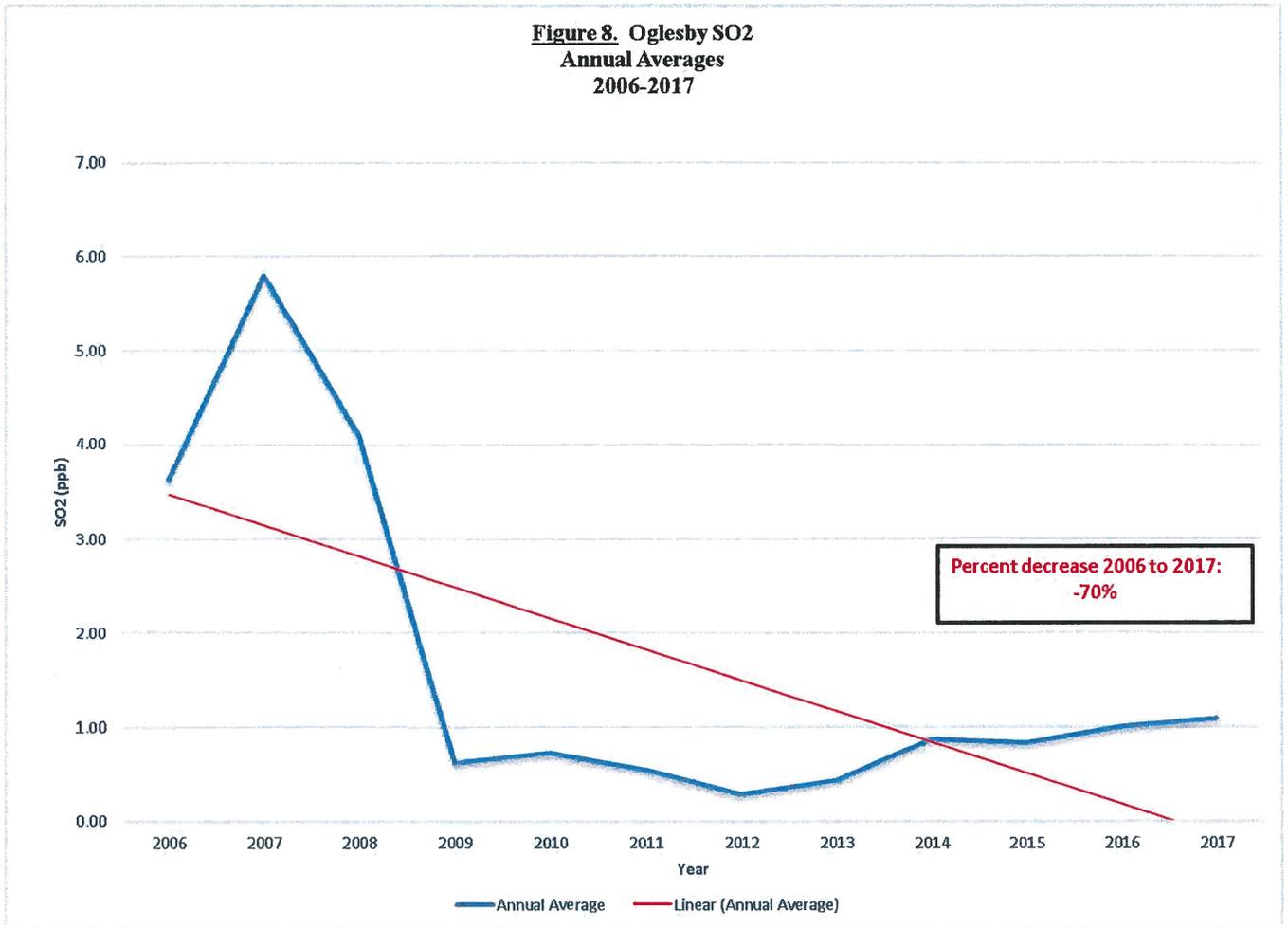


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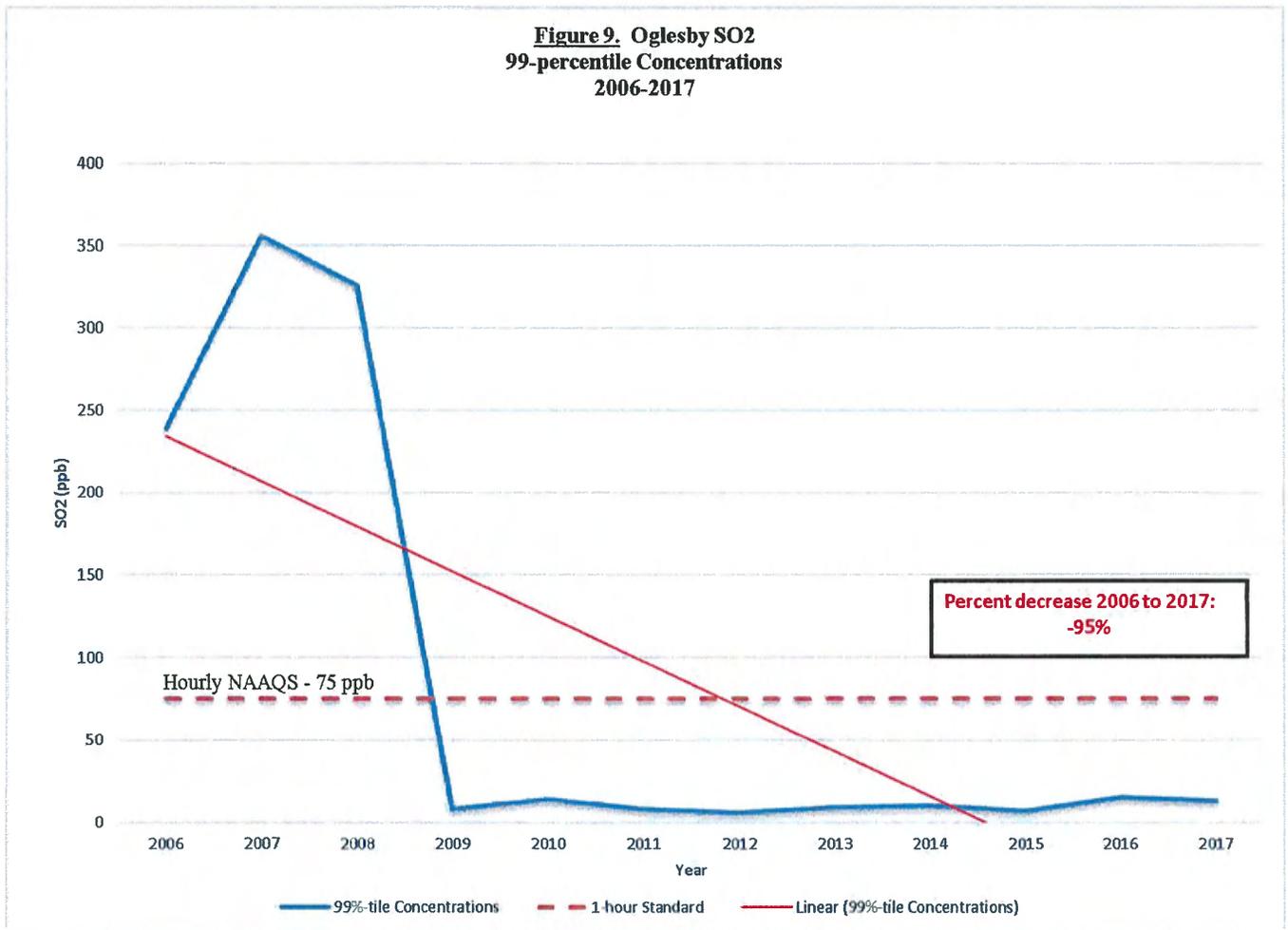
**Figure 7. East St. Louis SO2
99th-percentile Concentrations
1983-2017**



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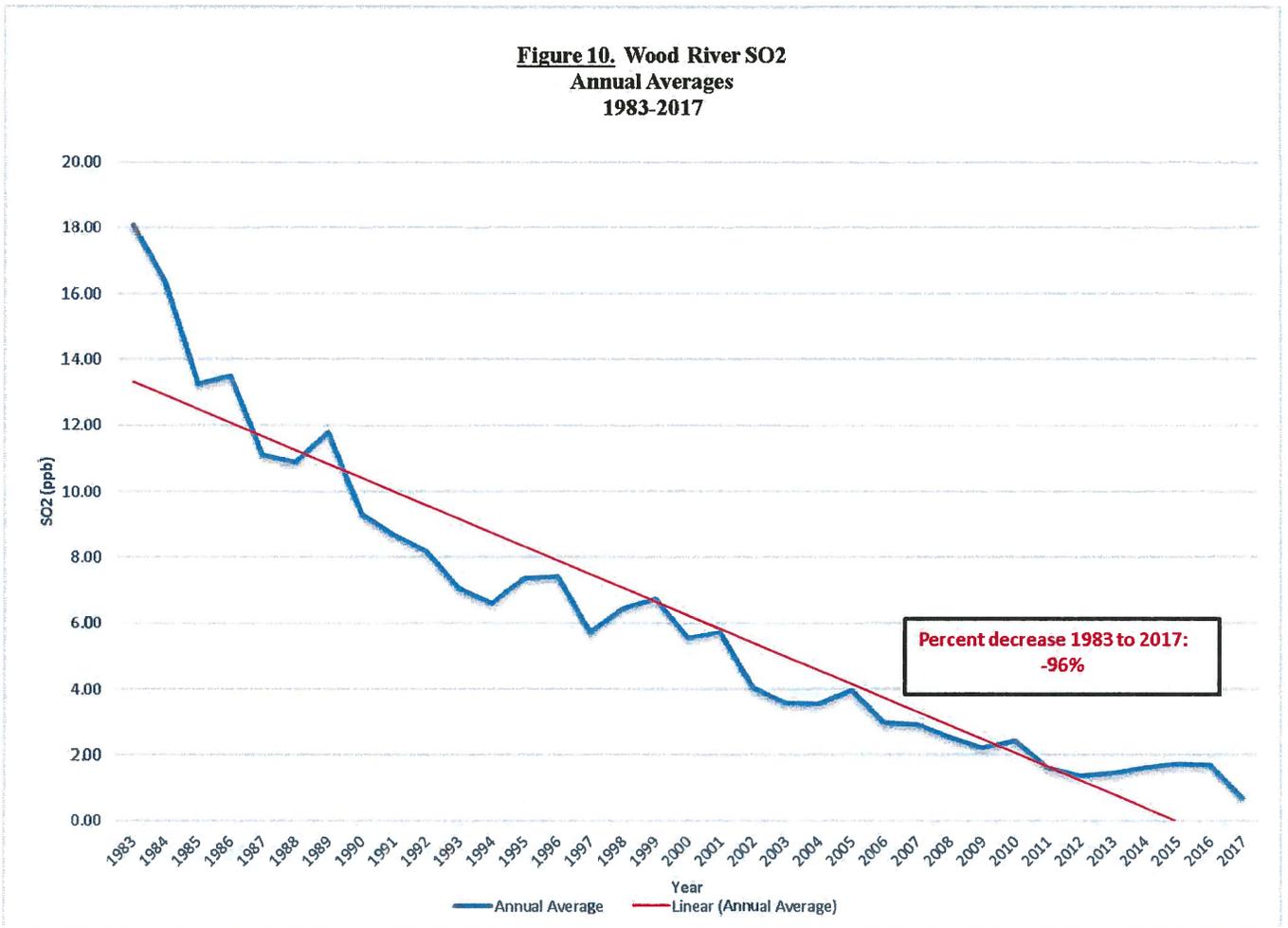


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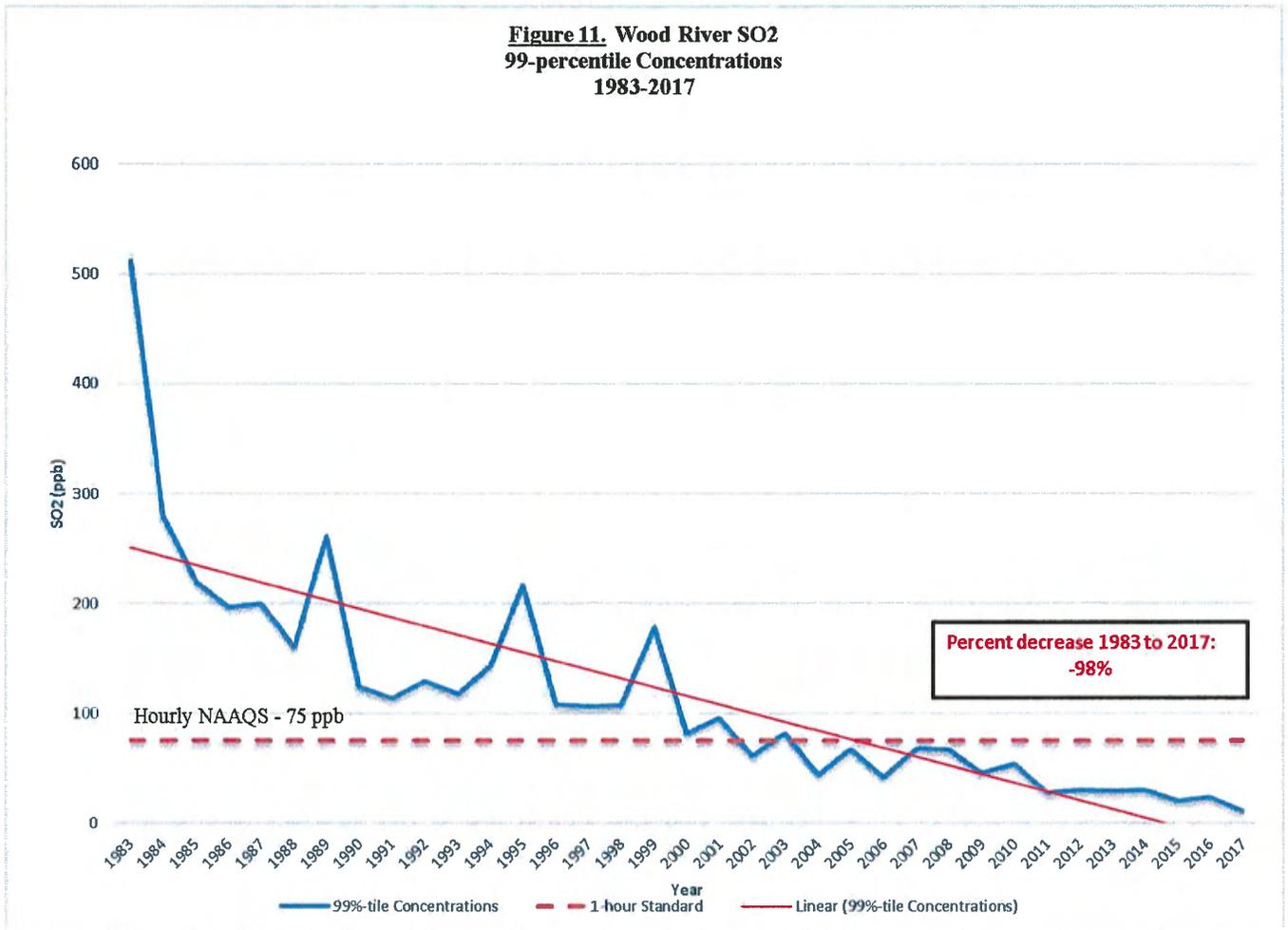


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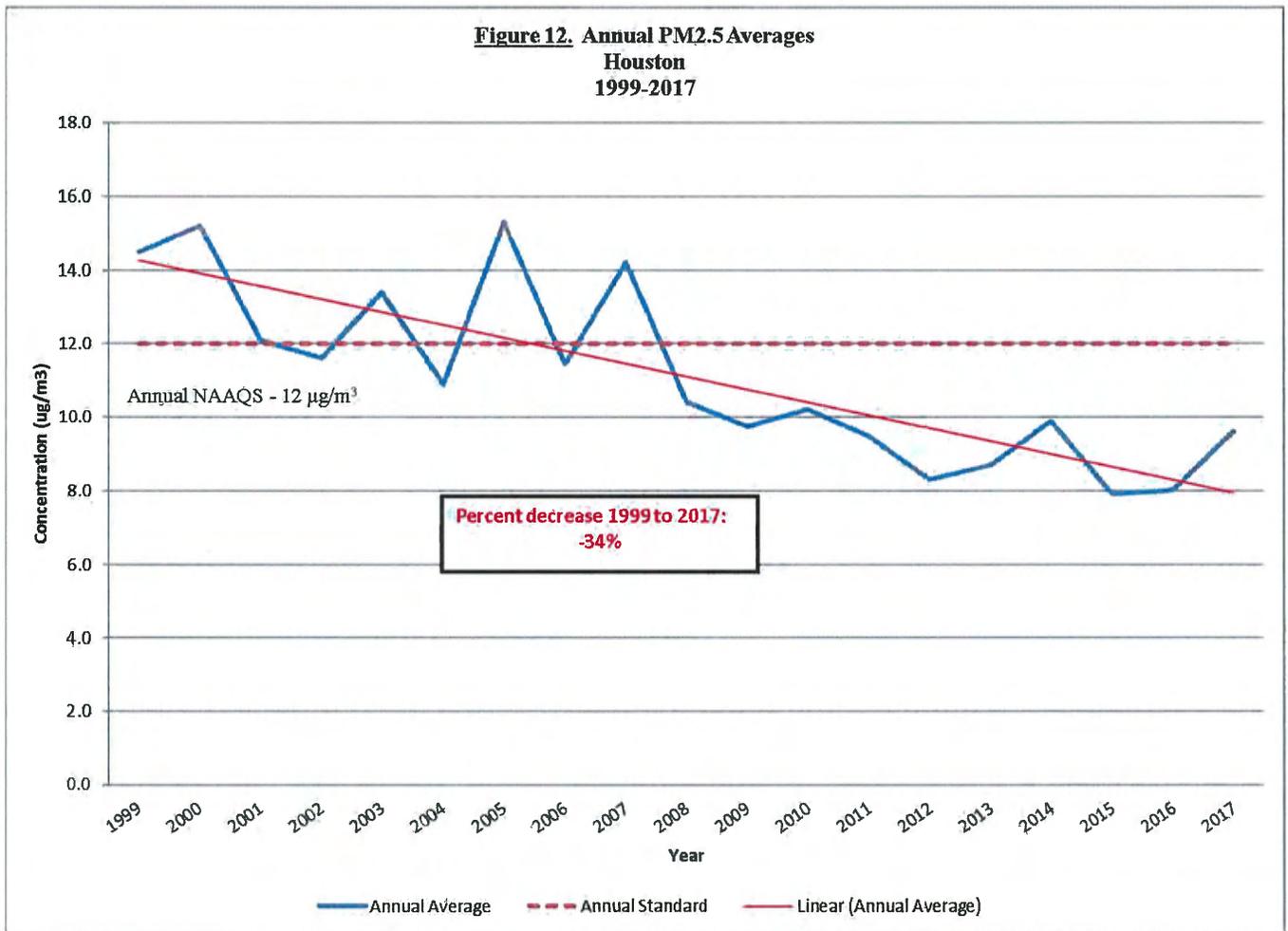
**Figure 10. Wood River SO2
Annual Averages
1983-2017**



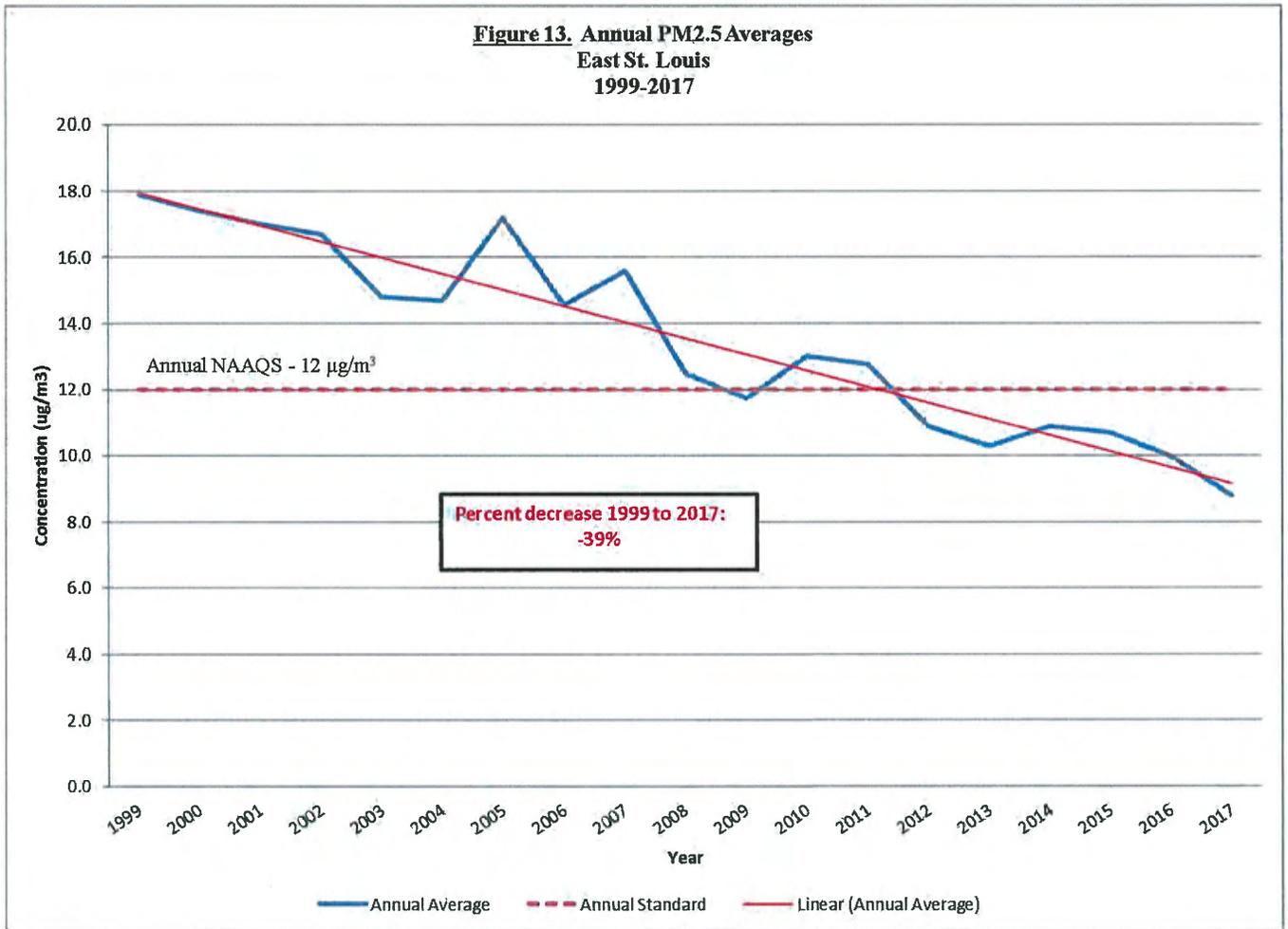
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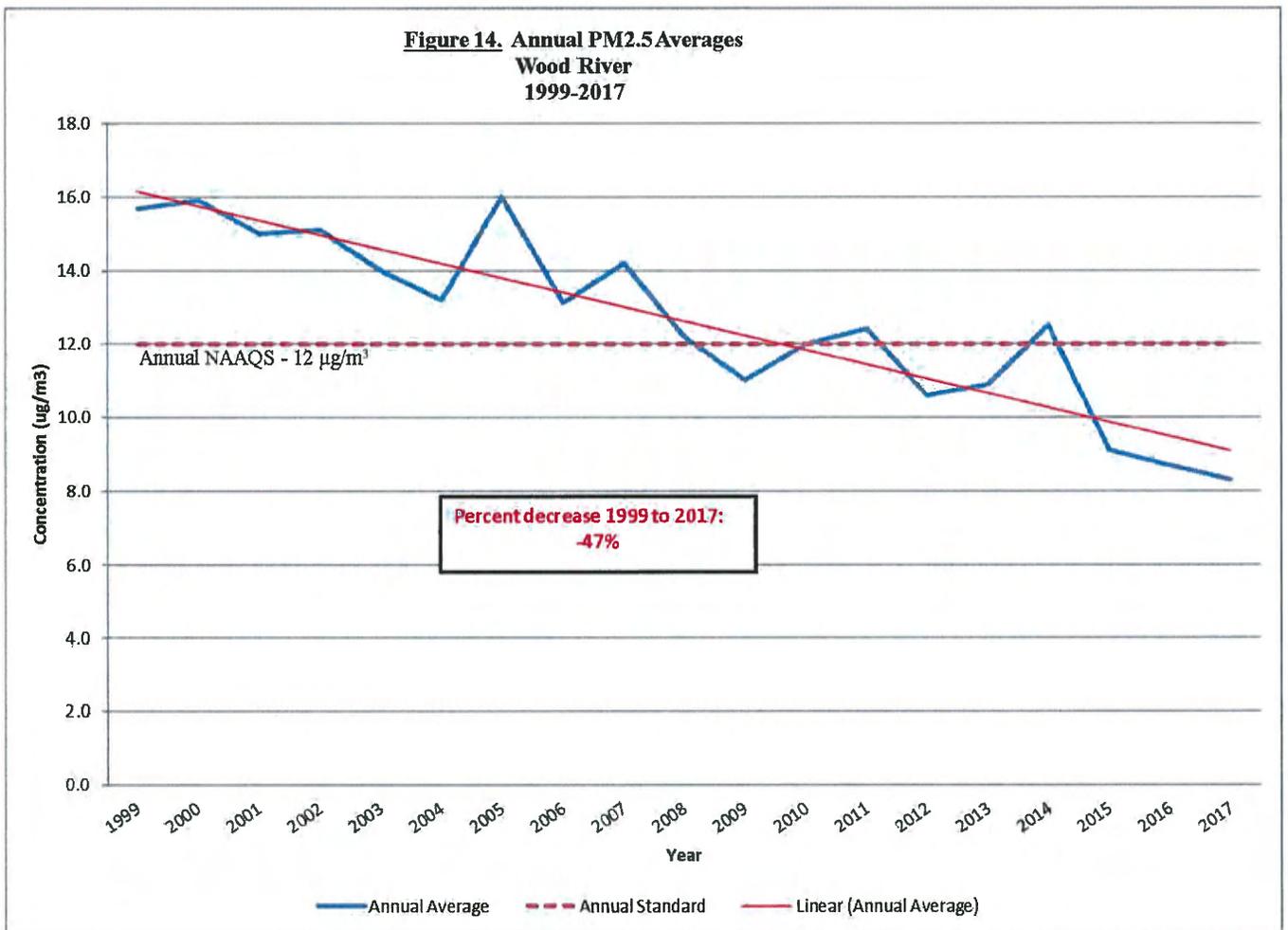
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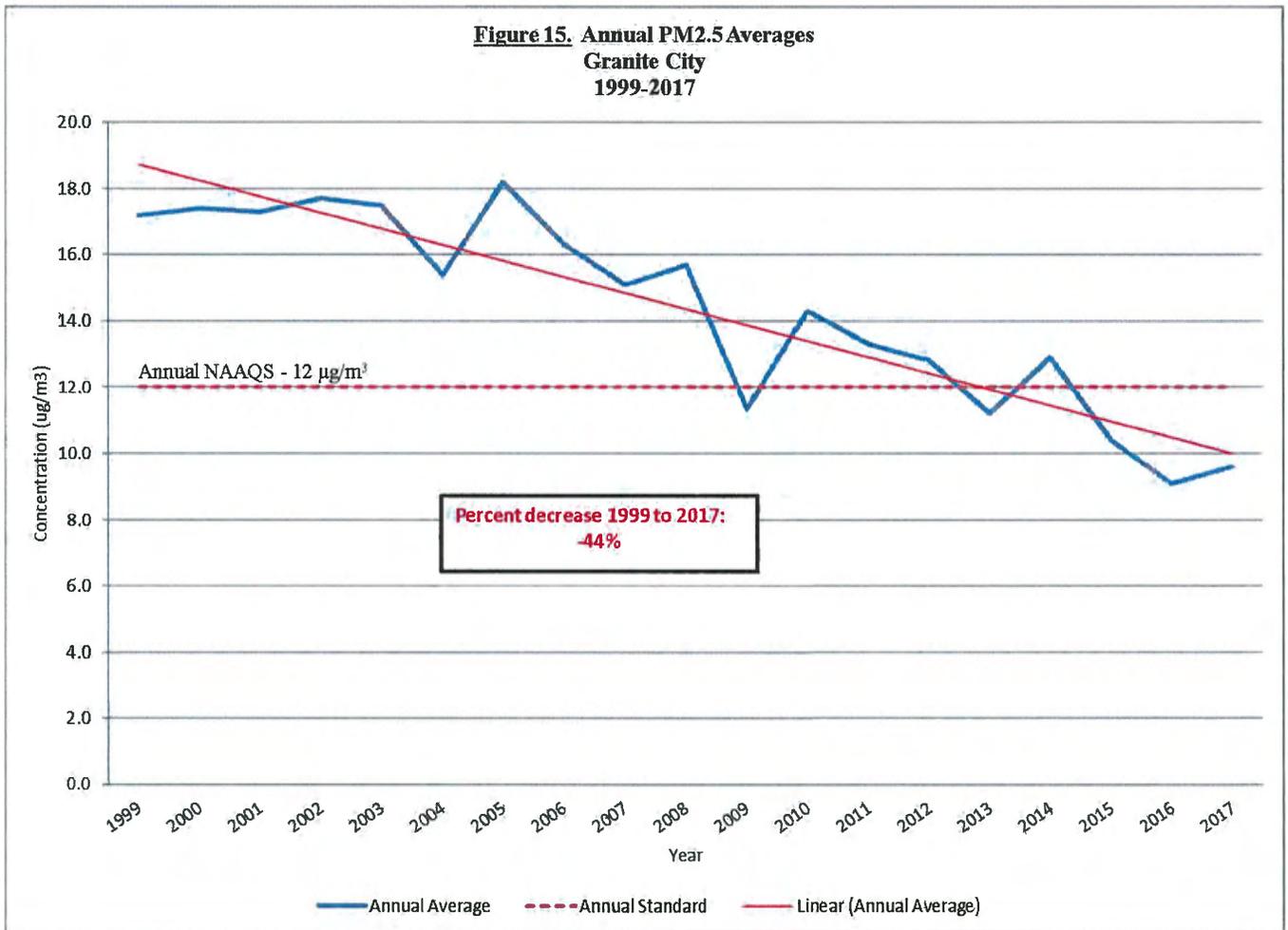
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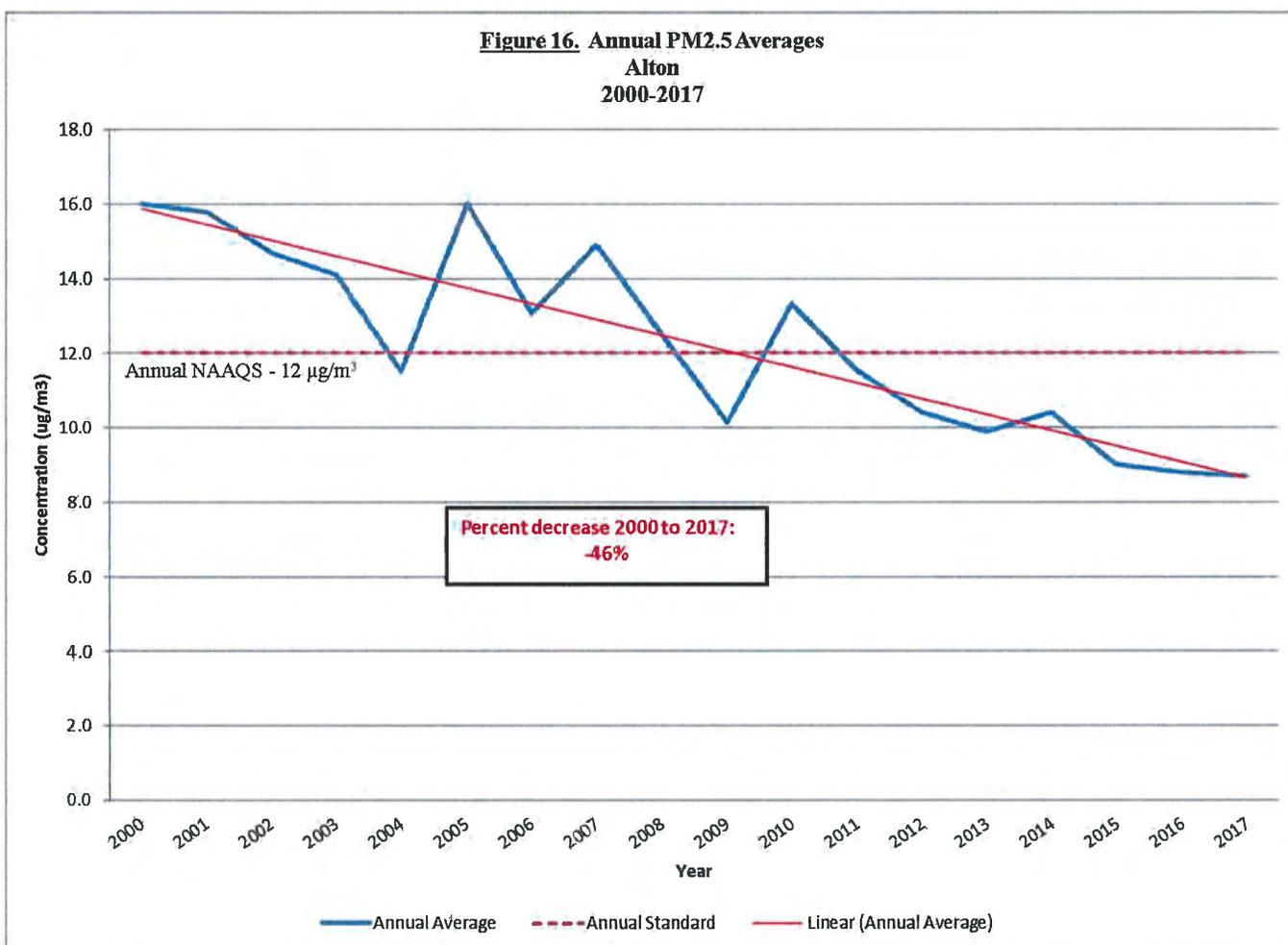
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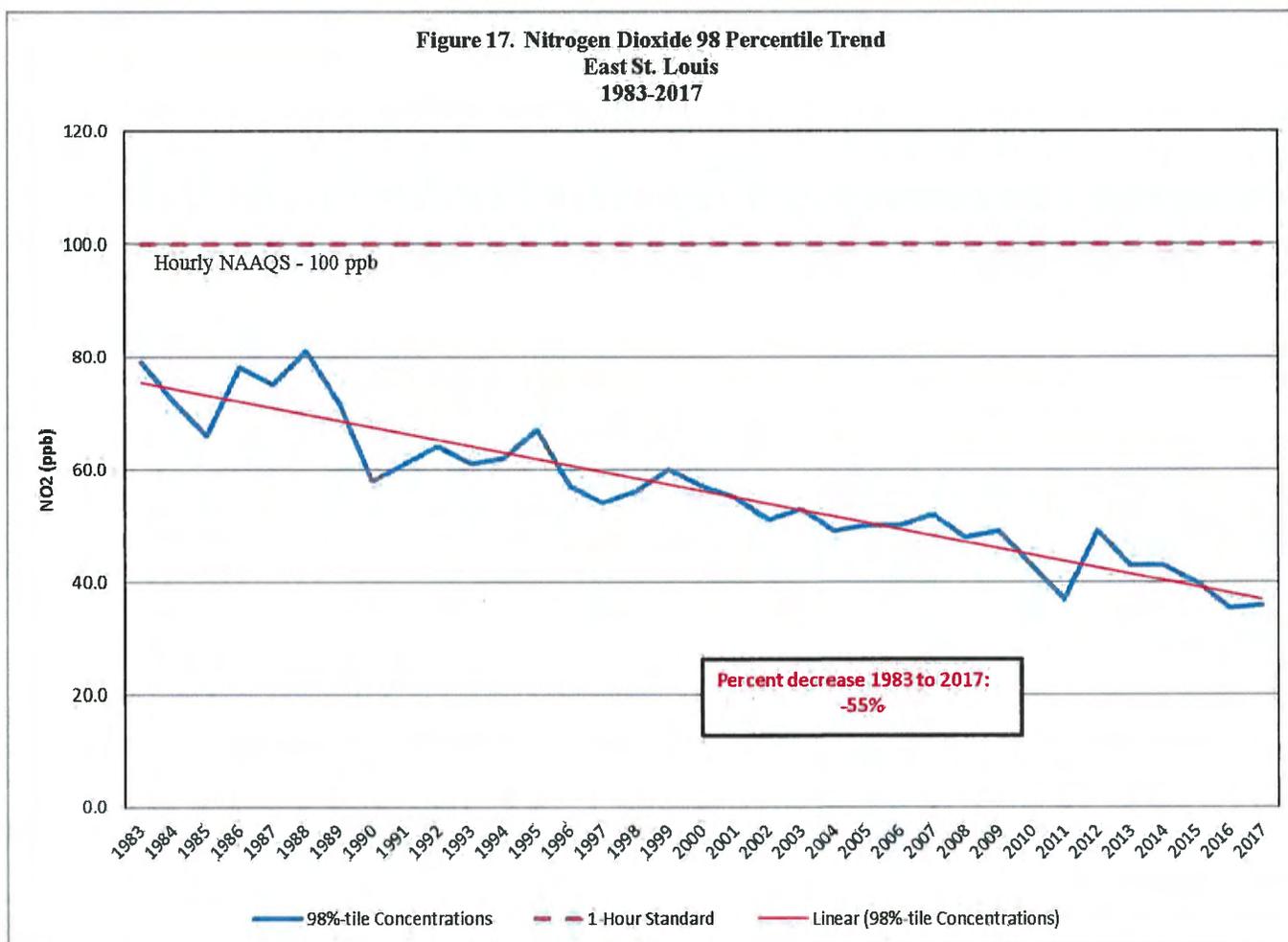
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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
AMENDMENTS TO) R18-20
35 ILL. ADM. CODE 225.233) (Rulemaking – Air)
MULTI-POLLUTANT STANDARDS)
(MPS))

NOTICE OF FILING

PLEASE TAKE NOTICE that I have filed with the Illinois Pollution Control Board the Additional Pre-Filed Questions of the Illinois Attorney General’s Office for Illinois EPA’s Witnesses, a copy of which is hereby served upon you.

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS,

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Attorney General of the State of Illinois

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Dated: March 2, 2018

*See electronic filing for attachments/
Exhibits*

*Exhibit 30
R18-20
3/6/18
MA*

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CERTIFICATE OF SERVICE

I, JAMES P. GIGNAC, an attorney, do certify that on March 2, 2018, I caused the Additional Pre-Filed Questions of the Illinois Attorney General's Office for Illinois EPA's Witnesses and the Notice of Filing to be served upon the persons listed in the attached Service List by email for those who have consented to email service and by U.S. Mail for all others.

/s/ James P. Gignac
JAMES P. GIGNAC

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
AMENDMENTS TO 35 ILL. ADM.) R18-20
) (Rulemaking-Air)
CODE 225.233, MULTI-POLLUTANT)
STANDARDS)

**ADDITIONAL PRE-FILED QUESTIONS OF THE ILLINOIS ATTORNEY
GENERAL’S OFFICE FOR ILLINOIS EPA’S WITNESSES**

The Illinois Attorney General’s Office, on behalf of the People of the State of Illinois (“People”), hereby files its additional pre-filed questions for the Illinois Environmental Protection Agency’s (“Illinois EPA”) witnesses in this matter, as provided by the Hearing Officer Order issued on January 29, 2018. The People submit the following questions:

1. On page 2 of the Illinois EPA’s Responses and Information Requested From the January Hearings, filed on February 16, 2018, (“Illinois EPA’s Responses”), Illinois EPA states that it “now supports” an amendment limiting annual fleetwide SO₂ emissions to 49,000 tons.

- a. Prior to proposing this “alternative limit,” *id.*, did Illinois EPA consult any other participants in this rulemaking, or the United States Environmental Protection Agency (“USEPA”), regarding the alternative limit? If so, whom did Illinois EPA consult?
- b. Please explain Illinois EPA’s rationale for who was consulted, and who was not.
- c. Please describe any feedback Illinois EPA received on the alternative limit from any person it consulted. Did Illinois EPA receive any such feedback in written form? If so, please provide this correspondence.

2. In footnote 1 on page 2 of Illinois EPA’s Responses, Illinois EPA states that “the methodology used by the Agency to calculate allowable emissions was chosen **because it is the method the State is required to use to demonstrate that this SIP revision is approvable by USEPA.**” (emphasis added). Please provide citations to any legal authorities—including without limitation federal or state statutes, regulations, guidance documents, or judicial or administrative decisions—that support the emphasized statement.

3. On pages 8 to 9 of Illinois EPA’s Responses, Illinois EPA describes how it modeled SO₂ emissions from the Baldwin, Hennepin, Newton, and Joppa plants using actual emissions over three-year periods (2013-2015 for Baldwin and 2012-2014 for Hennepin, Newton, and Joppa). For Joppa, Illinois EPA has proposed a plant-specific limit to help avoid potential exceedances of the NAAQS. For Baldwin, Hennepin, and Newton, Illinois EPA states

that the SO₂ NAAQS in the plants' areas is "not at risk" because, based on the plants' capacity factors during modeled years, "the linear increase in concentration at **similar emission rates**", *id.* at 10 (emphasis added), under operation at a 100% capacity factor, would not cause exceedances of the NAAQS.

- a. Doesn't this analysis depend on an assumption that emission rates at Baldwin, Hennepin, and Newton will remain "similar" in future years? Please explain your answer.
- b. Please explain all bases supporting an assumption that emission rates at Baldwin, Hennepin, and Newton will remain "similar" in future years.
- c. On page 7 of Illinois EPA's Responses, Illinois EPA stated that it did not believe "it is necessary to employ fleet-wide annual standards in terms of both mass emission limits and emission rates." Couldn't layering a rate-based limit (or multiple rate-based limits) with a mass emission limit, as suggested by Board Member Zalewski during the January 18, 2018 hearing, help ensure that emission rates at Baldwin, Hennepin, and Newton remain "similar" in future years? Please explain your answer.

4. In Figures 5 and 12 through 16 attached to Illinois EPA's Responses, Illinois EPA includes graphs related to annual PM_{2.5} concentrations at various locations within the State. Currently, the entire State is designated as "unclassifiable" for the 2012 PM_{2.5} NAAQS, correct? *Please see Air Quality Designations for the 2012 Primary Annual Fine Particle (PM_{2.5}) National Ambient Air Quality Standards (NAAQS)*, 80 Fed. Reg. 2206-01 (Jan. 15, 2015).

5. Illinois EPA originally recommended to the USEPA that specified counties and portions of counties in the Illinois portions of the Chicago and St. Louis areas be designated as nonattainment for the 2012 PM_{2.5} NAAQS, correct? *Please see Illinois and Associated Areas in Missouri and Indiana Unclassifiable Area Designations for the 2012 Primary Annual PM_{2.5} National Ambient Air Quality Standards Technical Support Document*, at 1.0, available at https://www3.epa.gov/pmdesignations/2012standards/final/IL_FinalUnclTSD_Final.pdf, and attached hereto as Attachment 1.

6. USEPA rejected Illinois EPA's recommendation, though, due to USEPA's conclusion that "no site in Illinois has sufficient valid data to support a determination of either nonattainment or attainment" with the 2012 PM_{2.5} NAAQS, correct? *Please see id.*

7. Does Illinois EPA continue to agree with the following assessment by former Director Scott, as stated on pages 9-10 of his 2009 written testimony to Congress, admitted in this proceeding as Exhibit A to Exhibit 14:

The benefits of removing SO₂ and NO_x are well established and most notably will result in reductions in both particulate matter and ozone. SO₂ is a precursor to particulate matter and NO_x is a precursor to both particulate matter and ozone. Particulate matter related annual benefits

include fewer premature fatalities, fewer cases of chronic bronchitis, fewer non-fatal heart attacks, fewer hospitalization admissions (for respiratory and cardiovascular disease combined) and should result in fewer days of restricted activity due to respiratory illness and fewer work loss days. Moreover, there should be health improvements for children from reduced upper and lower respiratory illness, acute bronchitis, and asthma attacks.

Ozone health-related benefits are expected to occur during the summer ozone season and include fewer hospital admissions for respiratory illnesses, fewer emergency room admissions for asthma, fewer days with restricted activity levels, and fewer days where children are absent to school due to illnesses. In addition, there should be ecological and welfare benefits. Such benefits include visibility improvements; reductions in acidification in lakes, streams, and forests; reduced nutrient replenishing in water bodies; and benefits from reduced ozone levels for forests and agricultural production.

Please explain your answer.

8. During the January 17, 2018 hearing, Mr. Bloomberg testified that his sole understanding of Dynegy's requested "operational flexibility" is Dynegy being able to bid its plants economically and not being required to bid in uneconomic plants. January 17, 2018 R18-20 Hearing Transcript, p. 57, lines 3-13. During the January 18, 2018 hearing, Dynegy identified only two plants that it purportedly is required to operate "uneconomically," solely for purposes of MPS compliance: Coffeen and Duck Creek, which are both in Dynegy's "Old Ameren" (or "IPH") Group. *See, e.g.*, January 18, 2018 R18-20 Hearing Transcript, p. 131, line 4, through p. 133, line 6. Dynegy further testified that, of the two MPS groups—the IPH Group and the Dynegy Group—it is actually the IPH Group that generates a positive operating income—\$40 million, for the nine months ending September 30, 2017. *Id.* at 144, lines 17-24. In other words: per Dynegy's own testimony, the only MPS Group that purportedly is negatively impacted by MPS compliance performs better economically than the MPS Group that is not. Does Dynegy's testimony change the Illinois EPA's views regarding (a) Dynegy's purported need for "operational flexibility," or (b) whether the Illinois EPA's proposal is "consistent with the economic needs of the state"? *See* Illinois EPA's Responses to Prefiled Questions (Jan. 12, 2018), at 22-23; January 17, 2018 R18-20 Hearing Transcript, p. 125, line 23, through p. 126, line 9. Please explain the bases for your answer.

9. During a February 26, 2018 investor call held by Vistra Energy Corporation ("Vistra"), the following exchange took place between analyst Michael Lapedes and Curtis A. Morgan, who serves as President, Chief Executive Officer, and Director for Vistra:

Michael Lapidès Q

Analyst, Goldman Sachs & Co. LLC

Hey, guys. Easy question. As you look at the combined portfolios, are there any regions of the country where you would like to have a bigger or a different type of presence and are there any regions of the country where you may have a presence, but you kind of look at that region as a bit non-core or the portfolio you have in that region as non-core?

Curtis A. Morgan A

President, Chief Executive Officer & Director, Vistra Energy Corp.

That's a good question. So look I think the way that we think about is the regions that we feel the most comfortable with and really where the book of value is PJM and ISO New England. I'm not sure that one asset in New York is a strategy and so we'll have to make a decision. It's a good asset and not saying anything against the asset. Also not sure about the long-term market in New York. I've been in that market for many years and we'll have to take a hard look at that. [MISO] I think is – that's got multi levels of work to do.

We've got a good retail business there, but we have some challenges around that asset base there both in terms of performance, but also just economics. And I know that Dynegy and Bob are working on that. **I mean they're working on the multi-pollutant standard to basically create flexibility to make decisions about what assets were in, what assets were out.** They also were trying to do capacity market reform, which I think has been tough sledding to get done. [MISO] tried to take something and FERC pushed it back on them although it seems like there may be another [indiscernible] (01:10:50). **But at the end of the day, I think that's going to be tough to get – and just in that zone, it's going to be tough just to get a reform there. And so at some point, when you don't get the reform and you are successful at doing what you need to do around the multi-pollutant standard and freeing up the assets, we've got a portfolio optimization exercise to do no different than what we did in Texas. And I think that may result in maybe shrinking our size of our generation, whether that means we're trying to sell assets or what, I don't know yet.**

See Transcript, Feb. 26, 2018 Vistra Investor Call, available at <http://www.dynegy.com/investors/sec-filings> (entry for 02/27/18), and attached hereto as Attachment 2 (emphasis added).

In October 2017, Vistra announced the closure of three coal-fired power plants that it operated in Texas. See Sonal Patel, *Vistra Closing Two More Giant Uneconomic Coal Plants in Texas*, POWER (Oct. 13, 2017), available at <http://www.powermag.com/vistra-closing-two-more-giant-uneconomic-coal-plants-in-texas/?printmode=1>, and attached hereto as Attachment 3.

In response to a pre-filed question from the Board, Illinois EPA stated: “If an EGU shuts down, the power that had been generated by that EGU will likely be generated from elsewhere, meaning the emissions will be coming from another EGU. As such shutdown of an EGU does not necessarily mean the fleet-wide mass emission limit should be reduced” See Exhibit 6 at 12-13 (Board Question 21.d.).

- a. Would you agree that “freeing up the assets” in order to perform “a portfolio optimization exercise . . . no different than what we did in Texas,” as stated by Vistra’s President and CEO regarding the MPS plants, refers to Vistra either retiring or attempting to sell MPS plants, should the MPS be amended as proposed by Illinois EPA? Please explain the bases for your answer.
- b. Does Illinois EPA agree that it is foreseeable that, if Illinois EPA’s proposed amendments are adopted, Vistra will retire certain MPS plants that are controlled for SO₂, and increase the utilization of plants without controls for SO₂? Please explain your answer. If yes, does that foreseeable outcome change the Illinois EPA’s views regarding (a) Dynegy’s purported need for “operational flexibility,” (b) whether the proposal is “consistent with the economic needs of the state” (see Question 8, above), or (c) the potential environmental impacts of the proposed amendments?
- c. Would you also agree that “freeing up the assets,” as stated by Vistra’s President and CEO regarding the MPS plants, also entails allowing power plants that in 2016 emitted 27,621 tons of SO₂ to immediately be “freed up” to emit up to the full 49,000 tons that would be allowed by the Illinois EPA’s revised proposed MPS amendments? Why or why not? And if your answer is no, what exactly in the proposed MPS amendments would stop Dynegy or Vistra from increasing the MPS fleet’s SO₂ emissions to the maximum 49,000 tons per year?
- d. Would you also agree that “freeing up the assets,” as stated by Vistra’s President and CEO regarding the MPS plants, also entails allowing power plants that in 2016 emitted 13,925 tons of NO_x to immediately be “freed up” to emit up to the full 25,000 tons that would be allowed by the Illinois EPA’s proposed MPS amendments? Why or why not? And if your answer is no, what exactly in the proposed MPS amendments would stop Dynegy or Vistra from increasing the fleet’s NO_x emissions to the maximum 25,000 tons per year?

Dated: March 2, 2018

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS,
by LISA MADIGAN,
Attorney General of the State of Illinois,
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Attachment 1

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter of:)
)
AMENDMENTS TO) **R18-20**
35 ILL. ADM. CODE 225.233,) **(Rulemaking – Air)**
MULTI-POLLUTANT STANDARDS (MPS))

NOTICE OF FILING

To: ALL PARTIES ON THE ATTACHED SERVICE LIST

PLEASE TAKE NOTICE that I have today electronically filed with the Office of the Clerk of the Illinois Pollution Control Board the attached **PREFILED QUESTIONS FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY**, copies of which are herewith served upon you.

/s/ Ryan Granholm

Ryan Granholm

Dated: March 2, 2018

Ryan Granholm
SCHIFF HARDIN LLP
233 South Wacker Drive
Suite 7100
Chicago, Illinois 60606
312-258-5500

Exhibit 31
R18-20
3/6/18
MGT

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter of:)
)
AMENDMENTS TO) **R18-20**
35 ILL. ADM. CODE 225.233,) **(Rulemaking – Air)**
MULTI-POLLUTANT STANDARDS (MPS))

**PREFILED QUESTIONS FOR THE
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY**

NOW COME Dynegy Midwest Generation, LLC, Illinois Power Generating Company, Illinois Power Resources Generating, LLC and Electric Energy, Inc. (collectively, “Dynegy”), by their attorneys, Schiff Hardin LLP, and hereby submit prefiled questions for the Illinois Environmental Protection Agency (“IEPA”). Dynegy requests that the Hearing Officer allow follow-up questioning to be asked at hearing based on the answers provided.

1. What is the difference between a “potential environmental justice community” and an “environmental justice community?”
 - a. Are there any specific emission standards or emission reduction requirements applicable to a source because it is in a potential environmental justice community or an environmental justice community?
 - b. Are the National Ambient Air Quality Standard (“NAAQS”) lower in potential environmental justice communities or environmental justice communities as compared to other areas?
2. Is the Hennepin Power Station located in either an “environmental justice community” or a “potential environmental justice community?”
 - a. Is the Hennepin Power Station subject to any emission standards solely because it is located in either a potential environmental justice community or an environmental justice community?
3. The MPS is used by the State to ensure compliance with the Clean Air Act’s Regional Haze Program, correct?
4. The total anticipated SO₂ emissions set forth in the Regional Haze State Implementation Plan from the MPS Groups is 55,953 tons annually, correct?

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- a. In other words, IEPA anticipates that under the current MPS the MPS Groups will not emit more than 55,953 tons of SO₂ annually, correct?
 - b. So, any proposed cap below 55,953 tons per year of SO₂ will ensure compliance with the State's Regional Haze SIP, correct?
 - c. Could the MPS units emit more than 55,953 tons of SO₂ annually and still be in compliance with the MPS SO₂ emission limits?
5. Has the Illinois Attorney General presented any evidence demonstrating to the IEPA that a SO₂ annual emissions cap lower than 55,000 tons is necessary for the State to ensure compliance with any Clean Air Act requirement?
 6. Has the Illinois Attorney General presented any evidence demonstrating to the IEPA that a NO_x annual emissions cap lower than 25,000 tons is necessary for the State to ensure compliance with any Clean Air Act requirement?
 7. Has the Illinois Attorney General presented any evidence demonstrating to the IEPA that the proposed annual emissions caps of 55,000 tons for SO₂ and 25,000 tons for NO_x are not approvable by U.S. EPA?
 8. Has the Illinois Attorney General presented any evidence demonstrating to the IEPA that the proposed annual emissions caps of 55,000 tons for SO₂ and 25,000 tons for NO_x will adversely affect any NAAQS?
 9. Do you agree that NAAQS are set to protect human health, welfare, and the environment with an adequate margin of safety?
 - a. Do you agree that NAAQS are intended to provide protection for the population as a whole, including at-risk groups, such as children and the elderly?
 10. To ensure compliance with the SO₂ NAAQS, IEPA monitors and models statewide emissions, correct?
 - a. In connection with evaluating maintenance or attainment of the SO₂ NAAQS, IEPA's model evaluated the impact of over 91,000 tons per year of SO₂ emissions from the MPS units, right?
 - b. In other words, IEPA's modeling demonstrates that levels of SO₂ in ambient air would be within acceptable levels even if emissions from the MPS units were around 91,000 tons of SO₂ annually, correct?
 11. Which restricts the total annual emissions Dynegy is lawfully allowed to emit from the two MPS Groups more, the current MPS annual rate-based limits for SO₂ and NO_x or the proposed annual emissions caps of 55,000 tons for SO₂ and 25,000 tons for NO_x?
 12. Is an annual SO₂ emissions cap of 55,000 tons at least as protective of air quality in Illinois as the current MPS SO₂ emission rates?

Electronic Filing: Received, Clerk's Office 3/2/2018

- a. Is an SO₂ emissions cap of 49,000 tons per year necessary to protect air quality in Illinois to at least the same extent as the current MPS rules?
 - b. Has Illinois EPA identified any regulatory requirement that justifies setting the SO₂ emissions cap at 49,000 tons as opposed to 55,000 tons?
13. Is the Illinois EPA recommending that the proposed annual NO_x emissions cap be reduced from 25,000 tons?
- a. If not, why not?

CERTIFICATE OF SERVICE

I, the undersigned, certify that on this 2nd day of March, 2018, I have electronically served the attached **PREFILED QUESTIONS FOR THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY**, upon all parties on the attached service list.

My e-mail address is rgranholm@schiffhardin.com;

The number of pages in the e-mail transmission is 6.

The e-mail transmission took place before 5:00 p.m.

/s/ Ryan Granholm

Ryan Granholm

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ILLINOIS POLLUTION CONTROL BOARD
March 2, 2018

IN THE MATTER OF:

AMENDMENTS TO 35 ILL. ADM.
CODE 225.233, MULTI-POLLUTANT
STANDARDS (MPS)

R18-20
(Rulemaking - Air)

HEARING OFFICER ORDER

On October 2, 2017, the Illinois Environmental Protection Agency (IEPA) filed a rulemaking proposing amendments to the Multi-Pollutant Standard (MPS) in 35 Ill. Adm. Code 225, Control of Emissions from Large Combustion Sources. The MPS applies to coal-fired electrical generating units in central and southern Illinois, specifically, in the Counties of Fulton, Jasper, Mason, Massac, Montgomery, Peoria, Putnam, and Randolph. On October 19, 2017, the Board accepted the proposed rules for first notice without commenting on the merits. On January 29, 2018, the Hearing Officer set deadlines for prefilings testimony, responses and questions for a hearing scheduled for March 6 and 7, 2018, in Edwardsville. The deadline for the prefiling questions is March 2, 2018.

The Board and Staff have reviewed the responses, additional information and prefiling testimony and submit with this Order their questions to the IEPA and Dynegy Midwest Generation, LLC, Illinois Power Generating Company, Illinois Power Resources Generating, LLC, and Electric Energy, Inc, included as Attachment A.

Anyone may file a comment and anyone may respond to the questions attached, as well as any other prefiling questions in the record. All filings in this proceeding will be available on the Board's web page at www.ipcb.state.il.us and participants may file electronically on the Board's web page.

Exhibit 32
R18-20
3/6/18
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**ATTACHMENT A
R18-20**

AMENDMENTS TO 35 ILL. ADM. CODE 225.233, MULTI-POLLUTANT STANDARDS

Questions for IEPA Witnesses

Definition of Terms Associated with the MPS Units

- 1) The AG referred to “maximum heat input”. 1-17-18 Tr. at 176; 1-18-18 Tr. at 24, 35, 46, 47, 48, 63, 82; Exh. 9 at 9, 14, 15, 16, 17, 18, 19. Dynegy’s Mr. Diericx referred to “maximum potential heat input”. 1-18-18 Tr. at 126. IEPA’s filings use “Nominal capacity”. See TSD and IEPA’s 1-12-18 Resp. Att. 5. Please define “Nominal capacity”, how it relates to these other terms used, and how it is different from “Name Plate Capacity”.
- 2) At hearing, Dynegy’s Mr. Ellis described the meaning of the terms “retired” and “mothballed”, as they relate to MPS units. 1-18-18 Tr. at 120-121. Please comment on whether Dynegy’s description is consistent with how those terms are used by the Agency in regulating the MPS units. If not, please define the terms, and comment on whether the definitions must be included in the rules.

Regional Haze SIP, and Anti-Backsliding/Non-interference Demonstration (Clean Air Act Section 110(l))

- 3) The Agency’s TSD states that rate limits for NO_x and SO₂ in the MPS were a major component of Illinois’ SIP submittal for meeting the federal Regional Haze Rule. TSD at 15. Further, TSD Tables 7 and 8 indicate the projected reduction of 51,728 TPY NO_x and 181,808 TPY SO₂ reductions from the 2002 base year emissions from 31 original MPS Units. Id. at 17-18. The tables also list the projected emissions under current MPS rates as 27,951 tons of NO_x and 55,953 tons of SO₂. Further, the updated Tables 7 and 8 indicate the projected emissions from the currently operating MPS units as 22,459 tons of NO_x and 44,920 tons of SO₂. 1/12/18 IEPA Resp. Attach. 7.
 - a) Please clarify whether IEPA’s 2011 Regional Haze SIP submittal or 2017 Five-Year Progress Report reflects the retirement of 13 MPS units since 2011.
 - b) If not, please comment on modifying the projected emissions based on only the currently operating MPS units in any SIP revisions or progress report(s).
 - c) Please provide a copy of the relevant portions of the Agency’s 2011 SIP and 2017 Five-Year Progress Report that address emissions reduction from MPS units.
4. Dynegy’s “Follow up information” included in IEPA’s response to questions states, “At the recent meeting, Illinois EPA indicated that any revision to the Regional Haze SIP would not be approved unless the revision shows that annual SO₂ and NO_x emissions are

limited to 44,920 and 22,469 tons, respectively.” 1/12/18 IEPA resp., Attach 9 at 3. Please comment on whether the possibility of USEPA requiring SIP revision to be based on the projected emissions from the currently operating MPS units has been put to rest by the recent assurances given to the Agency by USEPA. See Davis Prefiled Test. at 1-2.

- 5) Section 110(l) of the Clean Air Act limits approval of SIP revisions to those that would not “interfere with any applicable requirement concerning attainment and reasonable further progress...” 42 USC 7410(l).
- At the January 17, 2018 hearing, Mr. Bloomberg stated, “[I]n order to demonstrate to US EPA that a regulation does not pose a risk of backsliding, the Illinois EPA must provide information to show that the allowable emissions under a new rule are at least as stringent as the allowable emissions under the previous SIP submittal.” 1-17-18 Tr. at 22. Mr. Bloomberg continued, “US EPA Region 5 conveyed to me that the proposed change and the Section 110(l) anti-backsliding demonstration are acceptable and that Illinois EPA could convey that information to the Board.” 1-17-18 Tr. at 36. “Additionally, it was stated to me that this is a pretty straightforward reduction in allowable emissions so it is pretty easy because for Section 110(l) purposes, it is a SIP-to-SIP comparison of allowable emissions.” 1-17-18 Tr. at 37, 137.
- a) Please further elaborate on how IEPA would demonstrate under an anti-backsliding demonstration that the SIP Revision would address both issues of non-interference “with any applicable requirement concerning attainment and reasonable further progress....” 42 USC 7410(l).
 - b) The TSD states that the proposed amendments do not involve changes to the allowable emissions of other criteria pollutants from the affected sources: carbon monoxide, ammonia, particulate matter, and volatile organic compounds. TSD at 19. Does IEPA’s anti-backsliding demonstration address all pollutants subject to the Regional Haze Rule whose allowable emissions and/or ambient concentrations may change because of the SIP revision?
 - c) The TSD states, “[T]he amended limits are equivalent or more stringent than the previous standards, and are quantifiable, permanent, surplus, enforceable, and contemporaneous.” TSD at 19.
 - i) Please clarify what IEPA’s anti-backsliding demonstration is required to show for USEPA approval. For example, would it be based on showing that substitution of one measure (rate-based fleetwide average limits) by another measure (annual mass emissions limits) results in equivalent or greater emissions reductions?
 - ii) Please explain whether the annual mass emission limits in the proposed rule become federally enforceable under the SIP Revision. If so, how would this be done in permits?

- iii) Please clarify whether the environmental impact of the proposed rule is equivalent to the current rule for the purposes of compliance with the NAAQS and Regional Haze Rule.

Updated Tables 5 and 6 to the TSD

- 6) IEPA provided updated Table 6 to the TSD that includes annual “potential to emit” (PTE) for SO₂ emissions for all the EGUs in the proposed MPS Group. 1-12-18 IEPA Resp. Att. 5.
- a) Please clarify whether the PTE (tons/year) represents the greatest mass of emissions any given unit would be allowed to emit as an individual unit based on restrictions, such as Part 214, NSPS and consent decree limitations, without the rate averaging requirement of the current MPS or the annual cap of the proposed rule?
- b) Could the PTE values essentially serve as a mass emission cap on the individual MPS units? If so, under a 49,000 tons SO₂ annual mass emissions cap for the MPS Group, would it be plausible for Newton to emit 39,152 tons SO₂, with the balance of 9,848 tons being emitted by Joppa and no other MPS units running?
- c) Comment on whether the PTE values for the individual units are included in the plant’s CAAPP permit as “not be exceeded” annual limits. If not, explain why such permit limits are not necessary.
- d) Please explain why an emission rate of 1.20 lb/mmBtu was used to calculate PTE for Baldwin Unit 2 instead of the consent decree rate of 0.10 lb/mmBtu.
- e) Table 6 lists the plantwide PTE for Coffeen Units 1 and 2 as 660 tons based on the permit fee limit rather than a limit under Part 214. Please clarify whether the permit fees emission limits represent a “not to be exceeded” cap on a plantwide basis. If so, explain why the Agency did not use permit fee limits to determine PTE for Baldwin, Hennepin and Newton plants.

Non-MPS Emission Limits Applicable to MPS Units

- 7) The Agency provided a listing of applicable State, federal, and consent decree requirements for NO_x and SO₂ for the affected units in a table included in Attachment 2. 1-12-18 IEPA Resp. Attach. 2. Additionally, Dynegy provided several tables listing NO_x and SO₂ emissions limitations applicable to each MPS unit/power station in the proposed MPS Group. 1-12-18 Dynegy Resp. Attach A. In addition to the various emission limits listed by the Agency, Dynegy’s tables include limits pertaining to acid rain, CSAPR and MATS.

- a) Please comment on whether the NO_x and SO₂ limits presented by Dynegey are consistent with the Agency's permitting information on the various units in the proposed MPS Groups.
- b) Also, comment on whether the limits listed by Dynegey are incorporated in the CAAPP permits of the affected units. Provide a draft permit for one of the MPS plants that shows the various standards currently applicable to the plant's EGUs, as well as sample wording that would be used to implement the proposed annual mass emissions cap.
- c) If the MATS rate limit applies to certain MPS units as stated by Dynegey, comment on whether the lower MATS rate of 0.20 lb/mmBtu should be used to calculate PTE for the Duck Creek plant rather than the rate of 1.2 lb/mmBtu used in updated Table 6.

Transfer of MPS Sources and Allocations

- 8) The Agency's response to hearing questions states that while the Agency disagrees with the Illinois Attorney General's methodology, it supports the Board adopting an SO₂ mass emissions cap of 49,000 tons per calendar year for the proposed MPS Group. 2/16/18 IEPA Resp. at 1-2. Further, if the Board chooses to lower the proposed SO₂ cap, the Agency states that SO₂ transfer unit allocations under Section 225.233(f)(2) must be reduced 10 percent from the original proposed amounts. Please comment on whether a corresponding reduction of the NO_x emissions cap and allocation amounts is necessary.
- 9) In response to Board's Question 21(d) (HO 1/2/18) regarding reduction of mass emission caps when EGUs are retired, the Agency stated, "[if] an EGU shuts down, the power that had been generated by that EGU will likely be generated from elsewhere, meaning the emissions will be coming from another EGU. As such, shutdown of an EGU does not necessarily mean the fleet-wide mass emission limit should be reduced, especially since, as previously noted, such reduction is not necessary to meet Regional Haze requirements or air quality standards." 1/12/18 IEPA Resp. at 12-13.
 - a) Please clarify whether "likely be generated elsewhere" may include generation from: EGUs not within the MPS Group; EGUs powered by nuclear fuel, natural gas or renewable energy; or EGUs outside Illinois.
 - b) If so, please explain the rationale for assuming the retirement of an EGU in the MPS Group would necessarily require another unit in the group to provide the power that the retired unit generated.

Lucy Fraiser, PhD, Letter 2-16-18

- 10) In response Hearing Officer Order dated January 29, 2018, Dynegey submitted expert opinion of Dr. Lucy Fraiser, toxicologist, on the health effects due to NO_x and SO₂ emissions under the proposed rule and the protectiveness of the SO₂ NAAQS. Dynegey

Resp. 2-16-18, Exh. C. Please comment on whether the Agency has any issues with Dr. Fraiser's letter or agrees with her conclusions.

Agency's Modeling Summary

- 11) In its response to hearing questions on air quality modeling, the Agency states, "[t]he modeling exercises were conducted for one of two purposes, both related to the 2010 1-hour SO₂ NAAQS. Some sources were included in modeling to satisfy the requirements of the DRR, 40 CFR § 51.1200 *et seq.*, and other sources were modeled in response to monitored nonattainment of the NAAQS in the Pekin area." 2/16/18 IEPA Resp. at 7-8.
 - a) Please clarify whether both modeling exercises involved the use of dispersion modeling to demonstrate compliance with NAAQS.
 - b) Does the modeling domain in both exercises include receptors at the fence line and surrounding areas?
 - c) Please clarify whether the fourth highest predicted concentration listed for Baldwin, Hennepin, Newton and Joppa occurred at the fence line. If not, comment on whether the concentration at the fence line would also be lower than the SO₂ NAAQS equivalent of 196.32 µg/m³.
- 12) Regarding Joppa, the Agency proposed a separate and additional limit of 19,800 tons per year to ensure that emissions from Joppa will never increase more than 15% from the modeled years. *Id.* at 11.
 - a) If annual plantwide emissions from Joppa increase to 19,800 tons, please comment on whether the predicted fourth highest concentration would also increase linearly by 15%.
 - b) If so, please comment on whether the proposed limit for Joppa is protective of the NAAQS given that the modeled concentrations were 85.7% of the standard.
 - c) Comment on whether the annual plantwide limit on Joppa must be lower than the proposed limit of 19,800 tons.
- 13) Regarding the attainment demonstration modeling, the Agency states that it used emission rates of 4,455 lbs/hr for Duck Creek and 1,830 lbs/hr for Havana, as "the maximum allowable emissions for every hour". *Id.* Please clarify whether these rates are applicable to the sources under the Board's Part 214 regulations. If so, please provide citations to the rules. If not, please explain the bases of the modeled rates.



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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217/782-3397

February 1, 2017

Robert A. Kaplan, Acting Regional Administrator
Office of the Regional Administrator, R-19J
U.S. Environmental Protection Agency, Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3507

Re: Five-Year Progress Report for Illinois Regional Haze State Implementation Plan

Dear Mr. Kaplan:

Pursuant to Section 169A of the Clean Air Act ("CAA") (42 U.S.C. § 7491) and Section 4 of the Illinois Environmental Protection Act (415 ILCS 5/4), the Illinois Environmental Protection Agency ("Illinois EPA") submits the enclosed revision to the Illinois Regional Haze State Implementation Plan ("SIP") through the United States Environmental Protection Agency's Central Data Exchange electronic submission system and requests approval of such revision. This revision, *Five-Year Progress Report for Illinois Regional Haze State Implementation Plan*, has been prepared to satisfy Illinois' obligation under 40 CFR § 51.308(g), (h), and (i) to submit a report every five years evaluating progress towards the reasonable progress goal, determine the adequacy of Illinois' existing plan, and coordinate with the Federal Land Managers in the review of plan revisions and five-year progress reports.

The progress report addresses all of the required elements, including the status of implementation of all measures included in the SIP for achieving reasonable progress goals, a summary of the emissions reductions achieved throughout the State, an analysis tracking the change over the past five years in emissions of pollutants contributing to visibility impairment, an assessment of changes in anthropogenic emissions, an analysis determining if reasonable progress goals have been met, and a review of the State's visibility monitoring strategy. The Illinois EPA has determined that the existing SIP requires no further substantive revision at this time in order to achieve established goals for visibility improvement and emissions reductions. The progress report includes a negative declaration that further revision of the existing SIP is not needed at this time.

In accordance with 40 CFR § 51.102, the public notice for the SIP revision was published in the Illinois Register on October 7, 2016, with the public comment period commencing on that day and ending November 6, 2016. See, 40 Ill. Reg. 13972 (October 7, 2016), attached. During the public comment period, a copy of the SIP revision was made available at the Illinois EPA's

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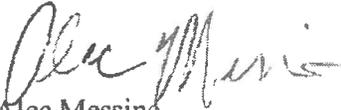
offices in Springfield and Des Plaines. The Illinois EPA received no requests for a public hearing. However, one public comment was received during the public comment period, and the Illinois EPA's response is included herein.

In order to assist with your review of this revision, the following documents are attached:

- 1) *Five-Year Progress Report for Illinois Regional Haze State Implementation Plan, AQPSTR 16-11, finalized and adopted October 2016*
- 2) Comments of the United States Department of the Interior, National Park Service
- 3) Comments of the United States Department of Agriculture, Forest Service
- 4) Notice of Public Information
- 5) Comment from W. Brad Sims, Exxon Mobil Corporation
- 6) Illinois EPA Response to Comment Regarding the Illinois Regional Haze Progress Report

If further information is required, please contact David Bloomberg, Manager, Air Quality Planning Section, Bureau of Air, at 217/524-4949.

Cordially,


Alec Messina
Acting Director

Attachments

FIVE-YEAR PROGRESS REPORT

for

**ILLINOIS REGIONAL HAZE STATE
IMPLEMENTATION PLAN**

AQPSTR 16-11

October 2016

**ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST
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SPRINGFIELD, IL 62794-9276**

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List of Acronyms

AMPD	Air Markets Program Division
BART	Best Available Retrofit Technology
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CPS	Combined Pollutant Standard
CSAPR	Cross-State Air Pollution Rule
EGU	electric generating unit
FWS	United States Fish and Wildlife Service
Illinois EPA	Illinois Environmental Protection Agency
LADCO	Lake Michigan Air Directors Consortium
MACT	Maximum Achievable Control Technology
MANE-VU	Mid-Atlantic/Northeast Visibility Union
MOU	Memoranda of Understanding
MPS	Multi-Pollutant Standard
NAAQS	National Ambient Air Quality Standard
NH ₃	ammonia
NPS	United States National Park Service
PM _{2.5}	fine particulate matter
ppm	parts per million
ppb	parts per billion
RACT	Reasonably Achievable Control Technology
SIP	State Implementation Plan
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
VOM	volatile organic material

EXECUTIVE SUMMARY

The Clean Air Act (“CAA”), in Sections 169A and B, requires the protection of visibility in 156 Federal Class I areas in the United States. The Regional Haze Rule (40 CFR § 51.308), finalized by the United States Environmental Protection Agency (“USEPA”) in 1999, requires states to develop and implement a State Implementation Plan (“SIP”) to reduce visibility impairment in these Class I areas resulting from man-made air pollution or regional haze.

Illinois submitted its Regional Haze SIP on June 24, 2011, and it was approved by USEPA, finding that the SIP satisfactorily addressed all applicable Clean Air Act Section 169A and Regional Haze Rule requirements for states to remedy any existing impairment and prevent future anthropogenic impairment of visibility at mandatory Class I areas, effective August 6, 2012.

The Regional Haze Rule requires states to provide interim progress reports outlining the status of required Regional Haze SIP elements, due five years after submittal of each state’s initial Regional Haze SIP. The Illinois Environmental Protection Agency (“Illinois EPA”) is submitting this five-year progress report to evaluate implementation of the SIP requirements and the resulting emissions reductions and visibility improvements. This progress report provides all required report elements necessary to demonstrate that the current Illinois Regional Haze SIP is adequate and does not require any revision to achieve the 2018 visibility goals in the first implementation period.

Illinois’ Regional Haze SIP

Illinois’ Regional Haze SIP is comprised of three main elements that meet the requirements for visibility improvement in the Regional Haze Rule; however, Illinois’ SIP did not rely upon strict application of Best Available Retrofit Technology (“BART”) at all sources that were subject to BART. These three elements of the SIP were requirements contained in federal consent decrees, requirements contained in federally enforceable permits, and requirements in Illinois State regulations found in the Combined Pollutant Standard (“CPS”) (Title 35 Illinois Administrative Code (“35 Ill. Adm. Code”) Section 225.293 – 225.299) and the Multi-Pollutant Standard (“MPS”) (35 Ill. Adm. Code Section 225.233).

Using modeling performed by the Lake Michigan Air Directors Consortium (“LADCO”), Illinois EPA identified 10 power plants and two refineries as having sufficient impact to warrant being subject to a requirement representing BART. In the case of three of the subject power plants, Illinois developed source-specific limits that were included in federally enforceable permits for the sources. In the case of the two subject petroleum refineries, it was determined that the federal consent decrees to which the sources were subject mandated control at least as stringent as BART-level control. In the case of the remaining seven power plants, USEPA concluded that the emission reductions from the MPS and the CPS were greater than the reductions that would occur with unit-specific implementation of BART on the subset of the sources that were subject to BART.

Illinois did not rely upon the Clean Air Interstate Rule (“CAIR”) or the Cross-State Air Pollution Rule (“CSAPR”) for its Regional Haze SIP, and so has avoided the issues that presented themselves in other states due to their reliance on CAIR and CSAPR.

Status of Control Strategies in the Regional Haze SIP

All measures submitted by Illinois for the Regional Haze SIP have already been implemented or are being implemented on the schedules proposed in the initial submittal or subsequent approved SIP revisions. Further, Illinois has implemented additional measures that will aid in reduction of visibility impairing pollutants. Illinois EPA has included in this report a more detailed list of measures and the status of their implementation.

Emission Reductions from Regional Haze SIP Strategies

Due to a number of factors, including the shutdown or conversion of coal-fired electric generating units (“EGUs”) and measures related to other federal requirements, emission reductions of visibility impairing pollutants in Illinois have been greater than anticipated at the time of its original Regional Haze SIP submittal. Illinois EPA has included in this report estimates for the emission reductions resulting from its Regional Haze SIP control strategies.

Visibility Progress

There are no Class I areas located in Illinois, and so the requirements for the progress report in 40 CFR § 51.308(g)(3) are not applicable to Illinois.

Emissions Progress

Illinois is ahead of schedule in its progress toward reducing visibility-impairing emissions from the State. Illinois EPA has provided in this report data and figures showing emission trends in Illinois across its inventory.

Assessment of Changes Impeding Visibility Progress

Illinois does not anticipate significant changes to anthropogenic emissions that would impede visibility progress.

Review of Visibility Monitoring Strategy

There are no Class I areas located in Illinois, so the requirements for the progress report in 40 CFR §§ 51.308(g)(7) and 51.309(d)(10)(i)(G) are not applicable to Illinois.

Determination of Adequacy

Illinois has determined that its existing Regional Haze SIP is adequate to achieve the established goals for visibility and emissions reductions, and that no further substantive revision to the SIP is required at this time. Accordingly, this report satisfies the requirements of 40 § CFR 51.308(h), and provides a negative declaration to the Administrator that further revision of the existing implementation plan is not needed at this time.

1.0 Status of Control Strategies in the Regional Haze SIP

This section is intended to satisfy Regional Haze Rule requirements for providing a detailed description of the control strategies a state is employing in its Regional Haze SIP.

40 CFR § 51.308(g)(1): 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.

1.1 Measures Included in Illinois' Regional Haze SIP

Illinois relied primarily on three control strategies for meeting its Regional Haze requirements. These strategies relied upon federal consent decrees for two petroleum refineries, source-specific limits for three power plants that were included in federally enforceable permits, and emission reductions from the vast majority of Illinois' EGU fleet resulting from MPS and CPS requirements found in the Illinois Mercury Rule (35 Ill. Adm. Code Part 225). All three control strategies have been implemented or are being implemented on the schedules proposed in Illinois' Regional Haze SIP submittal or subsequent approved SIP revisions.

1.1.1 MPS and CPS Requirements for Illinois EGUs

The MPS and CPS, found in 35 Ill. Adm. Code Part 225, require fleet-wide average emission limits for SO₂ and NO_x for three groups of EGUs that comprise the great majority of Illinois coal-fired generation capacity. These three EGU groups were defined by their ownership at the time of the rule's adoption by one of three corporate entities: Dynegy Midwest Generation, Inc. ("Dynegy"), Midwest Generation, LLC ("Midwest Generation"), and Ameren Energy Resources ("Ameren"). While the EGUs in the Ameren group have changed ownership, the MPS rules are still applicable to this EGU group regardless of the current ownership of the units. The MPS group that was originally composed of units owned by Ameren is now owned and operated by Illinois Power Holdings, LLC ("IPH"), and will be referred to as the IPH MPS group for the purposes of this document.

The Dynegy MPS group has been required to meet a fleet-wide seasonal and annual NO_x emission rate of 0.10 lbs/mmBtu, effective beginning in the 2012 calendar year. This MPS group is also required to meet a fleet-wide SO₂ emission rate of 0.19 lbs/mmBtu, effective beginning in the 2015 calendar year. The EGUs in this MPS group are currently meeting these requirements, and the resulting emission reductions are quantified in Section 2.0 of this document.

The IPH MPS group is required by statute to meet a fleet-wide seasonal and annual NO_x emission rate of 0.11 lbs/mmBtu, effective beginning in the 2012 calendar year. This MPS group is also required to meet a fleet-wide SO₂ emission rate of 0.25 lbs/mmBtu, effective in calendar years 2015 and 2016, and fleet-wide SO₂ emission rate of 0.23 lbs/mmBtu beginning in calendar year 2017 and forward. This MPS group was subsequently granted a variance from these requirements by the Illinois Pollution Control Board ("Board") in 2013 that was determined to result in greater emission reductions than the original requirements. This variance was submitted to USEPA as a SIP revision that was approved by USEPA in 2015 (80 FR 79261, (Dec. 21, 2015)). The EGUs in this MPS group are currently meeting the requirements of the SIP, and the resulting emission reductions are quantified in Section 2.0 of this document.

The Midwest Generation CPS group has been required to meet a fleet-wide seasonal and annual NO_x emission rate of 0.11 lbs/mmBtu, effective beginning in the 2012 calendar year. The CPS group has also been required to meet fleet-wide SO₂ emission rates noted in the schedule found in 35 Ill. Adm. Code Section 225.295(b). This CPS group was subsequently granted a variance from these requirements by the Board in 2013 that was determined to result in greater emission reductions than the original requirements. This variance was submitted to USEPA as a SIP revision that was approved by USEPA in 2015 (80 FR 42726 (Jul. 20, 2015)). The EGUs in the CPS group are currently meeting the requirements of the SIP, and the resulting emission reductions are quantified in Section 2.0 of this document.

It should be noted that actual emission reductions from these groups have been greater than that projected in Illinois' original Regional Haze SIP submittal.

1.1.2 Source Specific Limits at CWLP and Kincaid Power Plants

As a result of Memoranda of Understanding ("MOU") with Illinois, the operators of the City Water, Light & Power, City of Springfield ("CWLP") and Kincaid Generation, LLC ("Kincaid") power plants agreed to source-specific limits for those plants that have been incorporated into federally enforceable permits.

The CWLP MOU required the shutdown of the Lakeside 8 unit, and source specific limits for the Dallman 31 and 32 units. The Dallman units are required to meet an annual average NO_x emission rate of 0.12 lbs/mmBtu in calendar years 2015 and 2016, and are required to meet an annual NO_x emission rate of 0.11 lbs/mmBtu in calendar year 2017 and forward. The Dallman units are required to meet an annual SO₂ emission rate of 0.25lbs/mmBtu in calendar years 2015 and 2016, and are required to meet an annual SO₂ emission rate of 0.23 lbs/mmBtu in calendar year 2017 and forward. CWLP is currently meeting these requirements, and the resulting emission reductions are quantified in Section 2.0 of this document.

The Kincaid MOU required the Kincaid units to meet an annual average NO_x emission rate of 0.07 lbs/mmBtu, effective March 1, 2013, and forward. The Kincaid units are also required to meet an annual average SO₂ emission rate of 0.20 lbs/mmBtu in calendar years 2014, 2015, and 2016, and these units are required to meet an annual average SO₂ emission rate of 0.15 lbs/mmBtu in calendar year 2017 and forward. The Kincaid units are currently meeting these requirements, and the resulting emission reductions are quantified in Section 2.0 of this document.

1.1.3 Consent Decrees for Petroleum Refineries

USEPA determined that the federal consent decrees for the CITGO Petroleum Corporation ("CITGO") and ExxonMobil Oil Corporation ("ExxonMobil") refineries in Illinois mandated control that was at least as stringent as would be required under BART. These refineries are still operating under the terms of the consent decrees and the resulting emission reductions are quantified in Section 2.0 of this document.

1.2 Modeled On-the-Books Control Strategies

The following is a list of “on-the-books” control measures that were used in the future year modeling prepared by the Midwest Regional Planning Organization prior to Illinois’ original Regional Haze SIP submittal and expected to be implemented between 2002 and 2018:

On-Road Mobile Sources

- Federal Motor Vehicle Emission Control Program, low-sulfur gasoline, and ultra-low sulfur diesel fuel
- Inspection and 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
- Transport Rule (Part 1)

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

These “on-the-books” measures are being implemented as planned or in a manner at least as stringent as anticipated at the time of Illinois’ original Regional Haze submittal.

1.3 Additional Measures Not Considered in Illinois’ Regional Haze SIP

Illinois anticipates that the following measures will contribute to further reductions in Illinois emissions of SO₂ before the 2018 and the end of the first implementation period.

1.3.1 SO₂ NAAQS Compliance

In June of 2010, USEPA strengthened the primary National Ambient Air Quality Standard (“NAAQS”) for SO₂ to 75 parts per billion (“ppb”) averaged over a one-hour period. In 2015, Illinois adopted new regulations in 35 Ill. Adm. Code Parts 211, 214, and 225 to address two nonattainment areas in Lemont and Pekin, Illinois. These new Illinois regulations, effective January 1, 2017, set statewide fuel sulfur standards for stationary sources at 1000 parts per million (“ppm”) for residual fuel oil and 15 ppm for distillate fuel oil. Previous limits for liquid fuel at stationary sources in Illinois had limited units to emissions of 0.8 lb/mmBtu for residual fuel oil, and to 0.3 lb/mmBtu for distillate fuel oil.

In addition to the fuel sulfur standards, the new Illinois regulations set more stringent SO₂ emission standards at the following sources: Aventine Renewable Energy, Illinois Power Resources Generating E.D. Edwards, Ingredion Bedford Park, Midwest Generation Joliet, Midwest Generation Powerton, Midwest Generation Will County, Owens Corning, and Oxbow Midwest Calcining. These more stringent standards are unit-specific and become effective January 1, 2017.

1.3.2 Tier 3 Vehicle Emission and Fuel Standards Program.

In April of 2014, USEPA finalized the new Tier 3 rules for vehicle emissions and reducing sulfur content of gasoline, effective in 2017. The Tier 3 program standards are expected to reduce the impact of vehicle emissions on air quality.

2.0 Emissions Reductions from Regional Haze Strategies

This section is intended to satisfy Regional Haze Rule requirements for states to provide a summary of emission reductions resulting from the strategies discussed above.

40 CFR §§ 51.308(g)(2) and 51.309(d)(10)(i)(B): A summary of the emissions reductions achieved throughout the State through implementation of the measures described in paragraph (g)(1) of this section.

The Regional Haze control strategies detailed in Section 1.0 are being implemented as anticipated prior to Illinois’ original Regional Haze SIP submittal. Illinois’ reliance upon the MPS and CPS from 35 Ill. Adm. Code Part 225, the MOUs that apply to CWLP and Kincaid, and the consent decrees that apply to the two petroleum refineries have resulted in significant emissions reductions in NO_x and SO₂. Furthermore, in almost all cases, actual emissions data from 2015 already indicate that greater reductions have occurred at regulated sources than were anticipated in Illinois’ original SIP submittal for the entire first implementation period ending in 2018.

In Illinois’ original Regional Haze SIP submittal, comparisons were made between the Illinois control strategy and presumptive BART control for each group of sources. Below, Illinois EPA has presented these same tables containing data from the 2002 base year for the Regional Haze Rule, estimates for emission reductions that would occur under presumptive BART control, projections of emissions for 2015 for the purpose of this progress report, and projections of emissions for 2018 for the purpose of projecting through the end of the first implementation period in the Regional Haze Rule. In the tables presented below, the columns labeled “Final”

represent Illinois' 2018 projections for the end of the first planning period from Illinois' original Regional Haze SIP submittal. Illinois EPA has added columns to include actual 2015 emissions data for comparison to the projections presented in the original Regional Haze SIP submittal.¹

2.1 Emissions Reductions from MPS and CPS Control Strategies

2.1.1 Emissions Reductions from the Dynegy MPS Group

Tables 1 and 2 contain data from the 2002 base year for Dynegy MPS units and the projections for 2015 and 2018 from the "Technical Support Document for Best Available Retrofit Technology Under the Regional Haze Rule", and included in Illinois' Regional Haze SIP submittal. The final three columns in each table have been added for this progress report for comparison to actual emissions in 2015. Tables 1 and 2 show that emissions reductions of NO_x and SO₂ from Dynegy MPS EGUs have exceeded projected emission reductions for 2015 and 2018 from the original Illinois Regional Haze SIP submittal. Columns labeled "Final" represent Illinois' 2018 projections for the end of the first planning period from Illinois' original Regional Haze SIP submittal.

Table 1. NO_x Emissions Reductions from Dynegy MPS EGUs

Plant	Unit	Base Year			Presumptive BART		MPS 2015*		MPS Final*		2015 Actual		
		1000 mmBTU	Lbs/mm BTU	Tons	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons	Tons/Year Reduction
Baldwin	1	43,884	0.55	12,119	0.1	9,925	0.1	9,925	0.1	9,925	0.076	1,384	10,735
Baldwin	2	37,135	0.4	7,405	0.1	5,548	0.1	5,548	0.1	5,548	0.075	985	6,420
Baldwin	3	46,403	0.12	2,850	0.15	-696	0.1	464	0.1	464	0.09	1,879	971
Havana	9	28,514	0.27	3,901	NA	NA	0.1	2,424	0.1	2,424	0.079	892	3,009
Hennepin	1	4,684	0.32	760	NA	NA	0.1	515	0.1	515	0.141	317	443
Hennepin	2	17,575	0.33	2,862	NA	NA	0.1	2,021	0.1	2,021	0.147	893	1,969
Vermilion	1	5,311	0.37	986	NA	NA	0.1	717	0.1	717	0	0	986
Vermilion	2	6,741	0.37	1,231	NA	NA	0.1	910	0.1	910	0	0	1,231
Wood River	4	5,561	0.19	521	NA	NA	0.1	250	0.1	250	0.144	255	266
Wood River	5	17,611	0.22	1,903	NA	NA	0.1	1,057	0.1	1,057	0.136	1,303	600
		0.324	34,538		16,169		23,831		23,831				26,630

* Emission projections from Illinois' original Regional Haze SIP submittal

¹ All 2015 actual emissions data for "Tons" are taken from USEPA's Air Markets Program Data ("AMPD"), as of February 2016.

Table 2. SO₂ Emissions Reductions from Dynegy MPS EGUs

Plant	Unit	Base Year			Presumptive BART		MPS 2015*		MPS Final*		2015 Actual		
		1000 mmBTU	Lbs/mm BTU	Tons	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons	Tons/Year Reduction
Baldwin	1	43,884	0.41	9,053	0.15	5,705	0.19	4,827	0.19	4,827	0.079	1,503	7,550
Baldwin	2	37,135	0.39	7,283	0.15	4,456	0.19	3,714	0.19	3,714	0.075	1,062	6,221
Baldwin	3	46,403	0.43	9,931	0.15	6,496	0.19	5,568	0.19	5,568	0.076	1,595	8,336
Havana	9	28,514	0.9	12,815	NA	NA	0.19	10,122	0.19	10,122	0.074	858	11,957
Hennepin	1	4,684	0.43	1,000	NA	NA	0.19	562	0.19	562	0.455	1,048	-48
Hennepin	2	17,575	0.43	3,792	NA	NA	0.19	2,109	0.19	2,109	0.457	2,922	870
Vermilion	1	5,311	2.75	7,293	NA	NA	0.19	6,798	0.19	6,798	0	0	7,293
Vermilion	2	6,741	2.74	9,224	NA	NA	0.19	8,595	0.19	8,595	0	0	9,224
Wood River	4	5,561	0.55	1,536	NA	NA	0.19	1,001	0.19	1,001	0.446	821	715
Wood River	5	17,611	0.65	5,726	NA	NA	0.19	4,051	0.19	4,051	0.446	4,246	1,480
		0.634	67,653			16,658		47,347		47,347			53,598

* Emission projections from Illinois' original Regional Haze SIP submittal

2.1.2 Emissions Reductions from the IPH MPS Group

Tables 3 and 4 contain data from the 2002 base year for IPH MPS units and the projections for 2015 and 2018 that were included in Illinois' Regional Haze SIP. The final three columns in each table have been added for this progress report for comparison to actual emissions in 2015. Tables 3 and 4 show that emissions reductions of NO_x and SO₂ from IPH MPS EGUs have exceeded projected emission reductions for 2015 and 2018 from the original Illinois Regional Haze SIP submittal.

Table 3. NOx Emissions Reductions from IPH MPS EGUs

Plant	Unit	Base Year			Presumptive BART		MPS 2015*		MPS Final*		2015 Actual		
		1000 mmBTU	Lbs/mm BTU	Tons	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons	Tons/Year Reduction
Coffeen	1	18,570	0.53	4,918	0.1	3,990	0.11	3,900	0.11	3,900	0.08	567	4,351
Coffeen	2	37,545	0.5	9,422	0.1	7,545	0.11	7,321	0.11	7,321	0.069	1,048	8,374
Duck Creek	1	22,635	0.47	5,328	0.39	905	0.11	4,074	0.11	4,074	0.094	1,012	4,316
E D Edwards	1	6,417	0.41	1,306	NA	NA	0.11	963	0.11	963	0.18	0	1,306
E D Edwards	2	17,222	0.45	3,901	0.23	1,894	0.11	2,928	0.11	2,928	0.202	1,683	2,218
E D Edwards	3	15,972	0.46	3,639	0.23	1,837	0.11	2,795	0.11	2,795	0.07	458	3,181
Hutsonville	5	3,161	0.57	897	NA	NA	0.11	727	0.11	727	0	0	897
Hutsonville	6	3,443	0.52	902	NA	NA	0.11	706	0.11	706	0	0	902
Joppa	1	13,548	0.13	876	NA	NA	0.11	135	0.11	135	0.116	548	328
Joppa	2	16,258	0.13	1,048	NA	NA	0.11	163	0.11	163	0.118	502	546
Joppa	3	15,396	0.13	1,030	NA	NA	0.11	154	0.11	154	0.111	458	572
Joppa	4	13,402	0.13	904	NA	NA	0.11	134	0.11	134	0.11	501	403
Joppa	5	15,094	0.12	939	NA	NA	0.11	75	0.11	75	0.112	515	424
Joppa	6	16,063	0.12	999	NA	NA	0.11	80	0.11	80	0.105	441	558
Meredosia	1	1,134	0.51	292	NA	NA	0.11	227	0.11	227	0	0	292
Meredosia	2	1,337	0.5	336	NA	NA	0.11	261	0.11	261	0	0	336
Meredosia	3	1,069	0.51	271	NA	NA	0.11	214	0.11	214	0	0	271
Meredosia	4	1,406	0.51	357	NA	NA	0.11	281	0.11	281	0	0	357
Meredosia	5	10,810	0.47	2,524	NA	NA	0.11	1,946	0.11	1,946	0	0	2,524
Newton	1	40,631	0.15	3,037	NA	NA	0.11	813	0.11	813	0.089	1,226	1,811
Newton	2	38,533	0.11	2,215	NA	NA	0.11	0	0.11	0	0.083	969	1,246
		0.292	45,141			16,171		27,896		27,896			35,213

* Emission projections from Illinois' original Regional Haze SIP submittal

Table 4. SO₂ Emissions Reductions from IPH MPS EGUs

Plant	Unit	Base Year			Presumptive BART		MPS 2015*		MPS Final*		2015 Actual		
		1000 mmBTU	Lbs/mm BTU	Tons	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons	Tons/Year Reduction
Coffeen	1	18,570	1.54	14,332	0.15	12,906	0.25	11,978	0.23	12,163	0.003	21	14,311
Coffeen	2	37,545	1.49	27,999	0.15	25,155	0.25	23,278	0.23	23,653	0.001	16	27,983
Duck Creek	1	22,635	0.97	11,026	0.15	9,280	0.25	8,149	0.23	8,375	0.007	78	10,948
E D Edwards	1	6,417	3.55	11,399	NA	NA	0.25	10,588	0.23	10,652	0.454	0	11,399
E D Edwards	2	17,222	1.7	14,666	0.15	13,347	0.25	12,486	0.23	12,658	0.427	3,609	11,057
E D Edwards	3	15,972	1.21	9,683	0.15	8,465	0.25	7,667	0.23	7,826	0.418	2,826	6,857
Hutsonville	5	3,161	4.53	7,163	NA	NA	0.25	6,765	0.23	6,796	0	0	7,163
Hutsonville	6	3,443	4.53	7,791	NA	NA	0.25	7,368	0.23	7,402	0	0	7,791
Joppa	1	13,548	0.51	3,441	NA	NA	0.25	1,761	0.23	1,897	0.493	2,360	1,081
Joppa	2	16,258	0.51	4,139	NA	NA	0.25	2,114	0.23	2,276	0.492	2,131	2,008
Joppa	3	15,396	0.51	3,947	NA	NA	0.25	2,001	0.23	2,155	0.495	2,070	1,877
Joppa	4	13,402	0.52	3,488	NA	NA	0.25	1,809	0.23	1,943	0.496	2,268	1,220
Joppa	5	15,094	0.52	3,932	NA	NA	0.25	2,038	0.23	2,189	0.487	2,332	1,600
Joppa	6	16,063	0.52	4,182	NA	NA	0.25	2,169	0.23	2,329	0.49	2,070	2,112
Meredosia	1	1,134	5.02	2,844	NA	NA	0.25	2,705	0.23	2,716	0	0	2,844
Meredosia	2	1,337	5.02	3,356	NA	NA	0.25	3,189	0.23	3,202	0	0	3,356
Meredosia	3	1,069	5.04	2,694	NA	NA	0.25	2,560	0.23	2,571	0	0	2,694
Meredosia	4	1,406	5	3,518	NA	NA	0.25	3,339	0.23	3,353	0	0	3,518
Meredosia	5	10,810	2.34	12,639	NA	NA	0.25	11,296	0.23	11,405	0	0	12,639
Newton	1	40,631	0.45	9,046	NA	NA	0.25	4,063	0.23	4,469	0.507	6,938	2,108
Newton	2	38,533	0.46	8,823	NA	NA	0.25	4,046	0.23	4,431	0.51	5,867	2,956
		1,099	170,108			69,154		131,367		134,464			137,522

* Emission projections from Illinois' original Regional Haze SIP submittal

2.1.3 Emissions Reductions from the Midwest Generation CPS Group

Tables 5 and 6 contain data from the 2002 base year for Midwest Generation CPS units and the projections for 2015 and 2018 that were included in Illinois' Regional Haze SIP. The final three columns in each table have been added for this progress report for comparison to actual emissions in 2015. Table 5 shows that emissions reductions of NO_x from Midwest Generation CPS EGUs have exceeded projected emission reductions for 2015 and 2018 from the original Illinois Regional Haze SIP submittal. Table 6 shows that emissions reductions of SO₂ from these EGUs have exceeded projected emission reductions from the Regional Haze SIP for 2015, but have not yet met the projections for SO₂ reductions for 2018. However, Illinois EPA anticipates that SO₂ emissions reductions from Midwest Generation units will easily exceed the projected emissions reductions in 2016 and forward due to the conversion of all Joliet units to natural gas combustion and additional pollution control equipment at all Powerton units.

Table 5. NOx Emissions Reductions from Midwest Generation CPS EGUs

Plant	Unit	Base Year			Presumptive BART		CPS 2015*		CPS Final*		2015 Actual		
		1000 mmBTU	Lbs/mm BTU	Tons	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons	Tons/Year Reduction
Crawford	7	11,627	0.2	1,187	NA	NA	0.11	523	0.11	523	0	0	1,187
Crawford	8	17,348	0.19	1,663	NA	NA	0.11	694	0.11	694	0	0	1,663
Fisk	19	14,650	0.34	2,463	NA	NA	0.11	1,685	0.11	1,685	0	0	2,463
Joliet 29	71	15,034	0.12	871	0.15	-226	0.11	75	0.11	75	0.092	650	221
Joliet 29	72	13,824	0.12	816	0.15	-207	0.11	69	0.11	69	0.092	663	153
Joliet 29	81	15,585	0.13	1,049	0.15	-156	0.11	156	0.11	156	0.097	647	402
Joliet 29	82	15,403	0.14	1,073	0.15	-77	0.11	231	0.11	231	0.098	719	354
Joliet 9	5	14,369	0.36	2,562	NA	NA	0.11	1,796	0.11	1,796	0.116	829	1,733
Powerton	51	20,936	0.73	7,594	0.1	6,547	0.11	6,490	0.11	6,490	0.096	806	6,788
Powerton	52	21,137	0.73	7,695	0.1	6,638	0.11	6,552	0.11	6,552	0.099	858	6,837
Powerton	61	18,293	0.66	5,995	0.1	5,080	0.11	5,031	0.11	5,031	0.109	830	5,165
Powerton	62	18,088	0.66	5,936	0.1	5,031	0.11	4,974	0.11	4,974	0.091	783	5,153
Waukegan	17	7,502	0.63	2,365	NA	NA	0.11	1,951	0.11	1,951	0	0	2,365
Waukegan	7	16,117	0.14	1,092	NA	NA	0.11	242	0.11	242	0.1	632	460
Waukegan	8	21,950	0.14	1,488	NA	NA	0.11	329	0.11	329	0.135	496	992
Will County	1	9,398	0.85	4,000	NA	NA	0.11	3,477	0.11	3,477	0	0	4,000
Will County	2	8,293	0.8	3,310	NA	NA	0.11	2,861	0.11	2,861	0	0	3,310
Will County	3	15,559	0.17	1,300	NA	NA	0.11	467	0.11	467	0.094	241	1,059
Will County	4	27,585	0.15	2,009	0.15	0	0.11	552	0.11	552	0.091	1,131	878
		0.36	54,468			22,630		38,155		38,155			45,185

* Emission projections from Illinois' original Regional Haze SIP submittal

Table 6. SO₂ Emissions Reductions from Midwest Generation CPS EGUs

Plant	Unit	Base Year			Presumptive BART		CPS 2015*		CPS Final*		2015 Actual		
		1000 mmBTU	Lbs/mm BTU	Tons	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons	Tons/Year Reduction
Crawford	7	11.627	0.54	3,142	NA	NA	0.28	1,512	0.11	2,500	0	0	3,142
Crawford	8	17,348	0.51	4,453	NA	NA	0.28	1,995	0.11	3,470	0	0	4,453
Fisk	19	14,650	0.52	3,843	NA	NA	0.28	1,758	0.11	3,003	0	0	3,843
Joliet 29	71	15,034	0.7	5,276	0.15	4,134	0.28	3,157	0.11	4,435	0.382	2,764	2,512
Joliet 29	72	13,824	0.7	4,828	0.15	3,802	0.28	2,903	0.11	4,078	0.381	2,819	2,009
Joliet 29	81	15,585	0.68	5,300	0.15	4,130	0.28	3,117	0.11	4,442	0.391	2,716	2,584
Joliet 29	82	15,403	0.68	5,260	0.15	4,082	0.28	3,081	0.11	4,390	0.392	3,030	2,230
Joliet 9	5	14,369	0.63	4,559	NA	NA	0.28	2,515	0.11	3,736	0.386	2,694	1,865
Powerton	51	20,936	0.42	4,444	0.15	2,826	0.28	1,466	0.11	3,245	0.327	2,623	1,821
Powerton	52	21,137	0.43	4,497	0.15	2,959	0.28	1,585	0.11	3,382	0.326	2,716	1,781
Powerton	61	18,293	0.43	3,964	0.15	2,561	0.28	1,372	0.11	2,927	0.305	2,541	1,423
Powerton	62	18,088	0.43	3,909	0.15	2,532	0.28	1,357	0.11	2,894	0.305	2,463	1,446
Waukegan	17	7,502	0.44	1,642	NA	NA	0.28	600	0.11	1,238	0	0	1,642
Waukegan	7	16,117	0.47	3,754	NA	NA	0.28	1,531	0.11	2,901	0.23	1,445	2,309
Waukegan	8	21,950	0.49	5,385	NA	NA	0.28	2,305	0.11	4,171	0.25	893	4,492
Will County	1	9,398	0.42	1,969	NA	NA	0.28	658	0.11	1,457	0	0	1,969
Will County	2	8,293	0.39	1,617	NA	NA	0.28	456	0.11	1,161	0	0	1,617
Will County	3	15,559	0.47	3,636	NA	NA	0.28	1,478	0.11	2,801	0.37	973	2,663
Will County	4	27,585	0.47	6,462	0.15	4,414	0.28	2,621	0.11	4,965	0.398	5,050	1,412
		0.515	77,940			31,440		35,465		61,194			45,212

* Emission projections from Illinois' original Regional Haze SIP submittal

2.2 Emissions Reductions from Source Specific Limits at CWLP and Kincaid Power Plants

2.2.1 Emissions Reductions from CWLP MOU

Tables 7 and 8 contain data from the 2002 base year for the CWLP units covered by the MOU with Illinois and the projections for 2015 and 2018 that were included in Illinois' Regional Haze SIP. The final three columns in each table have been added for this progress report for comparison to actual emissions in 2015. Tables 7 and 8 show that emissions reductions of NO_x and SO₂ from CWLP's MOU EGUs have exceeded projected emissions reductions for 2015 and 2018 from the original Illinois Regional Haze SIP submittal.

Table 7. NOx Emissions Reductions from CWLP MOU EGUs

Plant	Unit	Base Year			Presumptive BART		MOU 2015*		MOU Final*		2015 Actual		
		1000 mmBTU	Lbs/mm BTU	Tons	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons	Tons/Year Reduction
Dallman	31	4,528	1.1	2,484	0.12	2,212	0.12	2,212	0.11	2,235	0.1248	142	2,342
Dallman	32	4,787	1.11	2,654	0.12	2,366	0.12	2,366	0.11	2,391	0.1316	78	2,576
Lakeside	8	1,593	0.94	749	0.12	653	0	749	0	749	0	0	749
				5,887		5,231		5,327		5,375			5,666

* Emission projections from Illinois' original Regional Haze SIP submittal

Table 8. SO₂ Emissions Reductions from CWLP MOU EGUs

Plant	Unit	Base Year			Presumptive BART		MOU 2015*		MOU Final*		2015 Actual		
		1000 mmBTU	Lbs/mm BTU	Tons	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons	Tons/Year Reduction
Dallman	31	4,528	0.33	753	0.3	74	0.25	187	0.23	232	0.101	117	636
Dallman	32	4,787	0.35	835	0.3	117	0.25	236	0.23	284	0.101	61	774
Lakeside	8	1,593	5.47	4,358	0.3	4,119	0	4,358	0	4,358	0	0	4,358
				5,946		4,310		4,781		4,875			5,768

* Emission projections from Illinois' original Regional Haze SIP submittal

2.2.2 Emissions Reductions from Kincaid MOU

Tables 9 and 10 contain data from the 2002 base year for the Kincaid units covered by the MOU with Illinois and the projections for the final agreement in 2017 that were included in Illinois' Regional Haze SIP. The final three columns in each table have been added for this progress report for comparison to actual emissions in 2015. Tables 9 and 10 show that emissions reductions of NO_x and SO₂ from the Kincaid MOU EGUs have exceeded projected emission reductions for 2015 and 2017 from the original Illinois Regional Haze SIP submittal. It should be noted that 2015 actual data has been compared to the 2015 final agreement for NO_x reductions and to the 2017 final agreement for SO₂ reductions. These agreements and the permit limits that reflect the MOU are effective in those years and no further compliance dates exist after those years.

Table 9. NOx Emissions Reductions from Kincaid MOU EGUs

Plant	Unit	Base Year			Presumptive BART		Final Agreement 2015		2015 Actual		
		1000 mmBTU	Lbs/mm BTU	Tons	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons	Tons/Year Reduction
Kincaid	1	32,265	0.64	10,300	0.1	8,686	0.07	9,171	0.0652	825	9,475
Kincaid	2	32,238	0.66	10,605	0.1	8,993	0.07	9,476	0.0666	876	9,729
				20,905		17,679		18,648			19,203

Table 10. SO₂ Emissions Reductions from Kincaid MOU EGUs

Plant	Unit	Base Year			Presumptive BART		Final Agreement 2015		Final Agreement 2017*		2015 Actual		
		1000 mmBTU	Lbs/mm BTU	Tons	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons/Year Reduction	Lbs/mm BTU	Tons	Tons/Year Reduction
Kincaid	1	32,265	0.55	8,873	0.15	6,453	0.2	5,646	0.15	6,453	0.086	1,173	7,700
Kincaid	2	32,238	0.54	8,704	0.15	6,286	0.2	5,480	0.15	6,286	0.086	1,193	7,511
				17,577		12,739		11,126		12,739			15,211

* Emission projections from Illinois original Regional Haze SIP submittal

2.3 Emissions Reductions from Consent Decrees for Petroleum Refineries

Tables 11, 12, 13, and 14 contain data for refinery units that were determined to be subject to BART control at the time of the original Regional Haze SIP submittal. The tables are identical to those submitted with the SIP other than the addition of the final two columns containing actual 2014 emissions from the units. The tables contain unit-level data showing 2002 base year data, estimated emissions and emissions reductions under a BART control strategy, anticipated emissions and reductions from the refinery consent decrees, and actual emissions and emissions reductions from 2014.

In the case of the CITGO refinery, Table 11 shows that actual NO_x emission reductions in 2014 were slightly greater than the original estimates for reductions under a BART control strategy and consent decree estimates. Table 12 shows that actual SO₂ emission reductions in 2014 were slightly less (-0.1%) than the original estimates for reductions under the BART control strategy and consent decree estimates.

In the case of the ExxonMobil refinery, Tables 13 and 14 show that emissions reductions of both SO₂ and NO_x were greater than the original estimates for reductions under a BART control strategy and the consent decree estimates.

These comparisons between BART control strategies, consent decree requirements, and actual emissions from the most recent year that quality data is available, demonstrate the validity of USEPA's determination that the consent decrees mandated BART-level control.

Table 11. NOx Emissions Reductions from CITGO Refinery

Point	Unit	2002 Base	BART Controls		Consent Decree 2013		Actual 2014	
		Tons	Tons	Tons/Year Reduction	Tons	Tons/Year Reduction	Tons	Tons/Year Reduction
3	ATMOSPHERIC HEATER 111B-1A	92.84	56.16	36.68	56.16	36.68	35.15	57.69
4	ATMOSPHERIC HEATER 111B-1B	74.55	56.16	18.39	56.16	18.39	29.88	44.67
5	CRUDE VACUUM HEATER 111B-2	9.36	9.36	0.00	9.36	0.00	13.00	-3.64
7	FCCU CATALYST REGENERATION 112D-1	1,065.67	106.57	959.10	106.57	959.10	89.79	975.88
11	COKER CHARGE HEATER 113B-1	12.74	12.74	0.00	12.74	0.00	16.28	-3.54
19	CHARGE HEATER & STABILIZER REBOILER 116B-1	107.67	28.70	79.00	28.70	79.00	13.82	93.85
21	HOT OIL HEATER 118B-1	10.36	10.36	0.00	10.36	0.00	15.67	-5.31
31	FEED HEATER 125B-1	6.45	6.45	0.00	6.45	0.00	combined with point 74	0.00
37	AUXILIARY BOILER 430B-1	167.11	35.35	131.76	35.35	131.76	39.51	127.60
64	COKER CHARGE HEATER 113B-2	12.44	12.44	0.00	12.44	0.00	16.41	-3.97
66	INTERHEATER & NAPHTHA STRIPPER REBOILER 116B-2	58.75	15.67	43.08	15.67	43.08	7.48	51.27
74	STRIPPER REBOILER 125B-2	18.21	18.21	0.00	18.21	0.00	52.37	-34.16
215	CLAUS SULFUR RECOVERY UNITS 119A & B	9.56	9.56	0.00	9.56	0.00	8.21	1.35
216	CLAUS SULFUR RECOVERY UNITS 121C & D	10.38	10.38	0.00	10.38	0.00	16.37	-5.99
		1,656.09		1,268.01		1,268.01		1,295.70

Table 12. SO₂ Emissions Reductions from CITGO Refinery

Point	Unit	2002 Base	BART controls		Consent Decree 2013		Actual 2014	
		Tons	Tons	Tons/Year Reduction	Tons	Tons/Year Reduction	Tons	Tons/Year Reduction
3	ATMOSPHERIC HEATER 111B-1A	4.93	4.93	0.00	4.93	0.00	4.88	0.05
4	ATMOSPHERIC HEATER 111B-1B	4.27	4.27	0.00	4.27	0.00	4.84	-0.57
5	CRUDE VACUUM HEATER 111B-2	2.83	2.83	0.00	2.83	0.00	2.14	0.69
7	FCCU CATALYST REGENERATION 112D-1	10,982.50	107.91	10,874.59	107.91	10,874.59	119.31	10,863.19
11	COKER CHARGE HEATER 113B-1	2.10	2.10	0.00	2.10	0.00	1.21	0.89
19	CHARGE HEATER & STABILIZER REBOILER 116B-1	3.76	3.76	0.00	3.76	0.00	1.63	2.13
21	HOT OIL HEATER 118B-1	1.16	1.16	0.00	1.16	0.00	1.16	0.00
31	FEED HEATER 125B-1	1.14	1.14	0.00	1.14	0.00	combined with point 74	0.00
37	AUXILIARY BOILER 430B-1	5.68	5.68	0.00	5.68	0.00	2.73	2.95
38	BOILER #19	1.93	NA	NA	0.00	1.93	0.00	1.93
64	COKER CHARGE HEATER 113B-2	2.09	2.09	0.00	2.09	0.00	1.22	0.87
66	INTERHEATER & NAPHTHA STRIPPER REBOILER 116B-2	2.06	2.06	0.00	2.06	0.00	0.93	1.13
74	STRIPPER REBOILER 125B-2	2.97	2.97	0.00	2.97	0.00	2.23	0.74
215	CLAUS SULFUR RECOVERY UNITS 119A & B	4,339.96	91.20	4,248.76	91.20	4,248.76	28.66	4,311.30
216	CLAUS SULFUR RECOVERY UNITS 121C & D	2.52	2.52	0.00	2.52	0.00	79.29	-76.77
		15,359.90		15,123.35		15,125.28		15,108.53

Table 13. NOx Emissions Reductions from ExxonMobil Refinery

Point	Unit	2002 Base	BART controls		Consent Decree 2011		Actual 2014	
		Tons	Tons	Tons/Year Reduction	Tons	Tons/Year Reduction	Tons	Tons/Year Reduction
2	AUX BOILER	19.61	19.61	0.00	19.61	0.00	4.81	14.80
4	REFINERY WASTE GAS BLOWDOWN SYSTEM AND 2 FLARES	810.30	810.30	*	810.30	*	354.58	455.72
12	SAT GAS LEAN OIL REBOILER	24.40	24.40	0.00	24.40	0.00	6.51	17.89
13	SULFUR TRAINS INCLUDING SULFUR PIT AND LOADING RACK	12.49	12.49	0.00	12.49	0.00	5.84	6.65
15	FLUID CATALYTIC CRACKING UNIT	1,818.02	181.80	1,636.22	181.80	1,636.22	142.95	1,675.07
18	CRUDE UNIT HEATERS (#1B1A AND #1B1B)	288.72	288.72	0.00	288.72	0.00	512.56	-223.84
19	CRUDE UNIT VACUUM HEATER	114.61	114.61	0.00	114.61	0.00	125.50	-10.89
21	COKER CHARGE HEATERS (EAST AND WEST)	133.78	133.78	0.00	133.78	0.00	130.95	2.83
25	REFORMER CHARGE HEATERS (2B3, 2B4, 2B5, AND 2B6)	124.62	124.62	0.00	124.62	0.00	96.34	28.28
26	PT REFORMATE DEBUT REBOILER 2B7	23.07	23.07	0.00	23.07	0.00	2.77	20.30
27	PRETREAT REACTOR CHARGE HEATER 17-B-1	23.07	23.07	0.00	23.07	0.00	6.76	16.31
28	PRETREAT DEBUT REBOIL 17-B-2	32.91	32.91	0.00	32.91	0.00	5.51	27.40

33	CHD REACT CHARGE HEATER 3B1	35.87	35.87	0.00	35.87	0.00	40.40	-4.53
34	CHD STRIP REBOILER 3B2	41.72	41.72	0.00	41.72	0.00	46.25	-4.53
37	CHD REACTOR REGENERATION, 40 HR TWICE/YR M AND B	36.63	14.65	21.98	14.65	21.98	0.00	36.63
38	ALKY ISOSTRIP REBOILER HEATER 7B1	36.63	14.65	21.98	14.65	21.98	33.50	3.13
38	ALKY ISOSTRIP REBOILER HEATER 7B1	23.94	9.58	14.36	9.58	14.36	28.11	-4.17
90	CCR REGENERATOR	0.41	0.41	0.00	0.41	0.00	0.52	-0.11
113	CRUDE UNIT FEED PREHEATER 1-B3/13-B-4	31.27	31.27	0.00	31.27	0.00	29.66	1.61
		3,632.07		1,694.54		1,694.54		2,058.55

Table 14. SO₂ Emissions Reductions from ExxonMobil Refinery

Point	Unit	2002 Base	BART controls		Consent Decree 2009		Actual 2014	
		Tons	Tons	Tons/Year Reduction	Tons	Tons/Year Reduction	Tons	Tons/Year Reduction
2	AUX BOILER	0.89	0.89	0.00	0.89	0.00	0.41	0.48
4	REFINERY WASTE GAS BLOWDOWN SYSTEM AND 2 FLARES	1,156.32	1,156.32	*	1,156.32	*	1,189.63	-33.31
12	SAT GAS LEAN OIL REBOILER	1.42	1.42	0.00	1.42	0.00	1.93	-0.51
13	SULFUR TRAINS INCLUDING SULFUR PIT AND LOADING RACK	9,340.60	186.81	9,153.79	186.81	9,153.79	69.94	9,270.66
15	FLUID CATALYTIC CRACKING UNIT	9,865.00	197.30	9,667.70	197.30	9,667.70	26.26	9,838.74
18	CRUDE UNIT HEATERS (#1B1A AND #1B1B)	14.84	14.84	0.00	14.84	0.00	21.39	-6.55
19	CRUDE UNIT VACUUM HEATER	4.36	4.36	0.00	4.36	0.00	6.62	-2.26
21	COKER CHARGE HEATERS (EAST AND WEST)	8.90	8.90	0.00	8.90	0.00	11.14	-2.24
25	REFORMER CHARGE HEATERS (2B3, 2B4, 2B5, AND 2B6)	10.80	10.80	0.00	10.80	0.00	17.11	-6.31
26	PT REFORMATE DEBUT REBOILER 2B7	1.16	1.16	0.00	1.16	0.00	1.53	-0.37
27	PRETREAT REACTOR CHARGE HEATER 17-B-1	0.09	0.09	0.00	0.09	0.00	2.13	-2.04
28	PRETREAT DEBUT REBOIL 17-B-2	1.67	1.67	0.00	1.67	0.00	3.06	-1.39

33	CHD REACT CHARGE HEATER 3B1	1.36	1.36	0.00	1.36	0.00	2.19	-0.83
34	CHD STRIP REBOILER 3B2	2.14	2.14	0.00	2.14	0.00	2.50	-0.36
37	CHD REACTOR REGENERATION, 40 HR TWICE/YR M AND B	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	ALKY ISOSTRIP REBOILER HEATER 7B1	1.89	1.89	0.00	1.89	0.00	2.26	-0.37
38	ALKY ISOSTRIP REBOILER HEATER 7B1	0.00	0.00	0.00	0.00	0.00	41.58	-41.58
90	CCR REGENERATOR	4.92	4.92	0.00	4.92	0.00	6.49	-1.57
113	CRUDE UNIT FEED PREHEATER 1-B3/13-B-4	1.84	1.84	0.00	1.84	0.00	8.35	-6.51
		20,418.20		18,820.79		18,820.79		19,003.68

3.0 Visibility Progress

This section is intended to satisfy Regional Haze Rule requirements for states with Class I Federal areas to assess visibility conditions and changes in their state.

40 CFR §§ 51.308(g)(3) and 51.309(d)(10)(i)(C): For each mandatory Class I Federal area within the State, the State must assess the following visibility conditions and changes, with values for most impaired and least impaired days expressed in terms of 5 year averages of these annual values.

- (i) The current visibility conditions for the most impaired and least impaired days;*
- (ii) The difference between current visibility conditions for the most impaired and least impaired days and baseline visibility conditions;*
- (iii) The change in visibility impairment for the most impaired and least impaired days over the past 5 years;*

There are no Class I areas located in Illinois, and so the requirements for the progress report in 40 CFR §§ 51.308(g)(3) and 51.309(d)(10)(i)(C) are not applicable to Illinois.

4.0 Emissions Progress

This section is intended to satisfy Regional Haze Rule requirements for states to provide an analysis tracking the change in emissions of visibility impairing pollutants over the previous five years.

40 CFR §§ 51.308(g)(4) and 51.309(d)(10)(i)(D): 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.

This section describes and illustrates the changes in anthropogenic emissions of pollutants that contribute to visibility impairment. The analysis includes emissions of SO₂, NO_x, ammonia (“NH₃”), volatile organic material (“VOM”), and direct emissions of fine particulate matter (“PM_{2.5}”) for the years 2010 to 2014 (the most recent year for which Illinois has a full quality assured inventory). In order to provide a five-year analysis with data from years with full quality assured inventories, Illinois EPA has interpolated 2010 inventory data from its 2008 and 2011 inventories.

4.1 Illinois Inventory Overview

Table 15 contains Illinois inventory data aggregated by source type for each visibility impairing pollutant. This data shows significant reductions in Illinois emissions of SO₂ (40% reduction) and NO_x (15% reduction) while showing slight increases or decreases in emissions of PM_{2.5} (0.15% increase), VOM (0.5% increase), and NH₃ (4% reduction).

Table 15. Illinois Emissions by Source Type

Source Type	SO ₂ (tpy)		Nox (tpy)		PM _{2.5} (tpy)		VOM (tpy)		NH ₃ (tpy)	
	2010	2014	2010	2014	2010	2014	2010	2014	2010	2014
Point Source	311,447	182,200	151,017	99,753	10,929	14,261	45,598	42,345	1,622	1,901
Area Source	5,753	5,688	45,150	58,012	119,001	118,411	166,221	172,831	69,916	68,177
On-road Mobile	1,037	1,040	187,348	174,774	5,290	5,286	70,721	73,769	6,048	3,868
Off-road Mobile	1,994	2,576	144,695	116,965	9,596	7,074	77,368	72,795	96	109
Animal Husbandry	0	0	0	0	0	0	0	0	45,826	44,442
Total	320,232	191,504	528,211	449,504	144,816	145,032	359,909	361,740	123,507	118,496

Table 16 shows Illinois inventory broken down into a greater number of subcategories similar to the USEPA-developed “Tier 1” summary, as suggested by USEPA’s “General Principles for the 5-Year Regional Haze Progress Reports for the Initial Regional Haze State Implementation Plans (Intended to Assist States and EPA Regional Offices in Development and Review of the Progress Reports), April 2013.”

Table 16 shows that the significant reductions in SO₂ and NO_x emissions were driven primarily by reductions from the EGU sector as Illinois regulations discussed in Section 2.0 of this document increased in stringency, and due to some retirements of Illinois coal-fired EGUs. Illinois EPA anticipates that this trend will continue in 2015 and beyond, due to further increases in the stringency of the state regulations and additional coal-fired EGUs in Illinois being retired or converted to natural gas combustion.

Tables 15 and 16 show that emissions of NH₃ in the state have remained relatively stable over the five-year period, decreasing slightly.

Table 16 also shows that emissions of VOM over the period have increased slightly over the five-year period; however, Illinois EPA analysis indicates that this increase is due mainly to changes in inventory methodologies. While VOM emissions in Illinois decreased for many subcategories in the inventory summary, these reductions are overwhelmed by the significant increase in the “Petroleum and Related Industries” subcategory. The increase of over 27,000

tons per year in the petroleum category is primarily due to an additional 24,000 tons per year of VOM from "Oil and Gas Production," which is a further subcategory within the Petroleum and Related Industries category. While actual oil and gas production in Illinois has been stable over the five-year period, this was a new subcategory in Illinois' 2014 inventory and was calculated using USEPA's new "Oil and Gas Tool." Illinois EPA analysis indicates that Illinois emissions of VOM have actually decreased over the five-year period, however emissions that were not included in the 2010 inventory are now quantified in the 2014 inventory due to the addition of the aforementioned new subcategory.

Finally, while emissions of PM_{2.5} in Illinois appear to be nearly static over the five-year period, Illinois EPA analysis indicates that this is again due primarily to changes in inventory methodologies for calculating the proportion of PM_{2.5} in source emissions. This analysis is supported by the apparent increase in PM_{2.5} emissions from the EGU sector while overall PM emissions, fuel usage, and emissions of other pollutants for the EGU sector showed significant reductions.

Table 16. Illinois Emissions by Source Category

Category	SO ₂		NO _x		PM _{2.5}	
	2010	2014	2010	2014	2010	2014
CHEMICAL & ALLIED PRODUCT MFG	4,452.5	1,409.8	1,395.0	1,361.1	336.5	505.2
FUEL COMB. ELEC. UTIL.	236,375.1	136,281.4	89,880.4	47,472.0	3,825.6	4,749.4
FUEL COMB. INDUSTRIAL	31,518.7	24,979.4	36,158.5	30,170.8	1,435.6	1,215.8
FUEL COMB. OTHER	8,921.6	6,731.0	46,076.6	49,690.5	18,403.5	16,499.3
HIGHWAY VEHICLES	1,037.4	1,039.7	187,348.3	174,773.8	5,290.2	5,285.9
METALS PROCESSING	127.8	130.3	1,000.1	821.5	245.2	682.6
MISCELLANEOUS; Agriculture & Forestry;	1,253.6	1,255.0	1,208.1	1,484.1	78,040.1	78,615.7
MISCELLANEOUS; Health Services	0.3	5.1	1.5	4.0	0.0	0.1
MISCELLANEOUS; Other Combustion; prescribed burning & agr	168.2	192.1	1,025.6	1,156.3	5,543.0	5,791.9
MISCELLANEOUS; Other Fugitive Dust Construction	0.0	0.0	0.0	0.0	16,711.2	17,589.3
OFF-HIGHWAY	1,994.2	2,575.9	144,695.4	116,965.3	9,599.5	7,073.6
OTHER INDUSTRIAL PROCESSES	16,782.2	8,603.9	11,114.3	7,110.5	1,475.5	2,411.6
PETROLEUM AND RELATED INDUSTRIES	12,267.2	3,059.1	7,296.7	13,871.1	928.5	1,153.2
SOLVENT UTILIZATION	54.0	20.8	363.6	400.1	342.6	349.7
STORAGE AND TRANSPORT	21.9	25.3	10.3	15.3	1.4	3.0
WASTE DISPOSAL AND RECYCLING	2,740.1	2,690.1	2,363.9	2,420.0	1,966.3	2,047.8
Anthropogenic Subtotal	317,715	188,999	529,938	447,716	144,145	143,974
MISCELLANEOUS; Other Combustion; forest wildfires	0.1	2.2	0.4	8.2	1.4	31.7

Category	VOM		NH3	
	2010	2014	2010	2014
CHEMICAL & ALLIED PRODUCT MFG	6,771.6	6,757.0	499.8	514.9
FUEL COMB. ELEC. UTIL.	2,139.9	1,639.7	229.4	319.7
FUEL COMB. INDUSTRIAL	1,701.2	1,366.9	331.0	185.6
FUEL COMB. OTHER	14,511.9	14,866.8	5,597.1	5,775.6
HIGHWAY VEHICLES	70,721.3	73,769.4	6,047.9	3,867.9
METALS PROCESSING	1,324.5	1,310.5	27.2	23.9
MISCELLANEOUS; Agriculture & Forestry;	32,371.9	31,373.7	110,208.6	107,219.8
MISCELLANEOUS; Health Services	10.2	16.4	0.0	0.0
MISCELLANEOUS; Other Combustion; prescribed burning & agri	1,804.3	2,105.8	23.6	44.6
MISCELLANEOUS; Other Fugitive Dust Construction	0.0	0.0	0.0	0.0
OFF-HIGHWAY	78,578.8	74,050.5	95.9	108.7
OTHER INDUSTRIAL PROCESSES	4,634.4	3,050.2	180.1	90.4
PETROLEUM AND RELATED INDUSTRIES	13,852.4	41,540.6	324.3	290.4
SOLVENT UTILIZATION	123,748.9	105,723.3	30.4	28.2
STORAGE AND TRANSPORT	2,204.2	2,178.3	12.7	11.9
WASTE DISPOSAL AND RECYCLING	1,617.7	1,558.5	0.3	1.5
Anthropogenic Subtotal	355,993	361,308	123,608	118,483
MISCELLANEOUS; Other Combustion; forest wildfires	0.8	17.9	0.1	1.7

Overall emissions of visibility-impairing pollutants in Illinois show a declining trend over the five-year period between 2010 and 2014. It is anticipated that this trend will continue through the end of the first implementation period of the Regional Haze Rule in 2018 due to the control strategies detailed in Section 2.0 of this document.

Illinois Regional Haze SIP control strategies focused primarily on reductions of SO₂ and NO_x. Figures 1 and 2 show emission trends of these pollutants compared to projected emissions from the years 2002 to 2018 that were projected for the original Regional Haze SIP submittal. The two trend lines in each figure compare the original projected emission trends for the pollutant in Illinois with actual data for 2002 to 2014 and projected into 2018.

Figure 1. Total Illinois SO₂ Emissions (tpy)

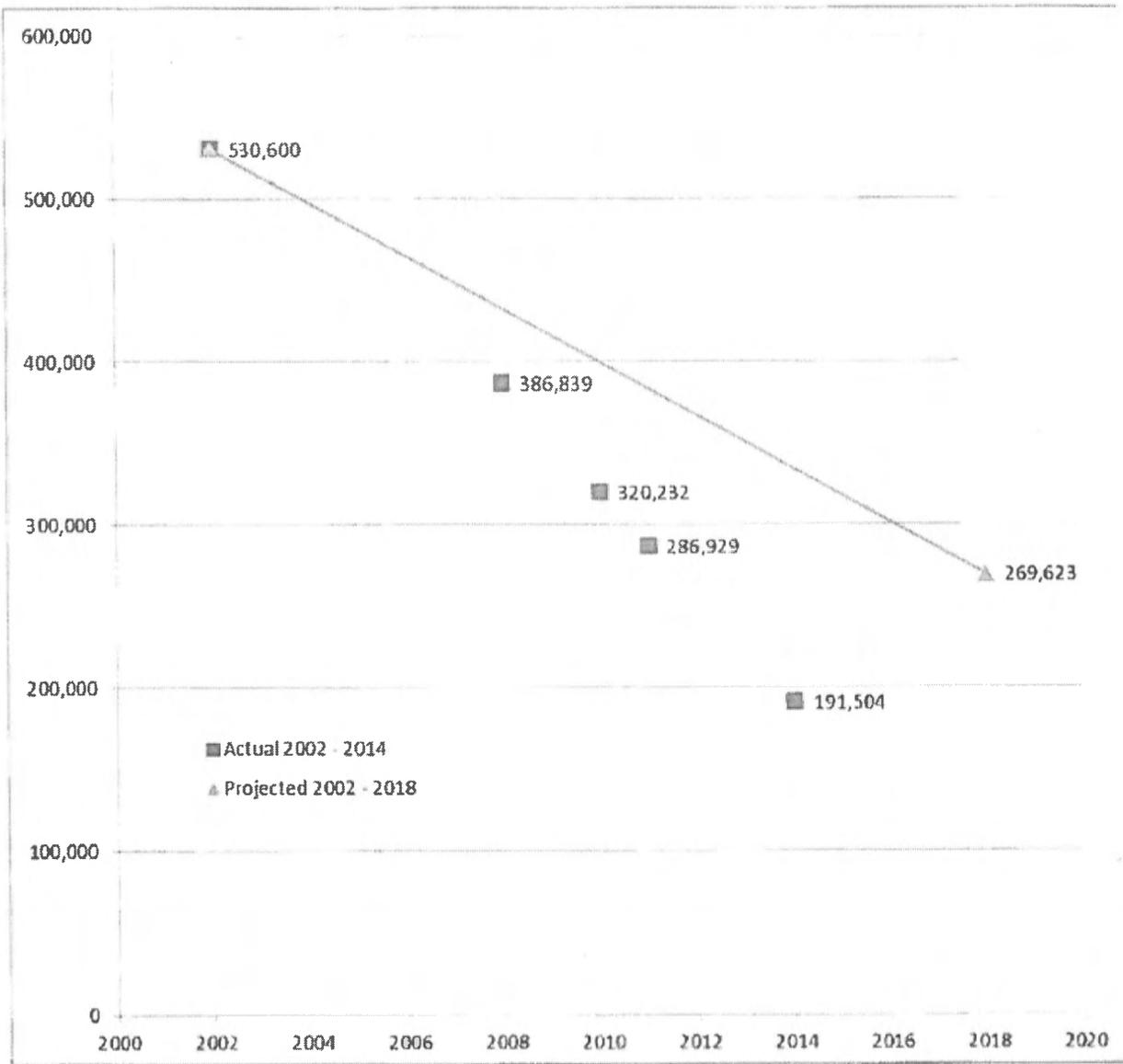
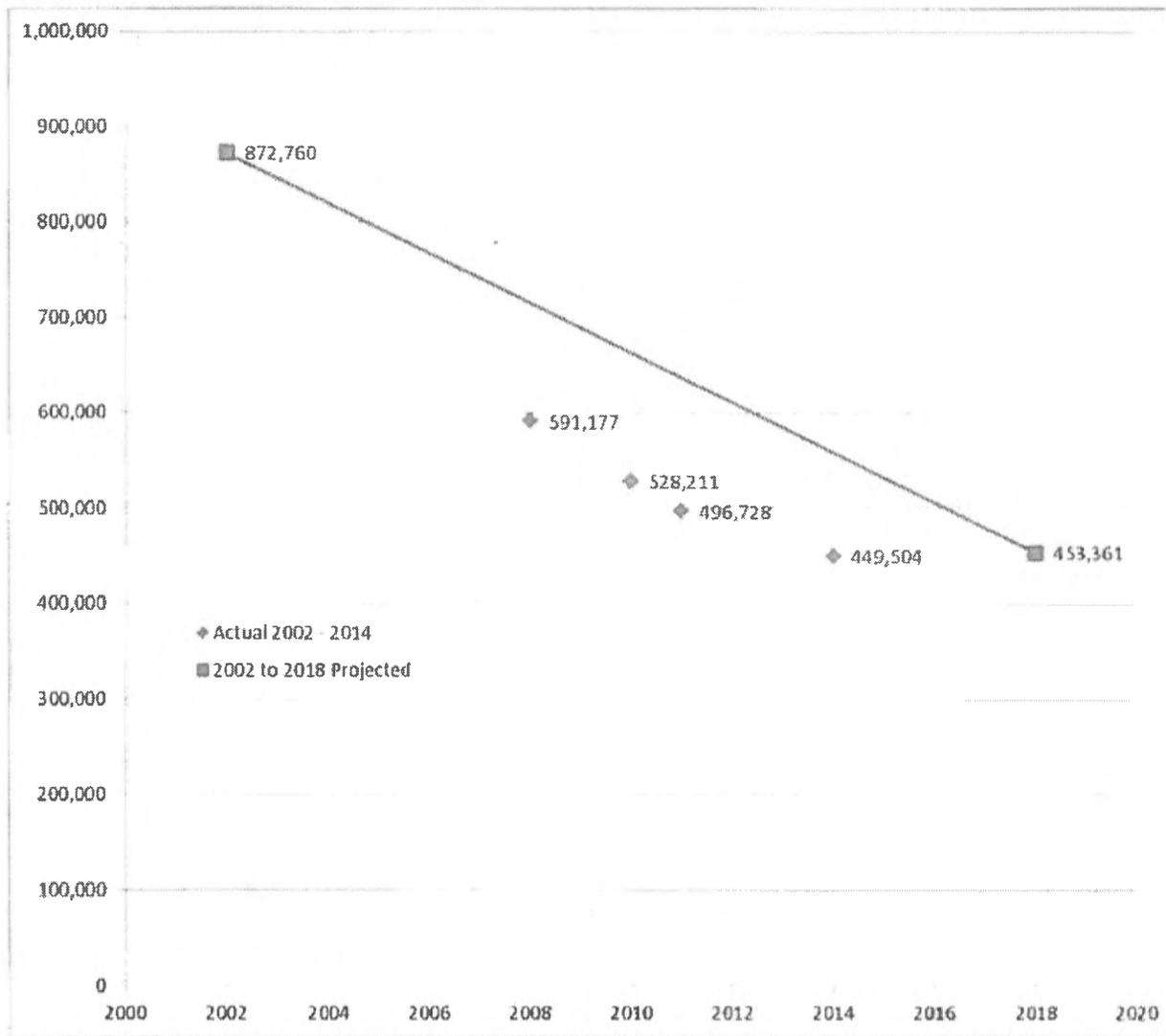


Figure 2. Total Illinois NOx Emissions



5.0 Assessment of Changes Impeding Visibility Progress

This section is intended to satisfy the Regional Haze Rule requirements for states to provide an assessment of any changes in emissions that have impeded progress toward improving visibility.

40 CFR § 51.308(g)(5): 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.

Illinois EPA has not identified any significant changes in anthropogenic emissions within Illinois that have occurred over the last five years that would limit or impede progress in improving visibility. There have been no significant unexpected increases in emissions in the past five years or since Illinois' original Regional Haze SIP submittal. Likewise, there have been no projected decreases in pollutant emissions from the Regional Haze SIP that have not been

realized. As detailed in Sections 2.0 and 4.0 of this document, Illinois is ahead of schedule in emissions reductions projected in the 2011 Regional Haze SIP submittal.

As a state that does not contain any Federal Class I areas, Illinois is not required to assess whether emissions increases outside the state are causing a Class I area within the state to be adversely affected.

6.0 Assessment of Current Strategy

This section is intended to satisfy Regional Haze Rule requirements to provide an assessment of whether a state's current SIP elements are sufficient to meet all its reasonable progress goals.

40 CFR §§ 51.308(g)(6) and 51.309(d)(10)(i)(F): 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.

Illinois has so far implemented all elements of its Regional Haze SIP strategy, and anticipates that elements not yet implemented will be implemented in the timeframes submitted in its Regional Haze SIP. As such, Illinois is on track to meet its 2018 goals for emission reductions set forth in its Regional Haze SIP before the end of 2018, and in fact, is meeting those 2018 goals at the date of the submission of this Progress Report.

As detailed in Section 2.0 of this document, reductions in visibility impairing pollutants in 2015 have already exceeded projected emissions reductions in the Illinois Regional Haze SIP. Illinois also anticipates further emissions reductions as the control strategies detailed in Section 1.0 of this document continue to be implemented.

Additional discussion of the federal Class I areas that are potentially impacted by Illinois emissions, and the states in which they are located, has been included in Section A.1.2.

7.0 Review of Visibility Monitoring Strategy

This section is intended to satisfy Regional Haze Rule requirements for states with Class I Federal areas to provide a review of their visibility monitoring strategy.

40 CFR § 51.308(g)(7): A review of the State's visibility monitoring strategy and any modifications to the strategy as necessary.

There are no Class I areas located in Illinois, and so the requirements for the progress report in 40 CFR 51.308(g)(7) are not applicable to Illinois. Additionally, Illinois does not anticipate any significant changes to its visibility monitoring strategy, or changes to monitors in Illinois that provide data for measuring visibility impacts of Illinois sources.

8.0 Determination of Adequacy

This section is intended to satisfy Regional Haze Rule requirements that a state provide a determination of adequacy for its existing SIP.

40 CFR §§ 51.308(h) and 51.309(d)(10)(ii):

(h) Determination of the adequacy of existing implementation plan. At the same time the State is required to submit any 5-year progress report to the 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.

Pursuant to 40 CFR § 51.308(h)(1), Illinois has determined that its existing State Implementation Plan for the Regional Haze Rule is adequate to achieve established goals for visibility improvement and emissions reductions. Illinois is hereby providing a negative declaration and finding that further revision of the existing implementation plan is not needed at this time.

Appendix A. Consultation with Federal Land Managers

This section is intended to satisfy Regional Haze Rule requirements that a state provide opportunity for comment to Federal Land Managers at least 60 days prior to holding any public hearing on the implementation plan.

40 CFR §§ 51.308(i)(2) and (3):

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.

On June 23, 2016, Illinois EPA sent a draft of this document to the appropriate staff members of the United States Fish and Wildlife Service (“FWS”), the United States Forest Service (“USFS”), and the United State National Park Service (“NPS”). Illinois EPA received comments on the draft from NPS and USFS. Illinois EPA has sought to address all issues raised by these Federal Land Managers in this Progress Report. These issues have been addressed in the body of this document above, or in the summary below. Additionally, copies of the Federal Land Manager comments have been included with the Progress Report as Attachments 1 and 2.

A.1 Comments from the National Park Service

A.1.1 NPS Comment #1

NPS requested further detail about the limits associated with the additional measures included in Section 1.3 of this document. These measures included new fuel sulfur standards for stationary sources in Illinois and unit-specific SO₂ emission limits that were included in a 2015 rulemaking to address two areas of nonattainment in Illinois for the 1-hour SO₂ NAAQS. Also included in Section 1.3 of this document were the federal Tier 3 Vehicle Emission and Fuel Standards Program. All of these measures will be effective January 1, 2017.

Emission reductions from the fuel-sulfur standards are difficult to quantify on the basis of emissions before and after the specific effective date. This is because much of the fuel being sold in Illinois and used at stationary sources is already compliant with the new standard and has been so for a number of years. Therefore, Illinois EPA, in its “Technical Support Document (“TSD”) for Proposed Rule Revisions Necessary to Demonstrate Attainment of the One-Hour NAAQS for Oxides of Sulfur,” noted that the new standards would result in reductions of *allowable* emissions of 99.5% for distillate fuel, and approximately 90% for residual fuel oil.

Emission reductions from the unit-specific standards set in the aforementioned 2015 SO₂ rulemaking were also evaluated in the TSD for that rulemaking on the basis of reduction in *allowable* emissions from specific units and are presented below.

Table A.1. Allowable Emission Rates of Affected Sources

Facility Name	Unit Description	Previous Allowable Emissions (lb/hr)	Emission Limit (lb/hr)
Aventine Renewable Energy	Boiler A	5.5 lb/mmBtu	0.00
	Boiler B	5.5 lb/mmBtu	0.00
	Boiler C	5.5 lb/mmBtu	0.00
	Cyclone East controlling First Germ Drying System	66.40	0.27
	Cyclone West controlling First Germ Drying System	66.40	0.37
	Second Germ Drying System	110.69	0.01
	Gluten Dryer 4	7.20	3.12
	Gluten Dryer 9	1,893.18	10.50
	Germ Dryer 1	209.54	4.98
	Germ Dryer 3	274.05	4.26
	Yeast Dryer	8.19	1.50
	Scrubber controlling Steep Acid Tower	10.31	1.79
	Biogas Flare	0.010	0.001
	Illinois Power Holdings E.D. Edwards	Units 1 and 2 combined	31,970.23
Unit 3		30,320.24	2,756
Unit 3, if both Units 1 and 2 permanently shut down		30,320.24	4,000
Ingredion Bedford Park	Feed Transport System	242.80	24.38
	Wet Milling: Inside In-Process Tanks	195.04	107.26
	Wet Milling: Molten Sulfur Burner and Absorption System	70.12	7.01
	Wet Milling: Outside In-Process Tanks	26.95	2.69
	Germ Processing Facility Channel 1 System	267.22	13.36
	Germ Processing Facility Channel 2 System	141.48	7.07
	Germ Processing Facility Channel 3 System	141.48	7.07
	Germ Processing Facility Channel 4 System	141.48	7.07
Midwest Generation Joliet	Joliet 9: Unit 6	6,377.37	189.82
	Joliet 29: Unit 7	10,861.14	323.29
	Joliet 29: Unit 8	11,494.74	342.15
Midwest	Boilers 51, 52 (Unit 5) and 61, 62 (Unit 6)	29,635.04	3,452

Generation Powerton	combined		
Midwest Generation Will County	Unit 3	4,876.17	145.14
	Unit 4	9,028.75	6,520.65
Owens Corning	Preheater Incinerator System 1, including emissions from: Storage Tanks 9, 9A, 10, 10A, 11, 17, 18, 19, 20, 40, 41, 42, and 43; Loading Racks 1, 2, & 9; and Convertors 10 & 11.	214.47	44.69
	Preheater Incinerator System 3, including emissions from: Converters 8, 9, 12, 13, 14, & 15; and Loading Racks 1, 2, & 9	11.44	27.23
	Regenerative Thermal Oxidizer 3 controlling: Storage Tanks 27, 28, 31, 32, 33, 34, 35, & 36	220.14	4.33
	Regenerative Thermal Oxidizer 4 controlling: Storage Tank 98; Loading Rack PV-1	8.90	6.38
	Coating Operations combined	104	0.15
Oxbow Midwest Calcining	All Calcining Units combined	2,278	187

A.1.2 NPS Comment #2

NPS requested additional support for Illinois EPA's conclusion that its existing SIP is sufficient to assist in meeting visibility improvement goals for nearby Class I areas, and requested those areas be identified. Additionally, NPS suggested Illinois EPA should acknowledge that ammonium sulfate and ammonium nitrate are the most important pollutants contributing to visibility impairment, and provide additional discussion of ammonia emissions contributing to visibility impairment.

Illinois EPA in its initial Regional Haze SIP identified the following Class I areas as the most likely to be impacted by Illinois emissions:

- Voyageurs National Park and Boundary Waters Canoe Area National Wilderness Area in Minnesota
- Hercules-Glades and Mingo National Wilderness Areas in Missouri
- Caney Creek and Upper Buffalo National Wilderness Areas in Arkansas
- Isle Royale National Park and Seney National Wilderness Area in Michigan
- Mammoth Cave National Park in Kentucky
- Sipsey Wilderness in Alabama
- Great Smoky Mountains National Park in Tennessee and North Carolina
- Wilderness Area in New Hampshire
- Brigantine National Wilderness Area in New Jersey
- Lye Brook National Acadia National Park and Moosehorn Wilderness area in Maine
- Great Gulf Wilderness Area, in Vermont

Illinois EPA was able to obtain copies of five-year Regional Haze Progress Reports from the states of Arkansas, Kentucky, Maine, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, North Carolina, and Vermont. In all cases, these states made negative declarations of the need to modify their Regional Haze SIPs, and in all cases stated that visibility improvement at the Class I areas in those states were on track to meet their reasonable progress goals by 2018. Illinois EPA was not able to locate copies of progress reports from Alabama or Tennessee.

Illinois EPA acknowledges that ammonium sulfate and ammonium nitrate are the most significant pollutants contributing to visibility impairment in federal Class I areas. While it has been determined that the most effective strategy for the reduction of the formation of these secondary pollutants is the reduction of emissions of SO₂ and NO_x, emissions of ammonia in Illinois have also decreased by 4% between the 2010 and 2014 inventory years used for the purposes of this document. The significant reductions in emissions of SO₂ and NO_x in Illinois are sufficient to ensure that emissions from Illinois will not impede visibility improvements necessary to achieve the reasonable progress goals for any federal Class I area in any other state.

A.1.3 NPS Comment #3

NPS suggests that the Progress Report could show inventory taken directly from the 2008 and 2011 Illinois inventories, and that these values could then be compared to projected 2018 emissions levels to provide further evidence that emissions in Illinois are or will be below the 2018 emission levels used by Midwestern states to set visibility improvement goals. NPS also asked the Illinois EPA to explain that changes in inventory methods used for 2018 projections and 2011 and 2014 inventories lead to discrepancies between inventories.

The inventory data in Section 4 of this document was presented in a format to show data for a five-year period ending with the last quality assured inventory for Illinois in 2014. This five-year period necessarily would begin in 2010. Illinois interpolated the 2010 inventory data by means of a weighted average of inventory data from the quality assured inventory years of 2008 and 2011. However, Illinois' original Regional Haze SIP submittal only projected 2018 statewide emissions for NO_x and SO₂ for the purposes of demonstrating that emissions in Illinois would be below levels that Midwestern states used to set visibility improvement goals. Figures 1 and 2 in Section 4.1 of this document do already show inventory data from the 2008, 2010, and 2014 inventories, as well as the interpolated 2010 data. In response to NPS comments, Illinois EPA has revised these figures to include data labels in tons per year to display the data in comparison to the projected emissions from the original Regional Haze submittal. It is now more readily apparent that SO₂ and NO_x emission levels in the 2014 inventory are already below the originally projected 2018 emission levels.

Additionally, USEPA guidance for the five-year Progress Reports suggests that mobile source emission inventory methodologies may have changed and could affect comparisons. However, these changes took place between 2002 and 2007. This should not significantly impact emission estimates for comparison sake from the 2008, 2011, and 2014 inventory years.

A.1.4 NPS Comment #4

NPS suggests that Illinois should add to its Progress Report that FLM agencies have been consulted and should document responses to their comments. Additionally, NPS suggests that Illinois EPA should include any consultation it has had with other states, including Illinois'

response to a request by the Mid-Atlantic/Northeast Visibility Union ("MANE-VU") for reductions in electric utility and industrial source emissions.

Illinois consulted with MANE-VU for its original Regional Haze SIP submittal and a discussion of this consultation was included in that submittal. An excerpt of this discussion is below:

MANE-VU released "Assessment of Reasonable Progress for Regional Haze in MANE-VU Class I Areas - Methodology for Source Selection, Evaluation of Control Options, and Four Factor Analysis, July 2007" which supported requests of states outside that area to examine controls for specific types of sources.

In its "Statement of the Mid-Atlantic/Northeast Visibility Union (MANE-VU) Concerning a Request for a Course of Action by States Outside of MANE-VU Toward Assuring Reasonable Progress" (June 20, 2007), Appendix 3, pages 63 - 64, MANE-VU suggested that several control strategies should be pursued for adoption and implementation, including:

- *Application of Best Available Retrofit Technology*
- *90% (or greater) reduction in SO₂ emissions from each of the EGU stacks on MANE-VU's list of 167 stacks (located in 19 states), which reflect those stacks determined to be reasonably anticipated to cause or contribute to visibility impairment in the MANE-VU Class I areas*
- *28% reduction in non-EGU (point, area, on-road, and off-road) SO₂ emissions relative to on-the-books, on-the-way 2018 projections*
- *Continued evaluation of other measures, including measures to reduce SO₂ and NO_x emissions from coal-burning facilities and promulgation of new source performance standards for wood combustion*
- *Further reduction in power plant SO₂ (and NO_x) emissions beyond the current Clean Air Interstate Rule program*

Of the 167 stacks, only one is from a source in Illinois. This stack (at Ameren-Coffeen) has an SCR (which will operate year-round) as well as having a wet scrubber installed as part of complying with Illinois' Multi-Pollutant Standards (MPS)/ Combined Pollutant Standard (CPS). The resulting level of control will satisfy the MANE-VU "ask".

In "Recent MANE-VU Projections of Visibility for 2018", MANE-VU Stakeholder Briefing, April 4, 2008, it is stated, "The Uniform Rate is achieved and exceeded at all MANE-VU Class I sites." This presentation is available on the MANE-VU website, www.nexcaum.org/topics/regional-haze/regional-haze-documents.

Illinois believes that, through our MPS/CPS and BART requirements, we have achieved more than enough reductions to satisfy the MANE-VU "ask".

Illinois continues to believe that emissions reductions in Illinois exceed what was requested in the MANE-VU "ask," and that reductions in Illinois have far exceeded what was projected at the time of Illinois' original Regional Haze SIP submittal.

A.2 Comments from the United States Forest Service

A.2.1 USFS Comment #1

USFS requests that Illinois EPA provide more detail regarding the implementation dates of the control measures listed in Section 1.2 of this document. Illinois EPA has included that below:

On-Road Mobile Sources

- *Federal Motor Vehicle Emission Control Program, low-sulfur gasoline, and ultra-low sulfur diesel fuel* – Tier 2 program and ultra-low sulfur diesel fuel standards are fully implemented. Tier 3 program for low-sulfur gasoline becomes effective January 1, 2017.
- *Inspection and 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)* – Fully implemented and ongoing.
- *Reformulated gasoline, including in Chicago-Gary-Lake County, IL, IN; and Milwaukee, Racine, WI* – Fully implemented and ongoing.

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* – Fully implemented, additional reductions continue as older engines are replaced.
- *Federal railroad/locomotive standards* – Fully implemented, additional reductions continue as older engines are replaced.
- *Federal commercial marine vessel engine standards* – Fully implemented, additional reductions continue as older engines are replaced.

Area Sources

- *Consumer solvents* – Fully implemented in 2012.
- *Architectural and industrial maintenance coatings* – Fully implemented in 2012.
- *Aerosol coatings* – Fully implemented 2012.
- *Portable fuel containers* – Effective 2009, additional reductions continue as older containers are replaced.

Electric Generating Units

- *Title IV (Acid Rain – Phases I and II)* – Fully implemented.
- *NO_x SIP Call* – Fully implemented. Though the NO_x SIP Call regulations are no longer in effect.
- *Transport Rule (Part 1)* – Fully implemented, CSAPR updates effective 2017.

Other Point Sources

- *VOC 2-, 4-, 7-, and 10-year Maximum Achievable Control Technology ("MACT") standards* – There have been a number of federal MACT and NESHAP rules since finalized since 2011 that are in various stages of implementation.
- *Combustion turbine MACT* – Fully implemented, USEPA found that CAA requirements were met in 2011.

- *Consent decrees (refineries, ethanol plants, and ALCOA)* – Consent decrees at refineries are fully implemented. Other consent decrees for Illinois sources are in various stages of implementation.
- *NO_x Reasonably Available Control Technology ("RACT") in Illinois, Wisconsin, and Ohio* – NO_x RACT is fully implemented in Illinois; however amendments will be made within the year.

A.2.2 USFS Comment #2

USFS suggested that trend lines in Figures 1 and 2 of this document were not appropriate for the projection of future emissions. Illinois EPA concurs and these trend lines have been removed.

A.2.3 USFS Comment #3

USFS requested that Illinois EPA include information regarding the federal Class I areas that Illinois emissions impact. USFS also requests that Illinois provide support for its conclusion that Illinois' SIP is sufficient for Class I areas in other states to meet the visibility improvement goals set by those states.

These issues are addressed in Illinois' response to NPS comments in Section A.1.2.

A.2.4 USFS Comment #4

USFS suggests that Illinois should consider previous state or Regional Planning Organization requests for Illinois emissions reductions to improve visibility, specifically the MANE-VU "ask."

These issues are addressed in Illinois' response to NPS comments in A.1.4.



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)

August 22, 2016

Rory A. Davis
Bureau of Air
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

Dear Mr. Davis:

Thank you for the opportunity to review and comment on Illinois' draft Regional Haze Five Year Progress Report. Illinois Environmental Protection Agency (IEPA) has addressed most of the requirements for the regional haze periodic progress report as outlined in 40 CFR 51.308(g) and (h). No Class I areas are located in Illinois. The progress report summarizes implementation of emissions control strategies under Illinois' 2011 Regional Haze State Implementation Plan (SIP). IEPA determined that state requirements for electric utilities and federal consent decrees for two petroleum refineries in Illinois met the requirements of Best Available Retrofit Technology. IEPA concluded that because actual emissions reductions in Illinois are greater than required in the regional haze SIP, no revision to the SIP is needed at this time. Below are our recommendations to better relate Illinois emissions to visibility in Class I areas. If IEPA incorporates these recommendations, we would concur that revisions to the 2011 Regional Haze SIP are not needed at this time.

Section 1.3 Measures Not Included in Regional Haze SIP

IEPA briefly discussed new emission limits that were adopted in 2015 to meet the national ambient air quality standard for sulfur dioxide (SO₂). Please clarify when these emissions limits are required to be fully implemented and the expected reductions in SO₂ emissions.

Please clarify any additional emissions limits or changes in operation that will occur due to the Mercury and Air Toxics Standard or the 2015 revised national ambient air quality standard for ozone, and the timing for these actions.

Section 3.0 Visibility Progress

To support IEPA's conclusion that the existing SIP is sufficient and will not impair the ability of neighboring states to meet visibility improvement goals for their Class I areas, IEPA should identify the Class I areas that emissions in Illinois are mostly likely to impact, the pollutants that have the largest contributions to visibility impairment, and the visibility trends at those Class I areas. IEPA has demonstrated reductions in SO₂ and nitrogen oxides (NO_x) emissions but has not identified that at Class I areas impacted by Illinois emissions, ammonium sulfate and ammonium nitrate are the most important pollutants contributing to visibility impairment. IEPA should also identify that ammonia emissions contribute to visibility impairment and that ammonia emissions have not changed in Illinois and other states. IEPA should compare visibility improvement at eastern Class I areas to date to the uniform rate of progress and states' visibility improvement goals for 2018. This information is available in affected states' progress reports (e.g. Kentucky¹ or Minnesota².)

Section 4 Emission Progress

IEPA interpolated between the 2008 and 2011 inventory data to estimate 2010 emissions. It would be sufficient to show 2008, 2011, and 2014 inventory data directly. Comparing these data to 2018 projections would provide further evidence that emissions in Illinois are or will be below the 2018 emissions levels that were used by Midwestern states to set visibility improvement goals. IEPA can explain that changes in inventory methods used for 2018 projections and more recent 2011 and 2014 inventories, especially for mobile source categories, lead to discrepancies between inventories.

Section 6.0 Assessment of Current Strategy

IEPA should add that the IEPA consulted with the Federal Land Management agencies and document responses to comments. IEPA should also discuss any consultation with other states including IEPA's response to MANE-VU states' requests for reductions in electric utilities and industrial source emissions.

We appreciate the opportunity to work with Illinois 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

¹ Kentucky State Implementation Plan (SIP) Revision: Regional Haze 5-Year Periodic Report 2008-2013 For Kentucky's Class I Federal Area. 2014. http://air.ky.gov/SiteCollectionDocuments/Kentucky_Regional_Haze_5-Year_Periodic_Report_SIP%20Revision_Sept_2014.pdf

² Five-Year Regional Haze Progress Report State Implementation Plan. December 2014. Minnesota Pollution Control Agency. <https://www.pca.state.mn.us/air/minnesota-regional-haze-plan>



128560

File Code: 2580
Date: July 26, 2016

Rory A. Davis
Environmental Protection Engineer, Bureau of Air
Illinois Environmental Protection Agency
1021 North Grand Ave. East
P.O. Box 19276
Springfield, IL 62794-9276

Dear Mr. Davis:

The USDA Forest Service has completed our review of the document entitled "Five-Year Progress Report for Illinois Regional Haze State Implementation Plan." We appreciated the opportunity to review the document and the chance to once again work cooperatively with your staff.

We concur with your findings that the original Illinois EPA State Implementation Plan (SIP) is sufficient for meeting the goals outlined in the Regional Haze Rule. Emissions data from 2015 indicate reductions that exceed projections from the original SIP for the entire first implementation period ending in 2018. Therefore, we agree with your conclusion that the existing Regional Haze SIP is adequate to achieve the established goals for visibility and emissions reductions, and that no further substantive revision to the SIP is required at this time.

We do, however, have a few recommendations to enhance the clarity of the Five-Year Progress Report:

1. Section 1.2 lists the "on-the-books" control measures used in MRPO modeling for the original SIP, and states that these measures are being implemented as planned. Please provide clarification regarding the implementation dates of these measures. Specifically, state which of these measures have already been implemented, along with the expected dates of implementation for the measures that have not yet been implemented.
2. Figures 1 and 2 in Section 4.1 use a trendline to project actual SO₂ and NO_x emissions out to 2018. "On-the-way" controls do not necessarily suggest a continued rate of emissions decreases. In fact, the NO_x trendline in Figure 2 is already over-predicting emissions reductions in 2015. We recommend removing these predictions since they are based on past reductions and not on analysis of additional future controls and reductions. Comparing actual emissions in 2015 with the emissions originally projected for 2018 are sufficient justification for not requiring SIP revisions to meet visibility goals.



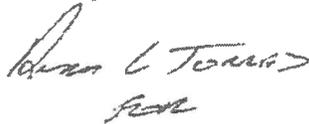
3. The Progress Report does not mention which Class I Areas are impacted by Illinois emissions. The original SIP lists 20 Class I Areas identified by MRPO analysis as being impacted by emissions from Illinois.

Please add a description of these Class I Areas to this Progress Report, and consider adding a summary table of visibility trends at these Class I areas to support IEPA's conclusion that the existing Illinois SIP is sufficient for Class I areas to meet the visibility improvement goals set by these states. IEPA can cite existing state progress reports in Section 6.0 to demonstrate that Class I areas in these states are already meeting or on track to meet 2018 visibility goals.

4. Please also consider addressing previous state or Regional Planning Organization requests for Illinois emissions reductions to improve visibility in Section 6.0. For example, a MANE-VU request to implement BART in a timely manner, reduce SO₂ emissions by 90% at one Illinois EGU stack, apply reasonable controls on non-EGU sources, and continue to evaluate other measures to reduce SO₂ and NO_x emissions was made on June 20, 2007 and can be found: http://www.otcair.org/MANEVU/Upload/Publication/Formal%20Actions/Statement%20on%20controls%20outside%20MV_072007.pdf. Requests of this nature, and progress in meeting these requests, should be documented in the Progress Report.

We look forward to your continued close cooperation toward the national goal of the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I Federal areas where impairment results from manmade air pollution in our region by 2064. If you have any questions, please contact Regional Air Program Manager Chuck Sams at (404) 347-4083.

Sincerely,



CLYDE THOMPSON
Forest Supervisor

cc: brendancairn@fs.fed.us; jhenry01@fs.fed.us; csams@fs.fed.us; cbodea@fs.fed.us;
mperron@fs.fed.us; twickman@fs.fed.us; baanderson02@fs.fed.us; patricia_f_brewer@nps.gov;
Tim_Allen@fws.gov; rory.davis@illinois.gov; aburano.douglas@epa.gov

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ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF PUBLIC INFORMATION

The Illinois Environmental Protection Agency ("Illinois EPA") Bureau of Air is accepting public comments and any requests for a public hearing on the draft "Five-Year Progress Report for Illinois Regional Haze State Implementation Plan" for the purpose of submitting such progress report to the United States Environmental Protection Agency ("USEPA") as part of the requirements of The Regional Haze Rule (40 CFR § 51.308). The proposed progress report provides all required report elements necessary to demonstrate that the current Illinois Regional Haze State Implementation Plan ("SIP") is adequate and does not require any revision to achieve the 2018 visibility goals in the first implementation period. Accordingly, this proposal will be submitted to USEPA for review and approval as a revision to the SIP.

The Clean Air Act ("CAA"), in sections 169A and B, requires the protection of visibility in 156 Federal Class I areas in the United States. The Regional Haze Rule requires states to develop and implement a SIP to reduce visibility impairment in Class I areas resulting from man-made air pollution or regional haze. Illinois contains no Class I areas, but is required to implement a state plan that is sufficient to ensure that Class I areas in other states are able to meet the visibility improvement goals set by the states that contain them. Illinois submitted its Regional Haze SIP on June 24, 2011, and it was approved by the USEPA, effective August 6, 2012. The Regional Haze Rule requires each state to provide an interim progress report outlining the status of required Regional Haze SIP elements. The Illinois EPA is submitting a five-year progress report to evaluate implementation of the SIP requirements and the resulting emissions reductions and visibility improvements. Pursuant to 40 CFR §51.308(h)(1), Illinois has determined that its existing Regional Haze SIP is adequate to achieve the established goals for visibility improvement and emissions reductions and that further revision of the existing SIP is not needed at this time.

The Illinois EPA is accepting written comments on the proposed progress report. Comments must be postmarked by midnight, November 6, 2016. Comments and requests for hearing should be mailed to:

Jillian Hawkins
Illinois EPA
1021 North Grand Avenue East
PO Box 19276
Springfield IL 62794-9276

217/524-0922
TDD: 217/782-9143
email: jillian.hawkins@illinois.gov

ENVIRONMENTAL PROTECTION AGENCY

NOTICE OF PUBLIC INFORMATION

In addition, requests for information and questions should be directed to Jillian Hawkins, Office of Community Relations, at the address and telephone number listed above.

If a timely request for a public hearing is received by Illinois EPA by November 6, 2016, a public hearing will be scheduled through a separate notice and held to receive comments regarding the proposed progress report. If a public hearing is conducted, the written public comment period will be extended as provided for in the separate notice.

If no request for a public hearing is received by the Illinois EPA by U.S. Mail, email, carrier mail, or hand delivered by November 6, 2016, no hearing will be scheduled. Verification as to whether a public hearing will or will not be held will be posted on the Illinois EPA's website at <http://www.epa.illinois.gov/public-notices/index>. Interested persons may also contact Jillian Hawkins, Office of Community Relations, at the phone number listed above to inquire as to the status of a public hearing.

Copies of the proposed progress report may be viewed by the public at the Illinois EPA's offices at 1021 North Grand Avenue East in Springfield, 217/782-7027, and 9511 West Harrison in Des Plaines, 847/294-4000. Please call ahead to ensure that someone will be available to assist you.

This notice is intended to satisfy the requirements of Section 110(l) of the CAA regarding public notice for SIP submittals, 42 USC 7410(l).

From: Sims, Brad <brad.sims@exxonmobil.com>
Sent: Wednesday, November 02, 2016 11:14 AM
To: Hawkins, Jillian
Subject: [External] RE: Regional Haze Document

Jillian:

Thanks for sharing the Agency's draft report. I have provided below a link to US EPA's March 2014 report (EPA-420-R-14-005) "Control of Air Pollution from Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards Final Rule, Regulatory Impact Analysis". Information in this US EPA report is helpful for articulating a bit more in Sections 1.3.2 ("Tier 3 Vehicle Emissions & Fuel Standards Program") and A.1.1 ("NPS Comment #1") of the draft Agency report the anticipated benefits of the federal Tier 3 regulations.

The linked report provides information on beneficial motor vehicle emission reductions that are forecasted to occur beginning in 2017, directly as a result of the Tier 3 regulations. As noted in the report, "The gasoline sulfur standards, which will take effect in 2017, will provide large immediate reductions in emissions from existing gasoline vehicles and engines. The emission reductions will increase over time as newer vehicles become a larger percentage of the fleet (e.g., in 2030, 70 percent of the miles travelled are from vehicles that meet the fully phased-in Tier 3 standards)." The motor gasoline sulfur standard will decrease from 30 ppm to 10 ppm beginning in 2017.

A screenshot of Table ES-7 from the report (see below), provides anticipated emission reductions (including percentages) for affected mobile sources in 2018 and 2030. As you can see, the SO₂ and NO_x emission reductions by calendar year 2018 are 56% and 10%, respectively. As "Highway Vehicles" are the highest contributor to the Illinois NO_x emissions inventory (see Table 16 in draft Agency report), it is presumed that the NO_x emission inventory will see significant improvements as a result of this new regulation through 2030 and beyond.

Link to US EPA's Regulatory Impact Analysis for the Tier 3 Rulemaking →
<https://nepis.epa.gov/Exe/ZyPDF.cgi/P100ISWM.PDF?Dockey=P100ISWM.PDF>

**Table ES-7 Estimated Emission Reductions from the Final Tier 3 Standards
(Annual U.S. short tons)**

	2018		2030	
	Tons	Percent of Onroad Inventory	Tons	Percent of Onroad Inventory
NO _x	264.369	10%	328.509	25%
VOC	47.504	3%	167.591	16%
CO	278.879	2%	3,458.041	24%
Direct PM _{2.5}	130	0.1%	7,892	10%
Benzene	1.916	6%	4,762	26%
SO ₂	14.813	56%	12.399	56%
1,3-Butadiene	257	5%	677	29%
Formaldehyde	513	2%	1,277	10%
Acetaldehyde	600	3%	2,067	21%
Acrolein	40	3%	127	15%
Ethanol	2,704	2%	19,950	16%

I would once again like to thank the Agency for providing an opportunity to review this draft report and provide feedback. If you have questions, don't hesitate to contact me.

Best regards,
W. Brad Sims
State Regulatory Advisor

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From: Hawkins, Jillian [<mailto:Jillian.Hawkins@illinois.gov>]
Sent: Tuesday, November 01, 2016 2:25 PM
To: Sims, Brad <brad.sims@exxonmobil.com>
Subject: Regional Haze Document

Brad,

Attached is a PDF of the Five Year Progress Report for the Illinois Regional Haze State implementation Plan. Please let me know if you have any questions!

Thanks,

Jillian Hawkins
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Illinois EPA Response to Comment Regarding the Illinois Regional Haze Progress Report

Illinois EPA appreciates the comment provided by Mr. Sims during the public notice period. As noted in Illinois' Regional Haze Progress Report in response to the National Park Service's comment (Section A.1.1), reductions from the fuel-sulfur standards can be difficult to quantify on the basis of emissions before and after a specific effective date. Illinois EPA did not perform a specific analysis of reductions from the Tier 3 Motor Vehicle Emission and Fuel Standards that would occur in Illinois and in comparison to the baseline year of the Regional Haze Rule. It was included in the Progress Report as an additional measure, and Illinois EPA does anticipate continuing contributions to improved air quality from the Tier 3 vehicle rules. However, Illinois did not rely on these emission reductions to demonstrate meeting its 2018 goals for emission reductions set forth in its Regional Haze SIP. Illinois EPA appreciates Mr. Sims providing the additional information regarding the Tier 3 vehicle rules and their contribution on a nationwide basis to air quality improvements in the near and long term.

**REGIONAL HAZE
STATE IMPLEMENTATION PLAN
FOR ILLINOIS**

AQPSTR 10-08

May 10, 2011

**ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST
P.O. BOX 19276
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List of Acronyms

BART	Best Available Retrofit Technology
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CO	Carbon Monoxide
CPS	Combined Pollutant Standard
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
PSD	Prevention of Significant Deterioration
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 (“USEPA”) on July 1, 1999 (64 Fed. Reg. 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, but not limited to, 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 USEPA’s Guidelines for BART Determinations under the Regional Haze Rule (“BART Guidelines”) (70 Fed. Reg. 39104, July 6, 2005). The IEPA 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, 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 RPOs and states that have requested Illinois’ participation in their planning process.

The IEPA, 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 ("USEPA") 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), 42 USC §7491(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. As specified in 40 CFR §51.308(f), Illinois commits to revise and submit its SIP by July 31, 2018, and every ten years thereafter consistent with the national goal of continued improvement of visibility in these protected areas.

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) submitting a plan for the application of Best Available Retrofit Technology ("BART") for a specific subset of emission sources, as required by USEPA'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 Environmental Protection Agency ("IEPA"), 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

Figure 1.1 Mandatory Class I Federal Areas



progress goals and requirements. Illinois has developed a long-term emission reduction strategy to address the requirements of the 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 (“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 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.

Finally, 40 CFR §51.308(g) requires that each state submit a report to USEPA every five years evaluating progress towards the reasonable progress goal for each mandatory Class I area which may be affected by emissions from within the state. The first progress report is due five years from submittal of the initial implementation plan addressing regional haze and BART. 40 CFR §51.308(h) also requires that at the same time the state is required to submit its five-year progress report to USEPA the state must either provide to the USEPA a negative declaration that further revision of the existing implementation plan is not needed, or revise its implementation plan to address the plan's deficiencies within one year. Illinois commits that it will submit the progress report evaluating the adequacy of the state's plan, as specified in 51.308(g) and (h), within five years, revise its SIP as needed, and will continue the consultation process with other states and FLMs in the development of the progress evaluation.

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. In addition to Illinois, the MRPO includes the States of Indiana, Michigan, Ohio, and Wisconsin, and is one of five regional planning organizations funded by the USEPA to address regional haze requirements.

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.

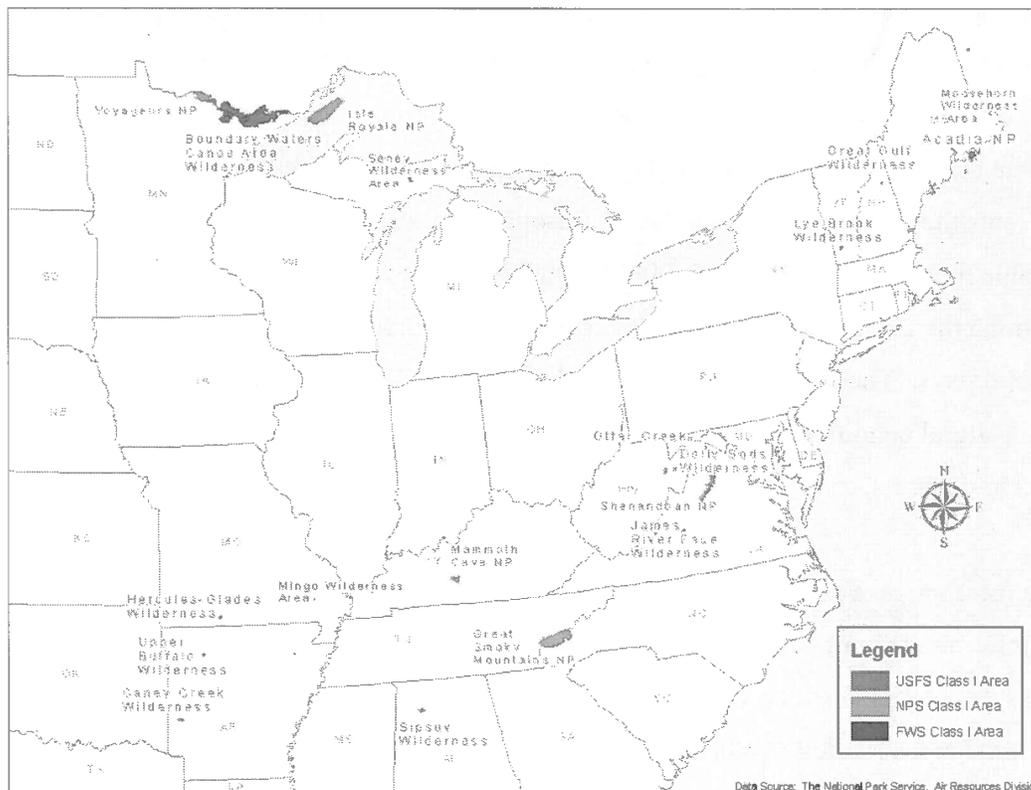
One of the analyses prepared by the MRPO identified the Class I areas that were impacted by each of the states in the MRPO. Using several technical approaches, including modeling and back trajectories, the MRPO prepared a list of Class I areas impacted by the five Midwestern states. This analysis, "Draft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



Class I areas that are in the southern Appalachians, particularly Cohotta, Shining Rock, and Joyce Kilmer/Slickrock, are such a great distance from Illinois that IEPA did not model them explicitly. Rather, IEPA modeled the Class I areas closer to Illinois, such as Sipsy Wilderness, Linville Gorge, and Great Smoky Mountains National Park, and assumed that impacts at these areas were conservatively representative of impacts at areas that are farther from Illinois. This is consistent with the MRPO analysis, which used analyses from other RPOs, as well as their own analyses, to assess the impacts from sources in the Midwest on all Class I areas in the eastern U.S.

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 through 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 3.0 of the MRPO TSD (see Appendix B).

4.0 Monitoring Strategy

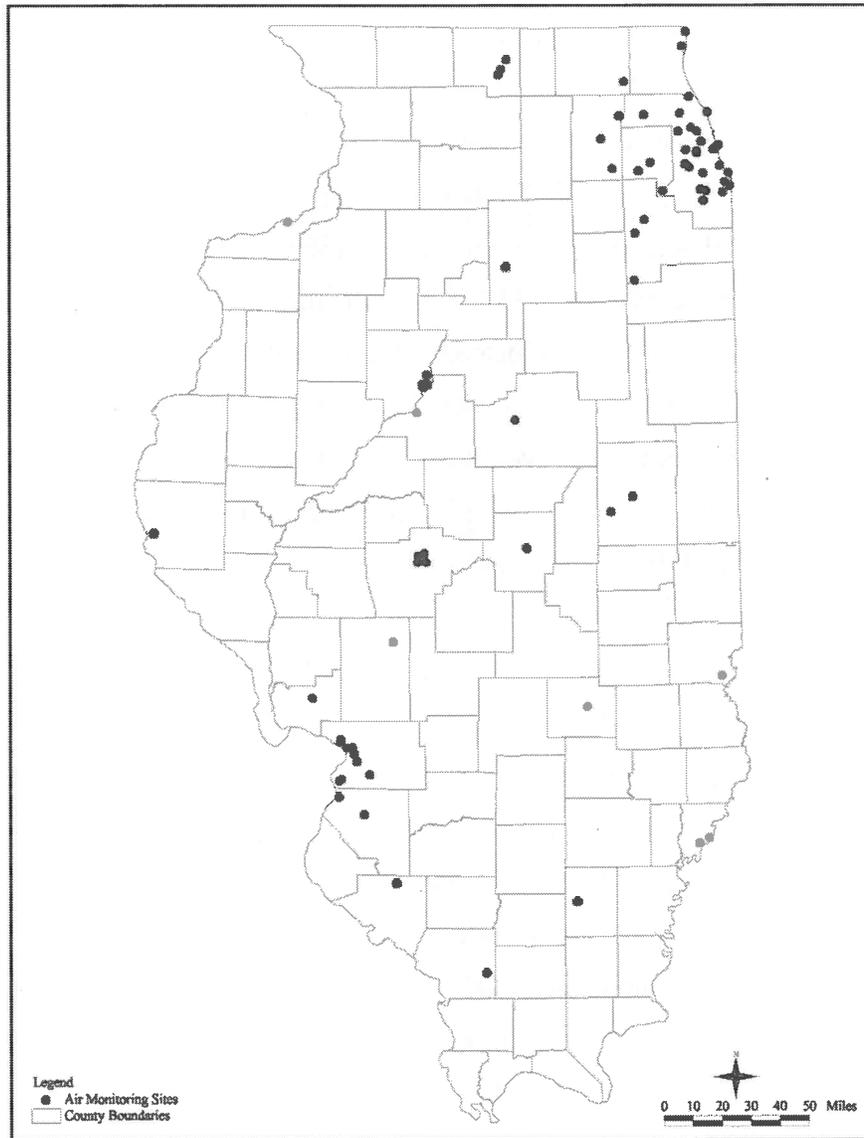
Pursuant to 40 CFR §51.308(d)(4) of the Federal Regional Haze Rule, Illinois currently maintains a monitoring network to measure and report levels of various pollutants, including those that contribute to impairment of visibility in Class I areas. The monitoring program relies upon Illinois' network 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 3.0 and 4.0 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 Ambient Air Monitoring Locations in Illinois



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 ("nitrogen oxides"), PM ("particulate matter"), ammonia ("NH₃"), and SO₂ (sulfur dioxide). 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".³ 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	NH ₃	NO _x	PM ₁₀	PM _{2.5}	SO ₂	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 Standard ("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	NH ₃	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOM
EGU	24,620	100	34,085	11,313	4,698	122,907	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	268,656	975,447

Table 5.3 Comparison of Illinois Statewide Emissions, 2002 to 2018

Category	CO	NH ₃	NO _x	PM ₁₀	PM _{2.5}	SO ₂	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	268,656	975,447
Difference	-1,039,448	+33,814	-419,399	+239,674	+42,402	-261,944	-88,300

reductions are largely due to Illinois' MPS/CPS and BART regulatory requirements affecting coal-fired EGUs, 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 7.0 and 8.0.

Pursuant to 40 CFR §51.308(d)(4)(v), the IEPA commits to update the statewide emissions inventory periodically to ensure continued progress in meeting the visibility goals described in the document.

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. USEPA's BART Guidelines¹ 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 IEPA's report: "Technical Support Document for Best Available Retrofit Technology Under the Regional Haze Rule"² ("BART TSD"). The BART TSD describes the IEPA'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 ExxonMobil). 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 the City of Springfield, Office of Public Utilities d/b/a 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 Standards (“MPS”) and Combined Pollutant Standard (“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 between the IEPA 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 agreement between the IEPA and the City of Springfield, Office of Public Utilities, d/b/a CWLP, 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. IEPA’s BART TSD 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 IEPA 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 EGUs 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,b}	0.36	0.11	0.52	0.13
City Water, Light and Power	1.08	0.11	1.09	0.23
Dominion Kincaid	0.65	0.07	0.55	0.15

^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	0.10	

Midwest Generation, Ameren, and Dynegy, and the specific BART-related provisions for Dominion-Kincaid and the City of Springfield, Office of Public Utilities, d/b/a 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

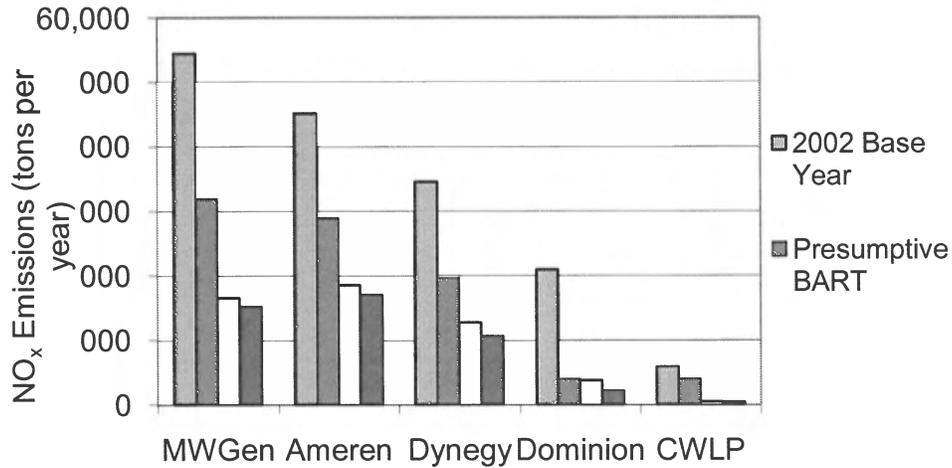
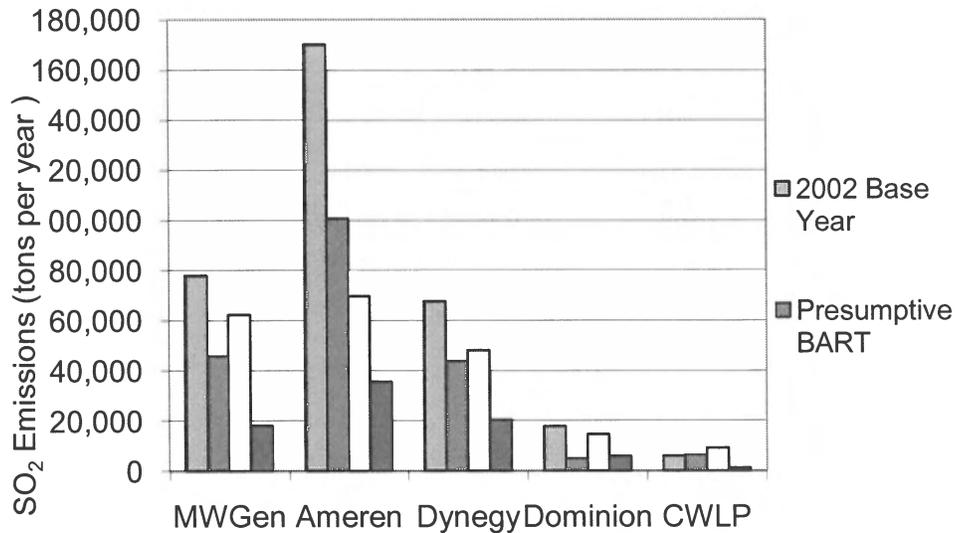


Figure 6.2 Estimated SO₂ Emissions from Coal-Fired EGUs in Illinois



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 IEPA considers the requirements of these consent decrees to be sufficient to meet the requirements for BART. IEPA's BART TSD 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 IEPA 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 5.0 of the MRPO TSD (see Appendix B). A summary of the MRPO's findings is provided below.

Section 169A(g) of the CAA states that "...in determining reasonable progress there shall be taken into consideration the costs of compliance, the time necessary for compliance, and the energy and nonair quality environmental impacts of compliance, and the remaining useful life of any existing source subject to such requirements". 42 USC §7491(g). Federal regulations also include visibility improvements as they relate to the Uniform Rate of Progress. 40 CFR §51.308(d)(1)(i)(A). The MRPO conducted analyses to determine reasonable progress based upon these five factors and determined that the implementation of the Clean Air Interstate Rule ("CAIR") would be sufficient for the region to achieve reasonable progress toward the visibility goals of the Regional Haze Rule and CAIR. These analyses were based on reductions that would be achieved by 2018 with the implementation of CAIR Phase I and Phase II by that time. The assessment of the five factors was performed for the MRPO and the State of Minnesota by EC/R Incorporated ("EC/R"), as documented in their report, "Reasonable Progress for

Class I Areas in the Northern Midwest”⁴. Specifically, EC/R examined reductions in SO₂ and NO_x emissions from EGUs and industrial, commercial and institutional (ICI) boilers; NO_x emissions from mobile sources and reciprocating engines and turbines; and ammonia emissions from agricultural operations. The impacts of “on the books” controls were also examined to provide a frame of reference for assessing the impacts of the additional control measures.

The results of EC/R’s analysis of the five factors are summarized below:

Factor 1 (Costs of Compliance): The average cost effectiveness values (in terms of \$M per ton) are provided in Table 7.1. Two control levels were considered for EGUs (EGU1 and EGU2) and for industrial, commercial, and industrial (“ICI”) boilers (ICI-1 and “ICI Workgroup”). For comparison, cost-effectiveness estimates previously provided for “on the books” controls include:

- CAIR SO₂: \$700 - \$1,200, NO_x: \$1,400 – \$2.600 (\$/T)
- BART SO₂: \$300 - \$963, NO_x: \$248 - \$1,770
- MACT SO₂: \$1,500, NO_x: \$7,600

Most of the cost-effectiveness values for the additional controls are within the range of cost-effectiveness values for “on the books” controls.

Factor 2 (Time Necessary for Compliance): All of the control measures can be implemented by 2018. Thus, this factor can be easily addressed.

Factor 3 (Energy and NonAir Quality Environmental Impacts): The energy and other environmental impacts are believed to be manageable. For example, the increased energy demand from add-on control equipment is less than 1% of the total electricity and steam production in the region, and solid waste disposal and wastewater treatment costs are less than 5% of the total operating costs of the pollution control equipment. It should also be noted that the SO₂ and NO_x controls would have beneficial environmental impacts (e.g., reduced acid deposition and nitrogen deposition).

Table 7.1 Estimated Cost Effectiveness for Potential Control Measures

Emission category	Control strategy	Region	Average Cost Effectiveness (\$/ton)		
			SO ₂	NO _x	NH ₃
EGU	EGU1	3-State	1,540	2,037	
		9-State	1,743	1,782	
	EGU2	3-State	1,775	3,016	
		9-State	1,952	2,984	
ICI boilers	ICI1	3-State	2,992	2,537	
		9-State	2,275	1,899	
	ICI Workgroup	3-State	2,731	3,814	
		9-State	2,743	2,311	
Reciprocating engines and turbines	Reciprocating engines emitting 100 tons/year or more	3-State		538	
		9-State		506	
	Turbines emitting 100 tons/year or more	3-State		754	
		9-State		754	
	Reciprocating engines emitting 10 tons/year or more	3-State		1,286	
		9-State		1,023	
	Turbines emitting 10 tons/year or more	3-State		800	
		9-State		819	
Agricultural sources	10% reduction	3-State			31 - 2,700
		9-State			31 - 2,700
	15% reduction	3-State			31 - 2,700
		9-State			31 - 2,700
Mobile sources	Low-NO _x Reflash	3-State		241	
		9-State		241	
	MCDI	3-State		10,697	
		9-State		2,408	
	Anti-Idling	3-State		(430) - 1,700	
		9-State		(430) - 1,700	
	Cetane Additive Program	3-State		4,119	
		9-State		4,119	
Cement Plants	Process Modification	Michigan		-	
	Conversion to dry kiln	Michigan		9,848	
	LoTox™	Michigan		1,399	
Glass Manufacturing	LNB	Wisconsin		1,041	
	Oxy-firing	Wisconsin		2,833	
	Electric boost	Wisconsin		3,426	
	SCR	Wisconsin		1,054	
	SNCR	Wisconsin		1,094	

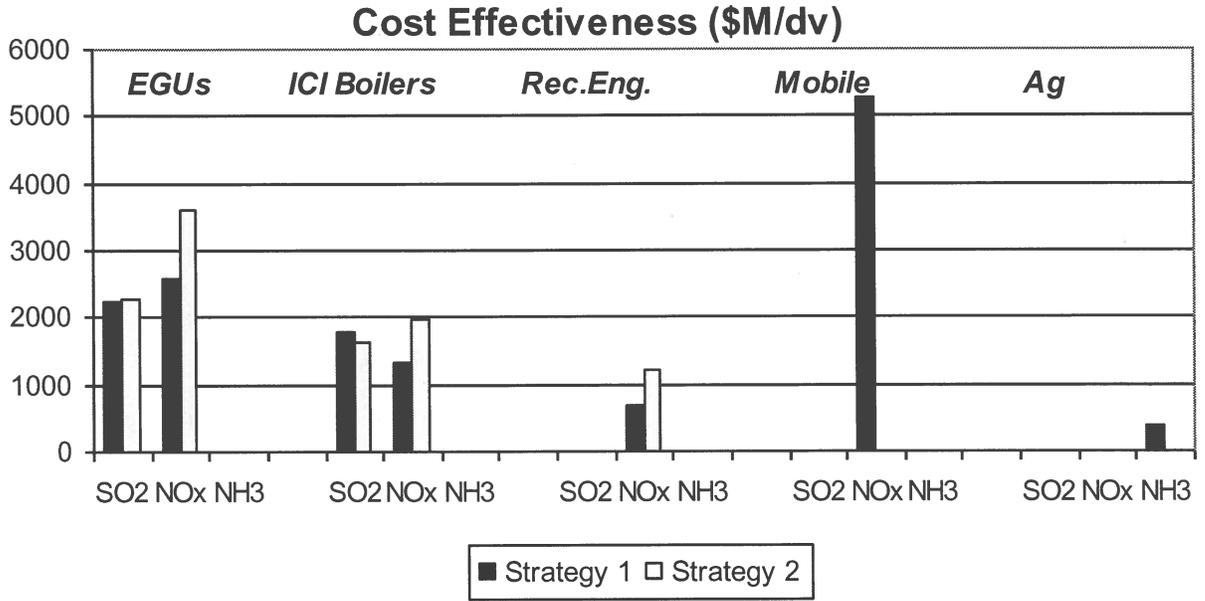
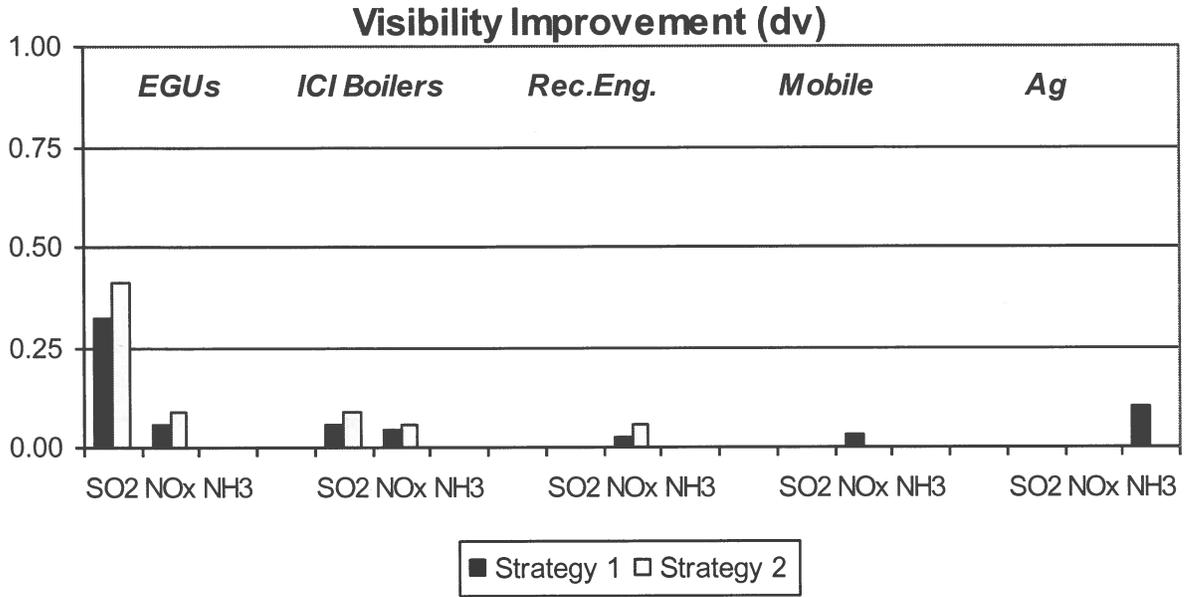
Table 7.1 Estimated Cost Effectiveness for Potential Control Measures (continued)

Emission category	Control strategy	Region	Average Cost Effectiveness (\$/ton)		
			SO ₂	NO _x	NH ₃
Lime Manufacturing	Mid-kiln firing	Wisconsin		688	
	LNB	Wisconsin		837	
	SNCR	Wisconsin		1,210	
	SCR	Wisconsin		5,037	
	FGD	Wisconsin		128 - 4,828	
Oil Refinery	LNB	Wisconsin		3,288	
	SNCR	Wisconsin		4,260	
	SCR	Wisconsin		17,997	
	LNB+FGR	Wisconsin		4,768	
	ULNB	Wisconsin		2,242	
	FGD	Wisconsin		1,078	

Factor 4 (Remaining Useful Life): It is not expected that the controls will be applied to units that will be retired prior to the amortization period for the control equipment. Thus, this factor can be easily addressed.

Factor 5 (Visibility Impacts): The estimated incremental improvement in 2018 visibility levels for the additional measures is shown in Figure 7.1, along with the cost-effectiveness expressed in millions of dollars per deciview (\$M/dv) improvement. Strategy 1 and Strategy 2, as shown in the figure, refer to the two control levels evaluated for EGUs and ICI boilers. These results show that although EGU and ICI boiler controls have higher cost-per-deciview values (compared to some of the other measures), the potential for visibility improvements from these categories is also greater. However, the potential visibility improvements are small for all categories except for EGUs, and the EGU controls in Illinois exceed those required by either CAIR or the proposed Transport Rule (75 Fed. Reg. 45210 (August 2, 2010)).

Figure 7.1 Results of EC/R Analysis of Reasonable Progress Factors



Subsequent to these analyses, the Federal CAIR rule has been remanded and USEPA has proposed Federal Implementation Plans to Reduce Interstate Transport of Fine Particulate Matter and Ozone (“Transport Rule”) (75 Fed. Reg.45210 (August 2, 2010)). The IEPA considers the emission reductions that were anticipated from CAIR Phase II to be Illinois’ “fair share” of reductions for achieving the progress goals set by the MRPO. Table 7.2 shows the EGU emission rates resulting from CAIR Phase II and the proposed Transport Rule Phase II for several Midwestern states, including Illinois. Also shown in Table 7.2 are the average emission rates expected from EGUs in Illinois as a result of the multi-pollutant control measures, including the MPS/CPS and agreements to meet BART requirements, which will be in place by 2018. As shown in the table, the emission limits on EGUs in Illinois are more stringent than CAIR Phase II and the Proposed Transport Rule Phase II, and are lower than the emission rates to be achieved from these programs in all other Midwestern states. If other Midwestern states were to achieve emission reductions comparable to those anticipated in Illinois, the region would likely exceed the progress goals identified by the MRPO.

Similar to the MRPO, the Mid-Atlantic/Northeast Visibility Union (“MANE-VU”) and Visibility Improvement State and Tribal Association of the Southeast (“VISTAS”) RPOs performed modeling to evaluate rate of progress goals at eastern Class I areas. In a stakeholder briefing in April 2008, MANE-VU concluded from their modeling that “...the Uniform Rate is achieved and exceeded at all MANE-VU Class I sites.”⁹ In the VISTAS Technical Support Document,⁸ which was prepared to support their states’ regional haze SIPs, the 2018 modeling results (without international effects) shows that all VISTAS Class I areas show visibility improvements greater than the Uniform Rate of Progress. Both the MANE-VU and VISTAS studies assume CAIR control levels for EGUs in Illinois.

Table 7.2 Projected SO₂ and NO_x Emission Rates from National Control Programs for EGU_s in Several Midwestern States

State	SO ₂ Emission Rate (lb/MMBTU)		NO _x Emission Rate (lb/MMBTU)	
	CAIR Phase II	Proposed Transport Rule Phase II	CAIR Phase II	Proposed Transport Rule Phase II
Wisconsin	0.25	0.27	0.14	0.18
Ohio	0.36	0.27	0.14	0.15
Missouri	0.24	0.39	0.13	0.14
Minnesota	0.18	0.24	0.14	0.21
Michigan	0.33	0.40	0.14	0.17
Kentucky	0.27	0.23	0.14	0.15
Indiana	0.28	0.31	0.14	0.18
Illinois*	0.26	0.28	0.12	0.10
Iowa	0.21	0.40	0.13	0.21

*The projected average SO₂ emission rate in Illinois in 2018 is 0.19 lb/MMBTU and the projected NO_x emission rate is 0.10 lb/MMBTU

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 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. IEPA's emissions inventory is described in Section 5.0 of this report and in Section 3.6 of the MRPO TSD (see Appendix B). Additionally, the Regional Haze Rule (40 CFR §51.308(d)(3)(v)) requires that states consider the following factors in developing their 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 United States 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 USEPA and/or the states, are fully enforceable, and will be in place by 2018 (except for fleet turnover of certain mobile source measures).

8.1 Point Source Q/D Analysis

The IEPA has evaluated all SO₂ and NO_x sources in the state to determine if they could potentially affect visibility in Class I Federal areas using a methodology that is consistent with the BART Guidelines. The BART Guidelines state, in part:

“Based on our model plant analysis, EPA believes that a State could reasonably choose to exempt sources that emit less than 500 tons per year of NO_x or SO₂ (or combined NO_x and SO₂), as long as they are located more than 50 km from any Class I area; and sources that emit less than 1000 tons per year of NO_x or SO₂ (or combined NO_x and SO₂), as long as they are located more than 100 km away from any Class I area.”¹

This USEPA criteria is equivalent to a Q/D of 10, where Q is the emission rate in tons per year and D is the distance of the source from the nearest Class I area. Since there are no Class I areas within 100 kilometers of any emission source in Illinois, the IEPA evaluated all sources with combined NO_x and SO₂ emissions greater than 1000 TPY.

Table 8.1 lists the sources in Illinois that have combined NO_x and SO₂ emissions exceeding 1000 TPY that were not previously evaluated in the subject-to-BART analysis. Also listed is the distance from each source to the nearest Class I area, and the Q/D ratio for each source.

**Table 8.1 Ratios of Emission Rates and Distance (Q/D) for
Emission Sources in Illinois**

Source	Location	SO ₂ + NO _x emissions (TPY)	Distance to nearest Class I area (km)	Q/D (tons/km)
Electric Energy	Joppa	31,487	115	274
Corn Products	Bedford Park	22,050	523	42
Conoco-Phillips	Roxana	17,994	207	87
Aventine	Pekin	14,963	400	37
ADM	Decatur	14,074	340	41
Southern Illinois Power	Marion	11,700	128	91
SUEZ DEGS	Tuscola	10,757	350	31
US Steel	Granite City	9,718	191	51
ADM	Peoria	8,737	414	21
CII Carbon	Robinson	5,963	248	24
Tate & Lyle	Decatur	5,022	337	15
Lone Star	Oglesby	4,469	489	9
Oxbow Calcining	Lemont	4,468	529	8
Lafarge	Joppa	4,254	115	37
Emerald Materials	Henry	4,106	468	9
St Marys Cement	Dixon	3,997	546	7
Panhandle Eastern	Tuscola	3,688	350	10
PPG	Mt Zion	3,163	330	9
Prairie Power	Pearl	2,922	278	10
Nat'l Gas Pipeline	Hammond	2,475	340	7
Nat'l Gas Pipeline	Herschler	2,241	465	4
Nat'l Gas Pipeline	Geneseo	1,954	491	4
Marathon Petroleum	Robinson	1,902	249	7
Panhandle Eastern	Pleasant Hill	1,661	286	6
ADM	Quincy	1,627	344	5
Rentech Energy	E Dubuque	1,453	562	3
John Deere	E Moline	1,414	507	3
Panhandle Eastern	Glenarm	1,319	299	4
Trunkline Gas	Grand Chain	1,291	117	11
Exolon	Hennepin	1,274	486	3
U of Illinois	Champaign	1,268	377	3
ANR Pipeline	Sandwich	1,183	559	2
Nat'l Gas Pipeline	Centralia	1,151	190	6
ANR Pipeline	New Windsor	1,144	475	2
Carneuse Line	Chicago	1,138	525	2
J'Ville Dev. Center	Jacksonville	1,103	305	3
Western IL Univ.	Macomb	1,087	392	3
St-Gobain Containers	Dolton	1,059	533	2
Illinois Cement	LaSalle	1,013	493	2

Most of the sources in Illinois with combined NO_x and SO₂ emissions have Q/D ratios less than 10, and will therefore not affect visibility significantly in any Class I areas. Of the 15 sources that have a Q/D ratio greater than 10, the IEPA believes that they are already subject, or will soon be subject to additional control measures that will provide additional emissions reductions that will ensure reasonable progress. These measures include:

- Illinois Multi-Pollutant Standards and Combined Pollutant Standards for EGUs
- Phase I and II of the proposed Transport Rule for EGUs
- Federal consent decrees for petroleum refineries
- National Emission Standards for Hazardous Air Pollutants (NESHAPs) for utility boilers
- NESHAPs for industrial boilers
- NESHAPs for iron and steel
- NESHAPs for cement kilns
- NESHAPs for combustion turbines at natural gas pipeline station
- Reasonably Available Control Technology for NO_x sources (“NO_x RACT”) in ozone nonattainment areas
- NO_x SIP Call requirements for turbines at natural gas pipeline stations

8.2 Prevention of Significant Deterioration

As to the construction of any new major stationary source or the major modification of any existing major stationary source, the visibility impacts of such sources will remain under the purview of existing requirements under Prevention of Significant Deterioration (“PSD”). 40 CFR § 52.21. The IEPA administers the PSD program in Illinois under authority provided by Section 9.1 of the Illinois Environmental Protection Act, 415 ILCS 5/9.1 (2010), and a delegation agreement with USEPA authorizing Illinois to enforce the Federal PSD regulations.

Under the PSD program, if the emissions from a proposed new stationary source or the increase in emissions from a modification to an existing source meet the relevant criteria to be considered major, specific requirements apply to the project. These requirements

include a control technology element or installation of Best Available Control Technology, an analysis of the air quality impacts of the project, an additional impacts analysis, which assesses the impacts of air, ground and water pollution on soils, vegetation, and visibility caused by any increase in emissions of any regulated pollutant from the source or modification under review, and from associated growth, and public participation. Furthermore, there are additional PSD requirements for sources impacting Federal Class I Areas, including notification to a Federal Land Manager (“FLM”) of a permit application for such a proposed source that may affect a Federal Class I Area that includes an analysis of the proposed source’s anticipated impacts on visibility in the Class I Area and the consideration of any visibility analysis performed by the FLM that demonstrates that such a proposed source may have an adverse impact on visibility in any Federal Class I Area. Permitting of new and modified sources in Illinois via the PSD process includes review by and input from the FLMs, who are charged with direct responsibility for management of Class I Areas and have an affirmative responsibility to protect the air quality related values including visibility. Determinations of adverse visibility impacts enable Illinois to reduce the impacts of any new and modified sources on visibility. Furthermore, in conformity with 40 C.F.R. § 51.307, in conducting such reviews, Illinois shall ensure that such sources’ emissions will be consistent with making reasonable progress toward the national visibility goal of preventing any future, and remedying any existing, impairment of visibility in Class I Areas.

8.3 Important Control Strategies in Illinois

“On-the-Books” Control Measures

Many of the aforementioned control programs, along with many others that affect smaller point sources, area, and mobile sources, will reduce emissions of the constituents that cause visibility impairment. The chemical constituents that cause the vast majority of visibility impairment in the northern Class I area are ammonium sulfate, ammonium nitrate, and organic carbon. According to a MRPO analysis of species that comprise the PM loading in the northern Class I areas, on the 20% worst visibility days, sulfates comprise 35-55%, nitrates 25-30%, and organic carbon 12-22% of the PM loading.⁶ On a seasonal basis, sulfate and organic carbon concentrations are generally higher in the

summer, with nitrates having a larger contribution in the winter. Most of the visibility impairing particles in these Class I areas are due to emissions that have been transported from large urban and industrial areas far removed from these areas. Emission sources in these urban/industrial areas are expected to decrease due to various “on the books” control programs for on-road and off-road mobile sources, area sources, and industrial point sources. Following is a list of “on-the-books” control measures that are expected to further reduce visibility impairing pollutants in future years:

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

- Illinois Multi-Pollutant Standards and Combined Pollutant Standards for EGUs
- Title IV (Acid Rain -- Phases I and II)
- NO_x SIP Call
- Clean Air Interstate Rule – Phase I

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 some of the measures listed above that will yield significant additional emission reductions in Illinois that have not been included as “on the books” control measures in the MRPO analyses. 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 the CWLP electric generation facilities. These additional agreements and emission reductions are discussed in detail in the Illinois BART TSD.

Construction Activities

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 International 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; USEPA-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. IEPA anticipates that future construction projects will entail similar environmental considerations, and the IEPA 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.

Smoke Management for Prescribed Fires

In consideration of smoke management techniques for conducting prescribed burns for ecological management and restoration, the IEPA has worked with land managers in the State to prepare the “Illinois Smoke Management Plan”⁷. This plan provides recommended approaches for minimizing smoke during prescribed burns. The plan is voluntary, and targets controlled ecological burns. The plan does require the implementation of best management practices for burns and also requires the use of the Air Quality Index to inform the decision to burn. The plan does not explicitly consider Class I areas as sensitive receptors, since the distance to the nearest Class I area from any point in Illinois is large (at least 100 km) and ecological burns are relatively small and short lived.

9.0 Consultation

Illinois is required by the Regional Haze Rule to participate in a consultation process with states that have 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.

Illinois has participated in meetings and conference calls with states within the MRPO and with the other RPOs outside the Midwest to discuss their assessments of visibility conditions, analyses of culpability, and possible measures that could be taken to meet visibility goals. The sections later in this document provide that information on a state-by-state basis.

9.1 Coordination with Federal Land Managers

Title 40 of the Code of Federal Regulations, §51.308(i), requires coordination between Illinois and the Federal Land Managers ("FLMs"). Opportunities have been provided by the MRPO for FLMs to review and comment on each of the technical documents developed by the MRPO and included in this SIP. Illinois has provided agency contacts to the FLMs as required. In development of this plan, the FLMs were consulted in accordance with the provisions of 40 CFR §51.308(i)(2).

During the consultation process, the FLMs were given the opportunity to address their assessments of the impairment of visibility in any Class I areas, to provide recommendations on the development of reasonable progress goals, and to provide recommendations on the development and implementation of strategies to address visibility impairment.

Illinois has consulted directly with FLMs by email and phone, during periodic MRPO calls and meetings, and during discussions with other states and RPOs with Class I areas (for example, the MANE-VU meeting August 6, 2007 in Chicago).

Illinois provided the FLMs an opportunity for review of the SIP, and in conformity with the federal regulations, it was at least 60 days prior to holding the public hearing for the SIP. Comments were received from the FLMs on this plan and have been summarized; the responses are encompassed in the Responsiveness Summary for Public Questions and Comments on the State Implementation Plan Submittal to Address Regional Haze. Illinois will continue to coordinate and consult with the FLMs during the development of future progress reports and plan revisions, as well as during the implementation of programs having the potential to contribute to visibility impairment in the Class I areas. The FLMs will be consulted during the development and review of implementation plan revisions and during the review of five-year progress reports.

9.2 Consultation with States with Class I Areas

As a result of the various analyses performed by the MRPO and other RPOs, Illinois was invited to participate in consultations with states with Class I areas where sources in Illinois were shown to cause or contribute to visibility impairment. These included Arkansas and Missouri (as part of CENRAP), Kentucky, New Jersey, New Hampshire, and Vermont (each individually and together as part of MANE-VU), Minnesota, and Michigan. In addition, the MRPO consulted with VISTAS (the southeastern United States' RPO) regarding impacts in a number of Class I areas in the southeastern United States.

IEPA assessed each of the Class I areas identified in the MRPO report as being impacted by Illinois sources. Information provided by the MRPO, technical documents from the other RPOs, and letters received from other states indicating their decisions regarding reasonable further progress goals were used to make these assessments.

In determining reasonable progress for regional haze, Section 169A of the Clean Air Act and USEPA's visibility rule requires states to consider these factors in establishing their progress goals: costs of compliance; the time necessary for compliance; the energy and non-air quality environmental impacts of compliance; the remaining useful life of any

existing source subject to such requirements; and the uniform rate of visibility improvement needed to attain natural visibility conditions by 2064.

Since Illinois has no Class I areas, the states with Class I areas took the lead in establishing reasonable progress goals. Illinois participated in the discussions and provided information to assist in setting the goals. The states developing the plans addressed the required factors and developed the uniform rate of progress glide paths.

In the following sections, these analyses are summarized for most of the Class I areas impacted by sources in Illinois.

9.2.1 Voyageurs National Park and Boundary Waters Canoe Area National Wilderness Area, MN

Illinois sources have been shown to cause or contribute to visibility impairment in Voyageurs National Park and Boundary Waters Canoe Area National Wilderness Area in Minnesota. Illinois has participated in consultations with Minnesota and the MRPO in the development of the modeling analyses used by Minnesota to develop its reasonable progress goals. Minnesota has developed a long-term strategy sufficient to meet its 2018 reasonable progress goals, and has not requested additional emissions reductions from Illinois.

9.2.2 Caney Creek and Upper Buffalo National Wilderness Areas, AR, and Hercules-Glades and Mingo National Wilderness Areas, MO

Illinois sources have been shown to cause or contribute to visibility impairment in the Caney Creek and Upper Buffalo National Wilderness Areas in Arkansas and the Hercules-Glades and Mingo National Wilderness Areas in Missouri. Illinois was invited to participate in the consultation process for these areas, primarily through conference phone calls with other participating states. Arkansas and Missouri have both developed long-term strategies that meet Rate of Progress Goals by 2018. The results of their modeling for these Class I areas, showing improvements that exceed the Uniform Rate of Progress glide paths, are shown in Figures 9-1, 9-2, 9-3, and 9-4.¹⁰ CENRAP has

concluded that no further reductions are necessary from Illinois and has notified IEPA that they consider the consultation process completed.

Figure 9.1 Caney Uniform Rate of Progress Glide Path

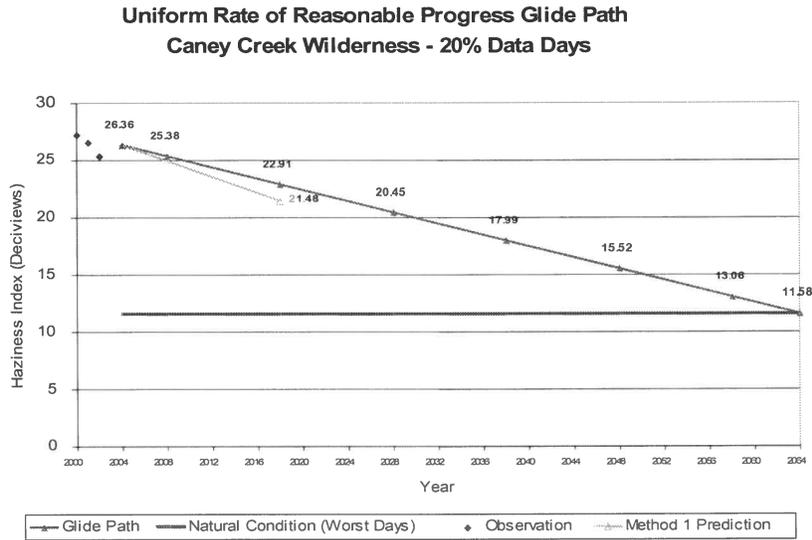


Figure 9.2 Upper Buffalo Uniform Rate of Progress Glide Path

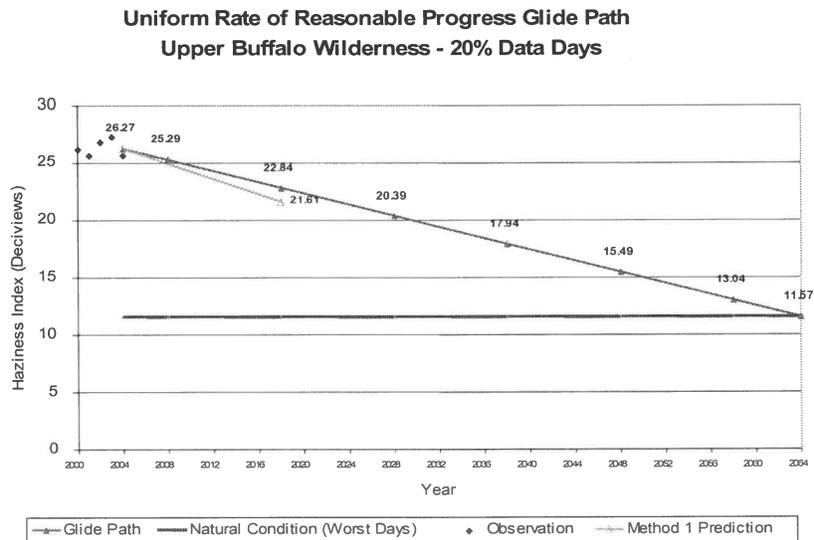


Figure 9.3 Hercules-Glades Uniform Rate of Progress Glide Path

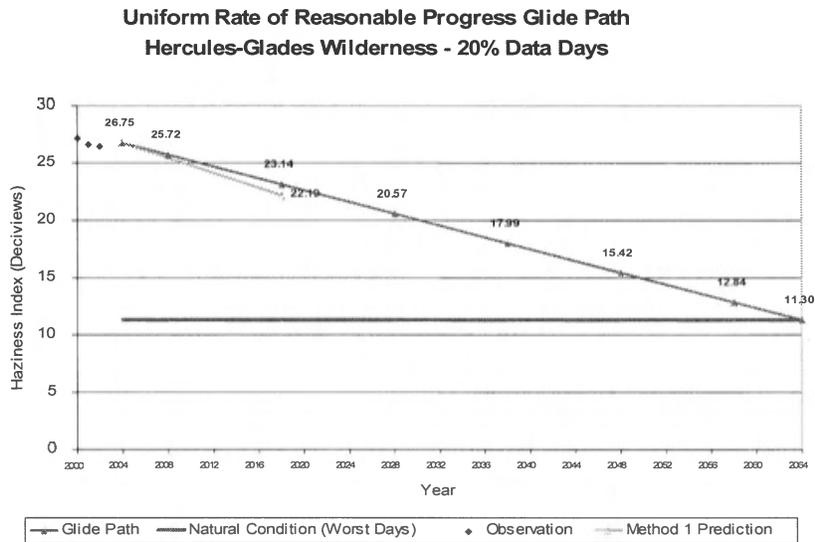
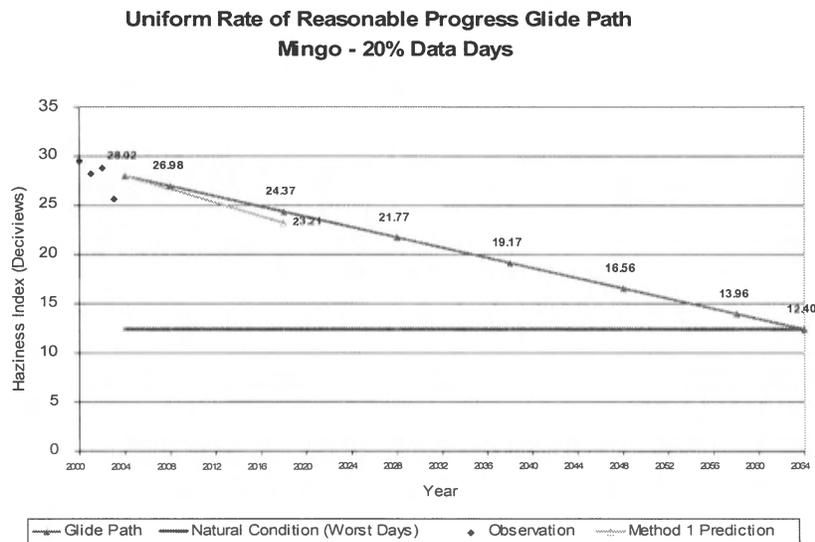


Figure 9.4 Mingo Uniform Rate of Progress Glide Path



9.4.4 Isle Royale National Park and Seney National Wilderness Area, MI

Illinois sources have been shown to cause or contribute to visibility impairment in Isle Royale National Park and in the Seney National Wilderness Area in Michigan. Illinois

and the other Midwestern states participated extensively in the MRPO modeling and data analysis efforts for fine particulates, ozone, and haze in these areas. Michigan determined that existing and on-the-books controls (those controls scheduled in response to regulatory actions within this time period) will be sufficient to meet its reasonable progress goals. Michigan has concluded that no further reductions are necessary from Illinois. Illinois will continue to work with Michigan through the MRPO to evaluate the progress in the Class I areas.

9.4.5 Mammoth Cave NP, KY; Sipsey Wilderness, AL; Great Smoky Mountains NP, TN/NC (VISTAS)

The southeastern states represented by VISTAS did not request Illinois' participation in consultations to address visibility impairment in their Class I areas. The MRPO did consult with VISTAS in the development of their progress goals. During this process, VISTAS produced glide path plots for Sipsey Wilderness in Alabama (Figure 9.5), the Great Smoky Mountains National Park in Tennessee and North Carolina (Figure 9.6), and Mammoth Cave National Park in Kentucky (Figure 9.7).⁸ The glide paths all show that on-the-books and on-the-way controls (including CAIR) will be more than sufficient to demonstrate reasonable further progress. Because of these results, none of the VISTAS states asked Illinois to take further action beyond the emissions reductions assumed in their modeling.

9.4.6 Wilderness Area, NH; Brigantine National Wilderness Area, NJ; and Lye Brook National Acadia National Park, ME; Moosehorn Wilderness Area, ME; Great Gulf Wilderness Area, VT (MANE-VU)

Illinois sources have been shown to cause or contribute to visibility impairment in several Class I areas in the Northeastern States represented by MANE-VU. Illinois, along with the other MRPO states, participated in consultations with MANE-VU.

In July 2007, MANE-VU released its "Assessment of Reasonable Progress for Regional Haze in MANE-VU Class I Areas - Methodology for Source Selection, Evaluation of Control Options, and Four Factor Analysis"¹¹ that supported requests of states outside that area to examine controls for specific types of sources.

Figure 9.5 Sipsey Wilderness Uniform Rate of Progress Glidepath

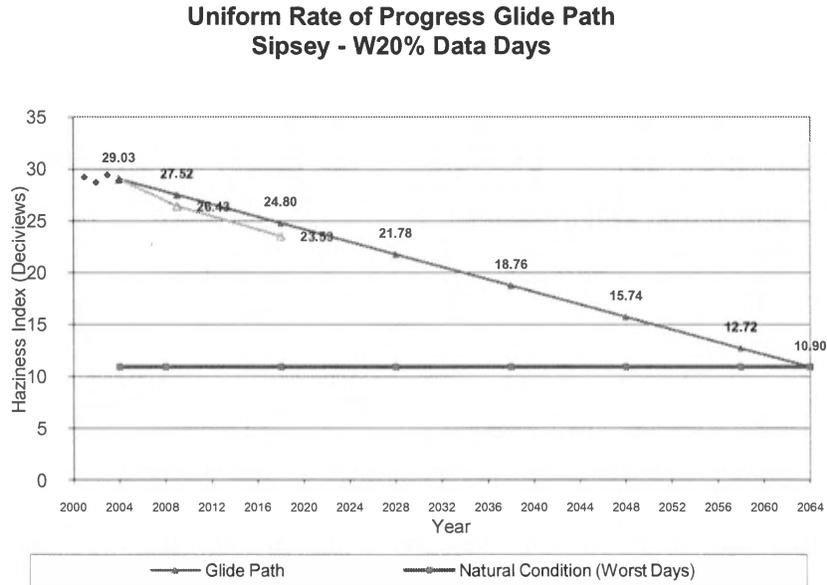


Figure 9.6 Great Smoky Mountains Uniform Rate of Progress Glidepath

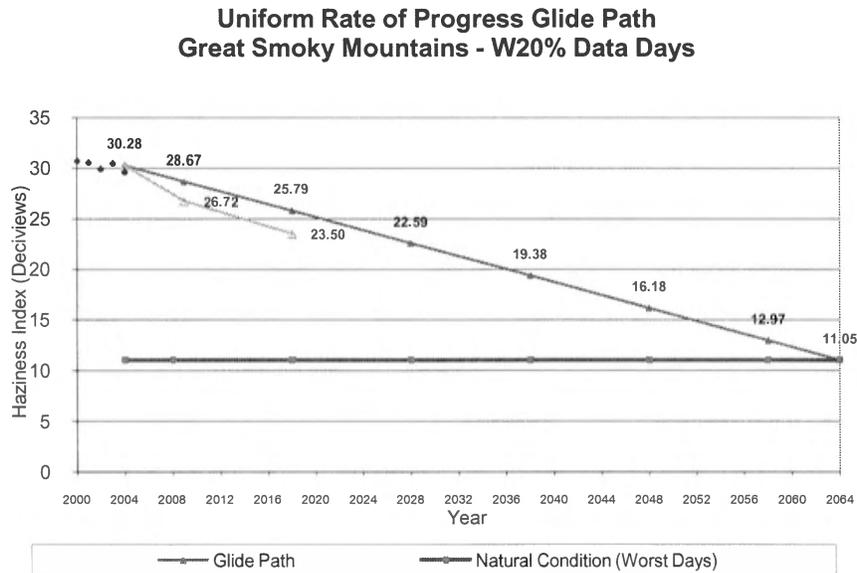
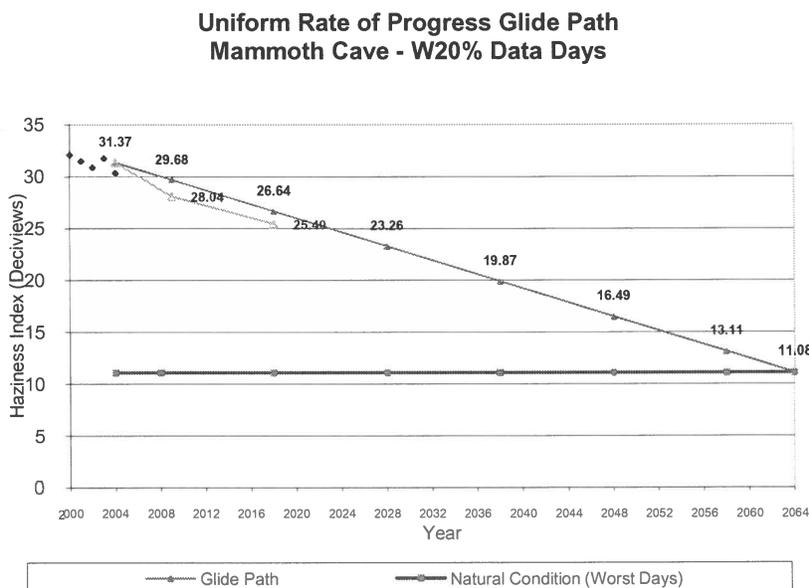


Figure 9.7 Mammoth Cave NP Uniform Rate of Progress Glidepath



In its “Statement of the Mid-Atlantic/Northeast Visibility Union (MANE-VU) Concerning a Request for a Course of Action by States Outside of MANE-VU Toward Assuring Reasonable Progress” (Appendix 3, pages 63 – 64)¹², MANE-VU suggested that several control strategies should be pursued for adoption and implementation, including:

- Application of Best Available Retrofit Technology
- 90% (or greater) reduction in SO₂ emissions from each of the EGU stacks on MANE-VU’s list of 167 stacks (located in 19 states), which reflect those stacks determined to be reasonably anticipated to cause or contribute to visibility impairment in the MANE-VU Class I areas
- 28% reduction in non-EGU (point, area, on-road, and off-road) SO₂ emissions relative to on-the-books, on-the-way 2018 projections
- Continued evaluation of other measures, including measures to reduce SO₂ and NO_x emissions from coal-burning facilities and promulgation of new source performance standards for wood combustion

- Further reduction in power plant SO₂ (and NO_x) emissions beyond the current Clean Air Interstate Rule program

In "Recent MANE-VU Projections of Visibility for 2018" ⁹, MANE-VU concluded that the Uniform Rate is achieved and exceeded at all MANE-VU Class I sites based on the implementation of the above control measures.

Of the 167 EGU stacks identified by MANE-VU, only one is from a source in Illinois. This stack (at Ameren-Coffeen) has an SCR (which will operate year-round) and a wet scrubber installed to comply with the MPS. The resulting level of control will satisfy the MANE-VU "ask" for this source. Illinois is implementing BART on subject sources, and through the on-the-books control measures listed previously in Section 8, Illinois has achieved sufficient reductions to satisfy the MANE-VU "ask".

10.0 Summary

This document describes Illinois' strategy for meeting the requirements established by the Federal Regional Haze Rule, which was published by the USEPA on July 1, 1999 (64 Fed. Reg. 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) submitting 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 IEPA, 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.

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12. "Statement of the Mid-Atlantic/Northeast Visibility Union (MANE-VU) Concerning a Request for a Course of Action by States Outside of MANE-VU Toward Assuring Reasonable Progress", MANE-VU, June 20, 2007.

**TECHNICAL SUPPORT DOCUMENT
FOR
BEST AVAILABLE RETROFIT TECHNOLOGY
UNDER THE REGIONAL HAZE RULE**

AQPSTR 09-06

April 29, 2011

**ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
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List of Acronyms

BART	Best Available Retrofit Technology
CAA	Clean Air Act
CD	Consent Decree
CO	Carbon Monoxide
CPS	Combined Pollutant Standard
EGAS	Economic Growth Analysis System
EGU	Electrical Generating Unit
FCCU	Fluid Catalytic Cracking Unit
FGD	Flue Gas Desulfurization
IPM	Integrated Planning Model
LADCO	Lake Michigan Air Directors Consortium
LNB	Low NO _x Burner
MPS	Multi-Pollutant Standards
MRPO	Midwest Regional Planning Organization
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
NSPS	New Source Performance Standards
SCR	Selective Catalytic Reduction
SDA	Spray Dryer Absorbers
SIP	State Implementation Plan
SLAMS	State and Local Air Monitoring Sites
SNCR	Selective Non-catalytic Reduction
SO ₂	Sulfur Dioxide
SPM	Special Purpose Monitors
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds
VOM	Volatile Organic Material

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Executive Summary

In an effort to restore visibility in national parks and wilderness areas in the United States to pristine conditions, the United States Congress amended the Clean Air Act ("CAA") to remedy any existing visibility impairment and to prevent any future impairment. The federal Regional Haze Rule, finalized by the United States Environmental Protection Agency ("USEPA") in 1999¹, is aimed at achieving pristine visibility conditions in the subject areas by 2064. This goal is to be achieved by addressing the combined effects of several pollutants from a number of sources over a wide geographic area that have been found to negatively impact visibility in the affected areas. As part of a strategy to reduce pollutants such as oxides of nitrogen ("NO_x"), sulfur dioxide ("SO₂"), and particulate matter ("PM"), USEPA has determined that certain stationary emission sources should be subject to a Best Available Retrofit Technology ("BART") standard. The sources subject to a BART standard, according to "Guidelines for BART Determinations under the Regional Haze Rule" ("BART Guidelines")² published by USEPA in July of 2005, must be one of 26 specified source categories; were in existence in August 1977; began operating after August 1962; and have the potential to emit 250 tons per year or more of any air pollutant.

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 RPOs 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. The modeling approach used by the Illinois EPA to address BART was developed in consultation with the MRPO, the other participating MRPO states, the USEPA, and participating FLMs.

The purpose of this document is to describe Illinois' approach for meeting the BART requirements for emission sources in Illinois that have been shown to be BART-eligible. Technical analyses conducted by the Illinois EPA have shown that certain BART-eligible 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, Isle Royale National Park in Michigan, and others. Illinois is therefore required to submit revisions to its State Implementation Plan ("SIP") to require that subject emission sources install cost effective retrofit control technologies or provide equivalent emission reductions.

Illinois has promulgated emission control requirements for most of the emission units in Illinois that are subject to BART that provide greater emission reductions, and greater environmental benefits, than would be provided by implementation of BART. Other emission units are subject to provisions contained in federally enforceable consent decrees or federally enforceable permits that provide greater emission reductions than would be achieved by BART. All of these requirements provide significant emission reductions that the Illinois EPA considers to meet or exceed the reductions expected from the BART requirements contained in the Regional Haze Rule, and all requirements will be contained in federally enforceable permits.

1.0 Introduction

In an effort to restore national parks and wilderness areas in the United States to pristine conditions with regard to man-made visibility impairment, the United States Congress amended the Clean Air Act ("CAA") in 1977 to remedy any existing visibility impairment, and to prevent any future impairment. These amendments led to measures specifically addressing plume blight caused by visible plumes from nearby emission sources, but did little to reduce regional haze in the United States. When Congress again amended the CAA in 1990, it directed further research into regional haze, and mandated periodic assessments of progress toward regional haze goals. The resulting research and mandates led to the adoption on July 1, 1999, of USEPA's Final Regional Haze Rule. The Regional Haze Rule set the goal of achieving pristine visibility conditions at federal Class I areas by 2064. The Rule also addressed the visibility effects of pollution sources over a wide geographic range, and included sources from states without any Class I areas located within them.

USEPA has determined that as part of its strategy to reduce visibility impairing air pollutants, such as oxides of nitrogen ("NO_x"), sulfur dioxide ("SO₂"), and particulate matter ("PM"), that certain stationary emission sources should be subject to a Best Available Retrofit Technology ("BART") standard. BART is defined as an "emission limitation based on the degree of reduction available through the application of the best system of continuous emission reduction for each pollutant which is emitted by an existing stationary facility." 40 CFR §51.301. The sources subject to a BART standard, according to "Guidelines for BART Determinations under the Regional Haze Rule" ("BART Guidelines")² published by USEPA in July of 2005, must be one of 26 specified source categories; were in existence in August 1977; began operating after August 1962; and have the potential to emit 250 tons per year or more of any air pollutant.

In 2002, the Regional Haze Rule was challenged by the American Corn Growers Association in the United States Court of Appeals for the District of Columbia Circuit. *American Corn Growers Ass'n v. EPA*, 291 F.3d 1 (D.C. Cir. 2002). The court issued a ruling vacating the rule in part and sustaining it in part. The ruling denied the challenge to the Regional Haze Rule mandating goals of zero visibility impairment and no degradation in Class I areas, but remanded the BART requirements to the USEPA for revision. In response to the court's ruling, USEPA

promulgated final amendments to its Regional Haze Rule that specifically apply to the BART provisions of the rule. 70 Fed. Reg. 39104 (July 6, 2005).

As stated in the final BART Guidelines, “The process of establishing BART emission limitations can be logically broken down into three steps:

- (1) States identify those sources which meet the definition of ‘BART-eligible source’ set forth in 40 CFR 51.031. These sources are any which: (1) have the potential to emit 250 tons per year (“TPY”) or more of a visibility impairing air pollutant; (2) were put in place between August 7, 1962 and August 7, 1977; and (3) whose operations fall within one or more of 26 specifically listed source categories.
- (2) States determine whether such sources ‘emit [] any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility [in a Class I area.]’. A source which fits this description is ‘subject to BART.’
- (3) For each source subject to BART, states then identify the appropriate type and the level of control for reducing emissions.”

The BART Guidelines discuss how to determine whether a source “emits any pollutants which may reasonably be anticipated to cause or contribute to any visibility impairment.” For the purpose of this analysis, the Illinois EPA used CALPUFF for modeling visibility impacts, as recommended by USEPA.²

The BART Guidelines identify the following visibility-impairing pollutants: SO₂, NO_x, and PM. In addition, USEPA recommends exercising judgment in deciding whether VOC and ammonia and ammonia compounds should be considered as visibility-impairing pollutants. The guidelines also allow states to exclude visibility-impairing pollutants from consideration if they are below de minimis levels (i.e., 40 TPY for SO₂ and NO_x, and 15 TPY for PM on a source-wide basis).

The Regional Haze Rule defines BART as: "... an emission limitation based on the degree of reduction achievable through application of the best system of continuous emission reduction for each pollutant which is emitted by a [BART-eligible source]. The emission limitation must be established on a case-by-case basis, taking into consideration the technology available, the cost of compliance, the energy and non air quality environmental impacts of compliance, any pollution control equipment in use or in existence at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology." 40 CFR §51.301. Once it is determined that a source is subject to BART, these five factors must be considered to establish an emission limitation to meet the BART requirement.

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. The modeling approach used by the Illinois EPA to address BART was developed in consultation with the MRPO, the other participating MRPO states, the USEPA, and participating FLMs.

The purpose of this document is to summarize the analyses that were conducted to determine which BART-eligible stationary sources in Illinois are subject to the BART standards pursuant to the Regional Haze Rule. In addition, this document details how these sources will comply with the rule, whether by meeting a BART standard or by an alternative strategy.

2.0 BART-Eligible Sources in Illinois

According to USEPA's BART Guidelines, a source is BART-eligible if it: (1) falls into one of 26 specified source categories, (2) was "in existence" on August 7, 1977, and "in operation" on or after August 7, 1962, and (3) has potential emissions of 250 TPY or more of any visibility-impairing pollutant (i.e., SO₂, NO_x, or PM).

The Illinois EPA identified potentially eligible BART sources using a multi-step process. First, Illinois EPA identified potential BART-eligible sources based upon data available from Title V operating permits, including information on dates of operation and maximum actual emissions from a source (with a threshold of 100 TPY). Second, the Illinois EPA requested the dates of construction and potential to emit ("PTE") for individual units from all Title V sources in Illinois that fell into one of the 26 specified source categories. Table 2.1 provides the initial list of sources that operate one or more potential BART-eligible emission units. Finally, those sources found to be potentially BART-eligible were modeled using CALPUFF to determine whether the source contributes to visibility impairment. The modeling methodology, developed in cooperation with the MRPO, is detailed in Section 3 of this document.

As summarized in Table 2.1, the Illinois EPA determined that there are 26 sources in Illinois that operate emission units that are BART-eligible. Eleven of those sources are coal-fired electric generating units ("EGUs"). Of the non-EGUs, there are four petroleum refineries, three chemical process plants, two Portland cement plants, two glass fiber processing plants, one lime plant and one iron and steel plant.

Table 2.1 Initial List of BART-Eligible Sources

Source Name	County	Source ID
Big River Zinc Corp	St. Clair	163121AAK
Carmeuse Lime Inc	Cook	031600ADY
Chicago Carbon Co	Will	197803AAK
CITGO Petroleum Corp	Will	197090AAI
ConocoPhillips Co, Wood River Refinery	Madison	119090AAA
Equistar Chemicals LP	Grundy	063800AAC
ExxonMobil Oil Corp	Will	197800AAA
Illinois Cement Co	La Salle	099030AAZ
Lone Star Industries Inc	La Salle	099816AAF
Marathon Petroleum Co LLC	Crawford	033808AAB
US Steel Granite City	Madison	119813AAI
Owens-Brockway Glass Container Inc	La Salle	099490AAD
Pilkington North America Inc	La Salle	099825AAG
Aventine Renewable Energy Inc	Tazewell	179060ACR
Koppers Inc	Cook	031300AAJ
Dynegy Midwest Generation Inc - Baldwin	Randolph	157851AAA
Ameren Energy Generating Inc - Coffeen	Montgomery	135803AAA
City Water Light and Power (CWLP)	Sangamon	167120AAO
Ameren Energy Resources - Duck Creek	Fulton	057801AAA
Ameren Energy Resources – Edwards	Peoria	143805AAG
Midwest Generation LLC - Joliet	Will	197809AAO
Dominion Kincaid Generation LLC	Christian	021814AAB
Midwest Generation LLC - Powerton	Tazewell	179801AAA
Soyland Power Coop	Pike	149817AAB
Midwest Generation LLC - Will County	Will	197810AAK
Dynegy Midwest Generation Inc - Wood River	Madison	119020AAE

3.0 Visibility Modeling of BART-Eligible Sources

The Illinois EPA used modeling to support its decision on which BART-eligible sources cause or contribute to visibility impairment and are therefore subject to BART. USEPA guidance for performance of visibility modeling is set forth in the Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts compiled by the Interagency Workgroup on Air Quality Modeling (“IWAQM”)³, as well as the BART Guidelines. Based on this guidance, the MRPO developed a modeling protocol to address BART in consultation with the participating MRPO states, including Illinois, the USEPA, and participating FLMs. The approach is described in detail in the document: “Single Source Modeling to Support Regional Haze BART – Modeling Protocol,” prepared by the Lake Michigan Air Directors Consortium (“LADCO”) (March 21, 2006). This document is included as Appendix A. The Illinois EPA followed the MRPO Modeling Protocol, which was approved by USEPA, in the performance of the analyses described in this section.

To assess the likelihood that particulate matter emissions in the MRPO states cause or contribute to visibility impairment, the MRPO performed a “cumulative modeling” assessment, as allowed by the BART Guidelines. Specifically, the MRPO used the Comprehensive Air Quality Model with Extensions (“CAMx”), with all point source particulate matter emissions domain-wide set to zero to determine the contribution of particulate matter emissions to visibility impairment in the eastern United States. The MRPO demonstrated that particulate matter emissions from all point sources in the domain do not contribute to visibility impairment (impact greater than 0.5 deciviews) anywhere in the eastern United States. Since particulate matter emissions from just the BART-eligible sources represent a small fraction of the total particulate matter emissions from all point sources, the MRPO determined that the visibility impact of particulate matter emissions from just the BART-eligible sources in the MRPO states will be much less than 0.5 deciviews in any Class I area. Illinois EPA has nonetheless included PM_{2.5} emissions in the modeling of BART-eligible sources, where reliable emissions estimates were available, to determine if those sources caused adverse visibility impacts.

3.1 Modeling Methodology

The Illinois EPA modeled each BART-eligible source using the CALPUFF model on an individual unit basis. CALPUFF is a non-steady-state puff dispersion model that simulates the effects of time and space-varying meteorological conditions on pollution transport, transformation, and removal. CALPUFF consists of the plume transport model (CALPUFF), two meteorological data pre-processors (CALMM5, CALMET), an inorganic chemistry parameterization module (POSTUTIL), and the post-processor (CALPOST).^{7,8} The specific versions of the CALPUFF modeling system used for this analysis are listed in Table 3.1.

Table 3.1 CALPUFF Modeling System Versions

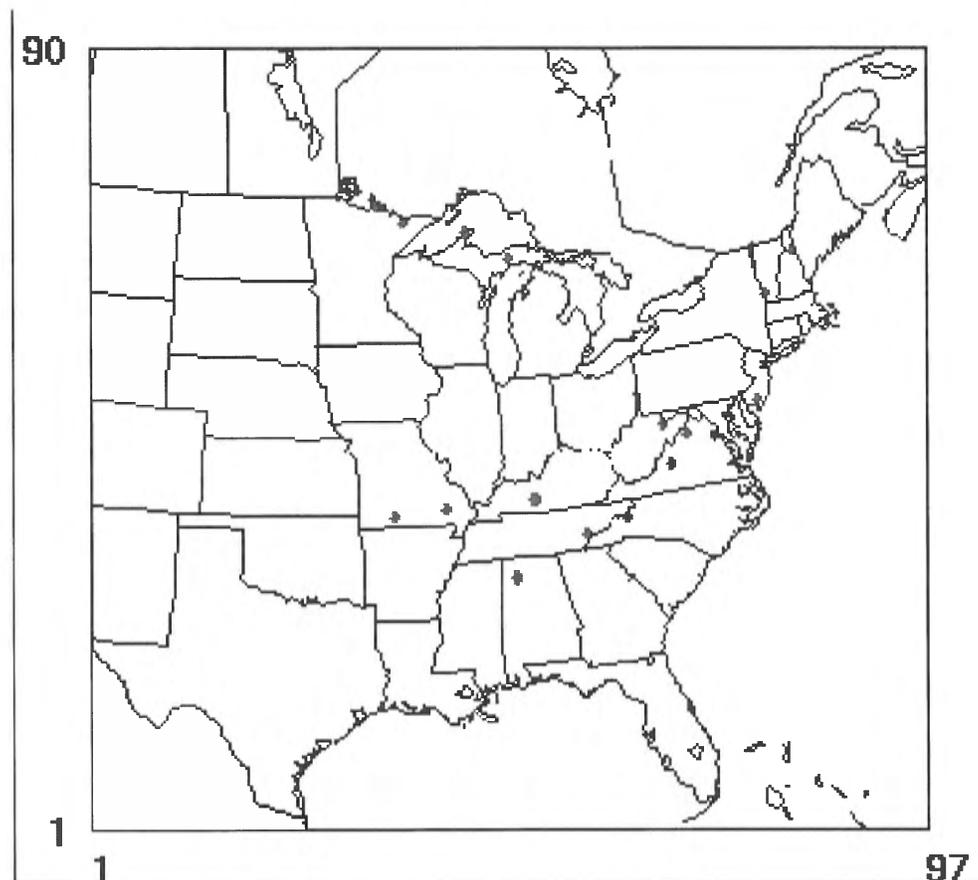
Model	Level	Version
CALPUFF	5.771a	040716
CALPOST	5.51	030709
CALMET	5.53a	040716
CALMM5	2.0	021111
POSTUTIL	1.4	040818

The CALPUFF/CALMET modeling domain used in this analysis was a Lambert conformal grid projection centered at (97 W, 40 N) with true latitudes at 33 N and 45 N and origin at (-900 km, -1620 km). The horizontal domain consists of 97 cells of 36-km in the east-west direction and 90 cells of 36 km in the north-south direction (see Figure 3.1).

The basis for meteorological files that were processed through CALMET consisted of three years of 36-km grid Fifth-Generation Mesoscale Model (“MM5”) simulations (2002-2004). The MM5 data were processed using four-dimensional data assimilation (“FDDA”), which incorporates surface and upper air observational data. The IWAQM guidance states that less than five years of meteorological data may be used if a meteorological model using FDDA is used to supply data. The Illinois EPA used three years of meteorological data developed by the MRPO using FDDA. The Illinois EPA applied CALPUFF for NO_x and SO₂ emissions from all BART units at each BART-eligible source for calendar years 2002, 2003, and 2004.

CALPUFF was applied using discrete receptor points in each Class I area with an approximate receptor resolution of one kilometer. The receptor data used to determine visibility impacts were taken from the National Park Service's ("NPS") Class I Area Receptor Index.⁴ According to the

Figure 3.1 Model Domain with Class I Areas



BART modeling guidance, receptors "...should be located in the nearest Class I area with sufficient density to identify likely visibility effects."² Table 3.2 shows the list of Class I areas and the total number of discrete receptors covering each Class I area used as the receptor field in CALPUFF. The Illinois EPA recognizes that not all Class I areas in the eastern United States are included in the modeling analysis, but the list is considered sufficient to identify maximum visibility impacts from BART sources located in Illinois and is therefore adequate for the purpose of identifying sources that are subject to BART requirements.

Table 3.2 Class I Receptor Areas and Total Discrete Receptors

Class I Area	Abbreviation	State	Discrete Receptors
Boundary Waters Canoe Area	BOWA	MN	856
Brigantine National Wildlife Refuge		NJ	16
Dolly Sods/Otter Creek Wilderness		WV	187
Great Gulf Wilderness		NH	38
Great Smoky Mountains National Park		TN	736
Hercules-Glades	HEGL	MO	80
Isle Royale National Park	ISLE	MI	966
James River Face		VA	52
Linville Gorge		NC	66
Lye Brook Wilderness		VT	103
Mammoth Cave National Park	MACA	KY	302
Mingo	MING	MO	47
Seney	SENE	MI	173
Shenandoah National Park		VA	298
Sipsy Wilderness		AL	148
Voyageurs National Park		MN	366

The daily visibility metric for each receptor is expressed as the change in deciviews compared to natural visibility conditions as outlined in the IWAQM guidance.³ Natural visibility conditions, the 20% best days, for Class I areas used in this analysis are found in Appendix B of USEPA's visibility guidance document.⁵ Annual background concentrations for the eastern United States are also given in Table 2-1 of USEPA's visibility guidance document.⁵

Having determined the natural background conditions for each Class I area, modeling was conducted to determine visibility degradation beyond natural conditions due to specific sources. The difference in visibility degradation due to a source compared with natural conditions, expressed in deciviews, is calculated for each Class I area and ranked over the length of the modeling simulation.

The CALPOST post-processing software was used to depict the output from the CALPUFF model. These plots provided initial qualitative spatial information on visual impacts from each BART-eligible source. CALPOST was used to determine the number of days at each receptor that have at least 5% degradation in light extinction (1/Mm) over background conditions, which is equivalent to 0.5 deciviews degradation.

3.2 Modeling Results

The Illinois EPA modeled each BART-eligible source listed previously in Table 2.1 using the CALPUFF model on an individual unit basis. Illinois EPA used either maximum daily or maximum hourly emission rates for SO₂ and NO_x, and specific stack parameters for each unit identified as BART-eligible, based on data supplied by affected sources. The CALPUFF modeling results are summarized in Table 3.3.

According to the BART Guidelines, a source “causes” visibility impairment if it imparts a change of visibility of at least 1.0 deciview at any Class I area, while a source “contributes” to visibility impairment if it imparts a change to visibility impairment of at least 0.5 deciviews. States are given the opportunity to enact more stringent de minimis thresholds if they choose. Illinois EPA believes that these thresholds are adequate and does not propose an alternative level. According to the BART Guidelines, the 98th percentile value should be compared to the contribution threshold to determine whether a BART-eligible source is subject to BART. If it is determined that for a given source there are more than 21 days in three years (the 98th percentile based on modeling three years) on which the source causes a 0.5 deciviews impact, or if there are more than 7 days in a single year (the 98th percentile based on modeling one year) with a 0.5 deciviews impact, then the source is subject to BART. Table 3.3 contains the maximum number of exceedances attributed to each source for the highest year at any of the Class I areas modeled, the maximum number of exceedances over the three-year period at any Class I area modeled, and the three year exceedance total for the six nearest federal Class I areas. The six Class I areas listed in Table 3.3 are those most frequently impacted by sources in Illinois. To preserve clarity in the tabular results, only these six Class I areas are listed. All of the Class I areas listed previously in Table 3.2 were included in the modeling, however.

**Table 3.3 CALPUFF Modeling Results - Number of Days
With Impacts Greater than 0.5 Deciviews at Nearby Class I Areas**

Source Category	Source Name	Max. Days		Class I Areas					
		3 Yrs	1 Yr	BOWA	HEGL	ISLE	MACA	MING	SENE
EGUs	Dynegy - Baldwin	151	57	19	67	18	104	151	43
	Dominion - Kincaid	118	50	26	48	30	118	109	59
	Ameren - Coffeen	175	68	33	95	50	166	175	75
	Ameren - Edwards	136	53	61	76	69	115	127	136
	Midwest Gen. - Powerton	93	37	43	46	43	76	72	93
	Midwest Gen. - Joliet	103	40	27	22	36	42	51	103
	CWLP	103	44	33	45	35	87	103	68
	Ameren - Duck Creek	39	17	17	16	17	31	28	39
	Midwest Gen. - Will Cty	32	16	5	2	10	6	5	32
	Dynegy - Wood River	16	6	1	4	2	7	16	4
Non-EGUs	ExxonMobil	84	35	22	18	30	30	33	84
	CITGO	52	22	8	4	14	10	14	52
	Conoco	0	0	0	0	0	0	0	0
	Aventine	0	0	0	0	0	0	0	0
	US Steel	1	1	0	1	0	0	0	0
	Marathon	0	0	0	0	0	0	0	0
	Lone Star	3	2	1	0	2	0	0	3
	Chicago Carbon	2	1	0	0	0	0	0	2
	Pilkington	0	0	0	0	0	0	0	0
	Big River	0	0	0	0	0	0	0	0
	IL Cement	0	0	0	0	0	0	0	0
	Owens Brockway	0	0	0	0	0	0	0	0
	Koppers	0	0	0	0	0	0	0	0
	Carmeuse Lime	0	0	0	0	0	0	0	0
Equistar	0	0	0	0	0	0	0	0	

Based on the results of the modeling, eleven sources in Illinois exceed the 0.5 deciview visibility impact threshold on at least 22 days over the three-year modeling timeframe, or on at least eight days in any one of the three modeled years. These sources are highlighted in red in Table 3.3

and depicted graphically in Figure 3.2. Of the eleven sources, nine are electric generating unit (“EGU”) sources and two are non-EGU sources (petroleum refineries).

As mentioned previously, the MRPO determined that the visibility impact of particulate matter emissions from all BART-eligible sources in the MRPO states will be much less than 0.5 deciviews in any Class I area. Clearly the visibility impact of particulate matter emissions from all BART-eligible sources in Illinois is therefore much less than 0.5 deciviews in any Class I area, since particulate matter emissions from BART-eligible sources in Illinois are just a fraction of those from all MRPO states. Illinois EPA has nonetheless included PM_{2.5} emissions in the modeling of BART-eligible sources, where reliable emissions estimates were available, to determine if those sources caused adverse visibility impacts. Some of the BART-eligible sources listed in Table 3.3 that were found to exceed the 0.5 deciview visibility impact threshold on fewer than 22 days over the three-year modeling timeframe, or on fewer than 8 days in any one of the three modeled years did not have reliable PM_{2.5} emission estimates at the time when the modeling was performed. To ensure that these sources would not cause a greater number of days exceeding the 0.5 deciview threshold if PM_{2.5} emissions had been included, Illinois EPA examined the impact of particulate matter emissions from the largest of those sources, the Dynegy – Wood River power plant. The modeling results reflected in Table 3.3 for this source properly considered particulate matter emissions, in combination with emissions of SO₂ and NO_x. To determine the visibility impacts of just the particulate matter emissions, the Illinois EPA ran the CALPUFF model for this source both with and without particulate matter emissions included. The modeling indicated that zeroing-out the particulate matter emissions from this source reduced by one the number of days exceeding 0.5 deciviews in two of the three years modeled. Since the Dynegy – Wood River power plant is the largest of the BART-eligible sources in Table 3.3 that has been demonstrated as not causing significant visibility impairment, and it is also closer to the nearest Class I area than the other sources (with the exception of ConocoPhillips and US Steel which are essentially the same distance), the Illinois EPA has concluded that particulate matter emissions do significantly affect the determination of sources that are subject-to-BART.

The Illinois EPA has determined that BART-eligible emission units at eleven sources in Illinois exceed the 0.5 deciview visibility impact threshold on at least 22 days over the three-year modeling timeframe, or on at least eight days in any one of the three modeled years, and are therefore subject to BART. The specific emission units at the sources that are subject to BART are listed in Table 3.4.

Figure 3.2 Illinois Sources Subject to BART



Table 3.4 List of Units Subject to BART

Source Name	Unit ID	Source Name	Unit ID
Dynegy Baldwin	Boiler #1	CITGO	Heater 115 B-2
Dynegy Baldwin	Boiler #2	CITGO	Heater 116 B-1
Dynegy Baldwin	Boiler #3	CITGO	Heater 116 B-2
Dominion Kincaid	Boiler #1	CITGO	Heater 116 B-3
Dominion Kincaid	Boiler #2	CITGO	Heater 116 B-4
Ameren Coffeen	Boiler CB-1	CITGO	Heater 118 B-1
Ameren Coffeen	Boiler CB-2	CITGO	Heater 118 B-51
Ameren Edwards	Boiler #2	CITGO	Heater 122 B-2
Ameren Edwards	Boiler #3	CITGO	Heater 123 B-5
Ameren Duck Creek	Boiler #1	CITGO	Heater 125 B-1
Midwest Gen. Powerton	Boiler #51	CITGO	Reboiler 125 B-2
Midwest Gen. Powerton	Boiler #52	CITGO	SRU 119 A train
Midwest Gen. Powerton	Boiler #61	CITGO	SRU 119 B train
Midwest Gen. Powerton	Boiler #62	CITGO	SRU 121 C train
Midwest Gen. Joliet	Boiler #71	CITGO	SRU 121 D train
Midwest Gen. Joliet	Boiler #72	ExxonMobil	South sulfur trains
Midwest Gen. Joliet	Boiler #81	ExxonMobil	FCCU
Midwest Gen. Joliet	Boiler #82	ExxonMobil	Heaters 1B1A & 1B1B
Midwest Gen. Will County	Boiler #4	ExxonMobil	Vacuum heater
CWLP	Boiler Dallman 1	ExxonMobil	Coker chg heaters (E & W)
CWLP	Boiler Dallman 2	ExxonMobil	Heater 7B1
CWLP	Boiler Lakeside 8	ExxonMobil	Aux boiler
CITGO	Heater 111B-1A	ExxonMobil	Sat gas lean oil reboiler
CITGO	Heater 111B-1B	ExxonMobil	Heater 2B3
CITGO	Heater 111B-2	ExxonMobil	Heater 2B5
CITGO	FCCU	ExxonMobil	Heater 2B4
CITGO	Heater 113 B-1	ExxonMobil	Heater 2B6
CITGO	Aux Boiler 430 B-1	ExxonMobil	Heater 2B7
CITGO	Heater 113 B-2	ExxonMobil	Reboiler 17-B-2
CITGO	Heater 114 B-1	ExxonMobil	Heater 3B1
CITGO	Heater 114 B-2	ExxonMobil	Heater 3B2
CITGO	Heater 114 B-3	ExxonMobil	Blow down East flare
CITGO	Heater 115 B-1	ExxonMobil	Blow down South flare

4.0 BART Controls in Illinois

The Regional Haze Rule defines BART as: "... an emission limitation based on the degree of reduction achievable through application of the best system of continuous emission reduction for each pollutant which is emitted by a [BART-eligible source]." 40 CFR §51.301. Once it is determined that a source is subject to BART, the following five factors must be considered to establish an emission limitation to meet the BART requirement:

1. the cost of compliance;
2. the energy and non air quality environmental impacts of compliance;
3. any pollution control equipment in use or in existence at the source;
4. the remaining useful life of the source;
5. the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.

Illinois EPA has considered these factors to determine the level of control necessary for those units and sources to meet BART.

4.1 BART Controls for Illinois EGUs

For coal-fired EGUs, the BART Guidelines provide presumptive emission limits or control levels for various boiler types and coal types. The presumptive emission limits for coal-fired EGUs are shown in Table 4.1.

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. The existing emission reduction requirements and commitments for coal-fired EGUs in Illinois that are subject-to-BART include:

- the Multi-Pollutant Standards ("MPS") and Combined Pollutant Standard ("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 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 agreement between the Illinois EPA and the City of Springfield, Illinois d/b/a City, Water, Light and Power (CWLP), to achieve BART-control levels and to shut down one of its existing subject-to-BART units.

Table 4.1 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	0.10

4.1.1 EGUs under the MPS and CPS

Three electric utilities operating in Illinois, Dynegy, Ameren, and Midwest Generation have committed to comply with the MPS and CPS under the Illinois Mercury Rule, requiring the installation of state-of-the-art pollution controls on many of their electric generating units in

Illinois. These regulations were promulgated to allow coal-fired electric utilities more flexibility in meeting the Illinois Mercury Rule in exchange for significant NO_x and SO₂ reductions. Appendix C contains the relevant portions of the fully adopted Illinois Mercury Rule, with the requirements for NO_x and SO₂ emission reductions highlighted. Illinois intends to submit Appendix C to USEPA, the highlighted portions of which will become part of Illinois' SIP to satisfy BART obligations for affected units at these three utilities. In addition, the MPS and CPS requirements will ultimately be contained in federally enforceable permits.

The MPS and CPS require affected utilities to meet fleet-wide average emission rates, which will require installation of controls on emission units regardless of whether or not they are subject to BART. The agreements between Illinois and the utilities are intended to allow the companies the flexibility to meet the fleet-wide emission limits in the most cost-effective manner. The agreements contain a range of compliance dates, beginning as early as 2012 and as late as 2019. The Illinois EPA recognizes that, in general, the compliance date for BART controls is within 5 years of USEPA's approval of the State's SIP. Assuming USEPA approves Illinois' SIP in 2011 or 2012, the compliance date for BART controls would be in 2016 or 2017. The Illinois EPA's analysis of emission reductions that will result from implementation of the MPS and CPS by the year 2015 demonstrates conclusively that Illinois' approach will yield much larger reductions of NO_x and SO₂ than will implementation of BART controls on just subject to BART emission units. Emission reductions occurring after 2015 will improve visibility in Class I areas impacted by sources in Illinois, regardless of USEPA's decision of whether to approve those reductions as meeting BART requirements. The following subsections provide Illinois EPA's analysis of the emission reductions expected from the MPS and CPS and a description of the controls that will most likely be installed as a result of the MPS and CPS.

4.1.1.1 Dynegy

Dynegy operates several electric generating stations in Illinois, all of which are affected by the requirements of the MPS. Only the three coal-fired boilers at Baldwin are subject to BART, however. Units 1 and 2 at Baldwin are cyclone-fired boilers burning sub-bituminous coal, while Unit 3 is a tangentially-fired unit burning sub-bituminous coal. Currently, Units 1 and 2 are controlled by over-fire air ("OFA") and selective catalytic reduction ("SCR") for NO_x, while

Unit 3 is controlled by low-NO_x burners and OFA. All three units are also limited by a federal consent decree which requires that by December 31, 2012 NO_x emissions cannot exceed 0.10 pounds per million British thermal units (“lb/mmBTU”) of NO_x on a 30-day rolling average. The presumptive BART emission limit for NO_x for cyclone-fired boilers is 0.10 lb/mmBTU. For tangentially-fired EGU boilers burning sub-bituminous coal, the presumptive BART emission limit for NO_x is 0.15 lb/mmBTU. Since all three units at Baldwin are required to meet 0.10 lb/mmBTU, the presumptive BART limits for NO_x will be met.

All three units at Baldwin currently use low-sulfur coal to reduce SO₂ emissions. However, Dynegy is installing dry scrubbers on all three units at Baldwin by December 31, 2012, which will allow these units to achieve SO₂ emissions levels well below the presumptive BART limit of 0.15 lb/mmBTU. Dynegy has also committed to installing baghouses for particulate control on all three units by December 31, 2012.

Tables 4.2 and 4.3 compare the emission reductions expected from Dynegy system wide from compliance with the MPS and the expected emission reductions from compliance with BART for NO_x and SO₂, respectively. USEPA requires that BART controls be installed within five years from the date the State’s BART SIP is approved. Accordingly, Tables 4.2 and 4.3 compare expected emissions reductions from the MPS with the reductions that would be achieved from the subject to BART units meeting the presumptive BART emission limits for the year 2015. The Illinois EPA has estimated that compliance with the MPS will reduce NO_x emissions from Dynegy system wide by 23,831 TPY compared to 2002 emissions levels, and will reduce SO₂ emissions system wide by 47,347 TPY compared to 2002 emissions levels. Applying presumptive BART controls to just the units at Baldwin that are subject to BART will yield NO_x reductions of 16,169 TPY, and SO₂ reductions of 16,658 TPY. Compliance with the MPS on a system-wide basis will therefore yield much larger reductions of NO_x and SO₂ than will the application of BART.

Table 4.2 NO_x reductions from Dynegy EGUs BART vs. MPS

Plant	Unit	Base Year			Presumptive BART		MPS 2015*		MPS Final*	
		1000 mmBTU	Lbs/mmBTU	Tons	Lbs/mmBTU	Tons/Year Reduction	Lbs/mmBTU	Tons/Year Reduction	Lbs/mmBTU	Tons/Year Reduction
Baldwin	1	43,884	0.55	12,119	0.10	9,925	0.10	9,925	0.10	9,925
Baldwin	2	37,135	0.4	7,405	0.10	5,548	0.10	5,548	0.10	5,548
Baldwin	3	46,403	0.12	2,850	0.15	-696	0.10	464	0.10	464
Havana	9	28,514	0.27	3,901	NA	NA	0.10	2,424	0.10	2,424
Hennepin	1	4,684	0.32	760	NA	NA	0.10	515	0.10	515
Hennepin	2	17,575	0.33	2,862	NA	NA	0.10	2,021	0.10	2,021
Vermilion	1	5,311	0.37	986	NA	NA	0.10	717	0.10	717
Vermilion	2	6,741	0.37	1,231	NA	NA	0.10	910	0.10	910
Wood River	4	5,561	0.19	521	NA	NA	0.10	250	0.10	250
Wood River	5	17,611	0.22	1,903	NA	NA	0.10	1,057	0.10	1,057
			0.324			16,169		23,831		23,831

*The MPS emission limits are a system-wide average and are not intended to reflect unit-specific emission limits.

Table 4.3 SO₂ reductions from Dynegy EGUs BART vs. MPS

Plant	Unit	Base Year			Presumptive BART		MPS 2015*		MPS Final*	
		1000 mmBTU	Lbs/mmBTU	Tons	Lbs/mmBTU	Tons/Year Reduction	Lbs/mmBTU	Tons/Year Reduction	Lbs/mmBTU	Tons/Year Reduction
Baldwin	1	43,884	0.41	9,053	0.15	5,705	0.19	4,827	0.19	4,827
Baldwin	2	37,135	0.39	7,283	0.15	4,456	0.19	3,714	0.19	3,714
Baldwin	3	46,403	0.43	9,931	0.15	6,496	0.19	5,568	0.19	5,568
Havana	9	28,514	0.9	12,815	NA	NA	0.19	10,122	0.19	10,122
Hennepin	1	4,684	0.43	1,000	NA	NA	0.19	562	0.19	562
Hennepin	2	17,575	0.43	3,792	NA	NA	0.19	2,109	0.19	2,109
Vermilion	1	5,311	2.75	7,293	NA	NA	0.19	6,798	0.19	6,798
Vermilion	2	6,741	2.74	9,224	NA	NA	0.19	8,595	0.19	8,595
Wood River	4	5,561	0.55	1,536	NA	NA	0.19	1,001	0.19	1,001
Wood River	5	17,611	0.65	5,726	NA	NA	0.19	4,051	0.19	4,051
			0.634			16,658		47,347		47,347

*The MPS emission limits are a system-wide average and are not intended to reflect unit-specific emission limits.

4.1.1.2 Ameren

Ameren operates EGUs at six locations in Illinois: Hutsonville, Newton, Coffeen, Meredosia, Duck Creek, and Edwards. Three of these, Coffeen, Duck Creek, and Edwards have at least some BART-eligible units.

Coffeen

There are two units at Coffeen, both of which are subject to BART. They are both cyclone-type units firing a blend of bituminous and sub-bituminous coals. NO_x emissions from both units are already controlled using SCRs. Ameren installed wet scrubbers on both units in 2009.

Duck Creek

The single unit at Duck Creek is subject to BART. It is a dry-bottom wall-fired unit burning bituminous coal. The unit is controlled by an SCR in addition to low-NO_x burners for NO_x control. Ameren installed a wet scrubber in 2009.

Edwards

Ameren operates three units at the Edwards facility, two of which (Units 2 and 3) are subject to BART. Both units are dry-bottom wall-fired units that burn sub-bituminous coal. Unit 2 has low-NO_x burners, which Ameren plans to upgrade with a new low-NO_x burner/OFA system. NO_x is currently being controlled at Unit 3 with an SCR and low-NO_x burners. Ameren is expected to install a new scrubber, along with a baghouse for particulate control, on Unit 3 by January 2014. Ameren is relying on system-wide reductions required by the MPS to meet BART at Edwards.

For Ameren system wide, the MPS will provide substantially greater source-wide reductions of NO_x and SO₂ by 2015 than would be achieved by just requiring subject-to-BART units to meet the presumptive BART emission limits. As shown in Tables 4.4 and 4.5, the MPS will lead to fleet-wide reductions of almost 28,000 TPY of NO_x, and more than 131,000 TPY of SO₂ by 2015, which is much greater than would be achieved by subject-to-BART units meeting presumptive BART emission limits.

Table 4.4 NO_x reductions from Ameren EGUs BART vs. MPS

Plant	Unit	Base Year			Presumptive BART		MPS 2015*		MPS Final*		
		1000 mmBTU	Lbs/ mmBTU	Tons	Lbs/ mmBTU	Tons/Year Reduction	Lbs/ mmBTU	Tons/Year Reduction	Lbs/ mmBTU	Tons/Year Reduction	
Coffeen	1	18,570	0.53	4,918	0.10	3,990	0.11	3,900	0.11	3,900	
Coffeen	2	37,545	0.5	9,422	0.10	7,545	0.11	7,321	0.11	7,321	
Duck Creek	1	22,635	0.47	5,328	0.39	905	0.11	4,074	0.11	4,074	
E D Edwards	1	6,417	0.41	1,306	NA	NA	0.11	963	0.11	963	
E D Edwards	2	17,222	0.45	3,901	0.23	1,894	0.11	2,928	0.11	2,928	
E D Edwards	3	15,972	0.46	3,639	0.23	1,837	0.11	2,795	0.11	2,795	
Hutsonville	5	3,161	0.57	897	NA	NA	0.11	727	0.11	727	
Hutsonville	6	3,443	0.52	902	NA	NA	0.11	706	0.11	706	
Joppa	1	13,548	0.13	876	NA	NA	0.11	135	0.11	135	
Joppa	2	16,258	0.13	1,048	NA	NA	0.11	163	0.11	163	
Joppa	3	15,396	0.13	1,030	NA	NA	0.11	154	0.11	154	
Joppa	4	13,402	0.13	904	NA	NA	0.11	134	0.11	134	
Joppa	5	15,094	0.12	939	NA	NA	0.11	75	0.11	75	
Joppa	6	16,063	0.12	999	NA	NA	0.11	80	0.11	80	
Meredosia	1	1,134	0.51	292	NA	NA	0.11	227	0.11	227	
Meredosia	2	1,337	0.5	336	NA	NA	0.11	261	0.11	261	
Meredosia	3	1,069	0.51	271	NA	NA	0.11	214	0.11	214	
Meredosia	4	1,406	0.51	357	NA	NA	0.11	281	0.11	281	
Meredosia	5	10,810	0.47	2,524	NA	NA	0.11	1,946	0.11	1,946	
Newton	1	40,631	0.15	3,037	NA	NA	0.11	813	0.11	813	
Newton	2	38,533	0.11	2,215	NA	NA	0.11	0	0.11	0	
			0.292				16,171			27,896	27,896

*The MPS emission limits are a system-wide average and are not intended to reflect unit-specific emission limits.

Table 4.5 SO₂ reductions from Ameren EGUs BART vs. MPS

Plant	Unit	Base Year			Presumptive BART		MPS 2015*		MPS Final*	
		1000 mmBTU	Lbs/mmBTU	Tons	Lbs/mmBTU	Tons/Year Reduction	Lbs/mmBTU	Tons/Year Reduction	Lbs/mmBTU	Tons/Year Reduction
Coffeen	1	18,570	1.54	14,332	0.15	12,906	0.25	11,978	0.23	12,163
Coffeen	2	37,545	1.49	27,999	0.15	25,155	0.25	23,278	0.23	23,653
Duck Creek	1	22,635	0.97	11,026	0.15	9,280	0.25	8,149	0.23	8,375
E D Edwards	1	6,417	3.55	11,399	NA	NA	0.25	10,588	0.23	10,652
E D Edwards	2	17,222	1.7	14,666	0.15	13,347	0.25	12,486	0.23	12,658
E D Edwards	3	15,972	1.21	9,683	0.15	8,465	0.25	7,667	0.23	7,826
Hutsonville	5	3,161	4.53	7,163	NA	NA	0.25	6,765	0.23	6,796
Hutsonville	6	3,443	4.53	7,791	NA	NA	0.25	7,368	0.23	7,402
Joppa	1	13,548	0.51	3,441	NA	NA	0.25	1,761	0.23	1,897
Joppa	2	16,258	0.51	4,139	NA	NA	0.25	2,114	0.23	2,276
Joppa	3	15,396	0.51	3,947	NA	NA	0.25	2,001	0.23	2,155
Joppa	4	13,402	0.52	3,488	NA	NA	0.25	1,809	0.23	1,943
Joppa	5	15,094	0.52	3,932	NA	NA	0.25	2,038	0.23	2,189
Joppa	6	16,063	0.52	4,182	NA	NA	0.25	2,169	0.23	2,329
Meredosia	1	1,134	5.02	2,844	NA	NA	0.25	2,705	0.23	2,716
Meredosia	2	1,337	5.02	3,356	NA	NA	0.25	3,189	0.23	3,202
Meredosia	3	1,069	5.04	2,694	NA	NA	0.25	2,560	0.23	2,571
Meredosia	4	1,406	5	3,518	NA	NA	0.25	3,339	0.23	3,353
Meredosia	5	10,810	2.34	12,639	NA	NA	0.25	11,296	0.23	11,405
Newton	1	40,631	0.45	9,046	NA	NA	0.25	4,063	0.23	4,469
Newton	2	38,533	0.46	8,823	NA	NA	0.25	4,046	0.23	4,431
		1.099			69,154		131,367		134,464	

*The MPS emission limits are a system-wide average and are not intended to reflect unit-specific emission limits.

4.1.1.3 Midwest Generation

Midwest Generation operates 19 coal-fired EGUs at six separate locations in Illinois. Nine of these units, located at Powerton, Joliet, and Will County, are subject to BART.

Powerton

All four units at the Powerton station are subject to BART. All four units are cyclone-type boilers firing sub-bituminous coal and vent to a common stack. Current NO_x control for all units

consists of low-NO_x burners and OFA. Midwest Generation is expected to install selective non-catalytic reduction (SNCR) controls on all four units by 2012. The units currently burn low-sulfur coal to control for SO₂, but Midwest Generation currently plans to install flue gas desulfurization (FGD) equipment by the end of 2013 on all four units.

Joliet

Four of the five units (Units 71, 72, 81, and 82) at the Joliet facility are subject to BART. The four units of interest are all tangentially-fired boilers burning sub-bituminous coal. Current NO_x controls for Boilers 71, 72, 81, and 82 consist of low-NO_x burners and OFA. Midwest Generation is expected to install SNCR controls on these four units by 2012. For SO₂, Midwest Generation is expected to install FGD equipment on all four BART units at Joliet by 2019.

Will County

Of the four units at the Will County plant, only Unit 4 is subject to BART. Unit 4 is tangentially fired and burns sub-bituminous coal. NO_x emissions from Unit 4 are currently controlled by low-NO_x burners and OFA. Midwest Generation is expected to install an SNCR on this unit by 2012. For SO₂, Midwest Generation is expected to install FGD equipment by 2019.

It should be noted that under the CPS, Midwest Generation is not required to meet unit specific emission limits for NO_x or SO₂, and that the anticipated CPS emission estimates given in Tables 4.6 and 4.7 reflect the fleet-wide average emissions for all units. Tables 4.6 and 4.7 show that the CPS will lead to system-wide reductions of more than 38,000 TPY of NO_x and more than 35,000 TPY of SO₂ by 2015, which are much greater than the reductions that would be achieved by meeting the presumptive BART emission levels at the subject-to-BART units.

4.1.2 Other Illinois EGUs

The MPS and CPS requirements do not apply to Dominion Kincaid or to CWLP. The Illinois EPA has negotiated separate agreements with these companies to address the BART requirements. Consistent with these agreements, both plants have either installed controls or plan to install controls that will meet or exceed the presumptive BART limits. Unit-specific requirements for these sources are contained in federally-enforceable permits, which are included

as part of Illinois' SIP submittal. The individual BART-eligible units at each source are described in the following sections.

Table 4.6 NO_x reductions from Midwest Generation EGUs BART vs. MPS

Plant	Unit	Base Year			Presumptive BART		CPS 2015*		CPS Final*	
		1000 mmBTU	Lbs/mmBTU	Tons	Lbs/mmBTU	Tons/Year Reduction	Lbs/mmBTU	Tons/Year Reduction	Lbs/mmBTU	Tons/Year Reduction
Crawford	7	11,627	0.2	1,187	NA	NA	0.11	523	0.11	523
Crawford	8	17,348	0.19	1,663	NA	NA	0.11	694	0.11	694
Fisk	19	14,650	0.34	2,463	NA	NA	0.11	1,685	0.11	1,685
Joliet 29	71	15,034	0.12	871	0.15	-226	0.11	75	0.11	75
Joliet 29	72	13,824	0.12	816	0.15	-207	0.11	69	0.11	69
Joliet 29	81	15,585	0.13	1,049	0.15	-156	0.11	156	0.11	156
Joliet 29	82	15,403	0.14	1,073	0.15	-77	0.11	231	0.11	231
Joliet 9	5	14,369	0.36	2,562	NA	NA	0.11	1,796	0.11	1,796
Powerton	51	20,936	0.73	7,594	0.10	6,547	0.11	6,490	0.11	6,490
Powerton	52	21,137	0.73	7,695	0.10	6,638	0.11	6,552	0.11	6,552
Powerton	61	18,293	0.66	5,995	0.10	5,080	0.11	5,031	0.11	5,031
Powerton	62	18,088	0.66	5,936	0.10	5,031	0.11	4,974	0.11	4,974
Waukegan	17	7,502	0.63	2,365	NA	NA	0.11	1,951	0.11	1,951
Waukegan	7	16,117	0.14	1,092	NA	NA	0.11	242	0.11	242
Waukegan	8	21,950	0.14	1,488	NA	NA	0.11	329	0.11	329
Will County	1	9,398	0.85	4,000	NA	NA	0.11	3,477	0.11	3,477
Will County	2	8,293	0.8	3,310	NA	NA	0.11	2,861	0.11	2,861
Will County	3	15,559	0.17	1,300	NA	NA	0.11	467	0.11	467
Will County	4	27,585	0.15	2,009	0.15	0	0.11	552	0.11	552
		0.360			22,630		38,155		38,155	

*The CPS emission limits are a system-wide average and are not intended to reflect unit-specific emission limits.

Table 4.7 SO₂ reductions from Midwest Generation EGUs BART vs. MPS

Plant	Unit	Base Year			Presumptive BART		CPS 2015*		CPS Final*		
		1000 mmBTU	Lbs/ mmBTU	Tons	Lbs/ mmBTU	Tons/Year Reduction	Lbs/ mmBTU	Tons/Year Reduction	Lbs/ mmBTU	Tons/Year Reduction	
Crawford	7	11,627	0.54	3,142	NA	NA	0.28	1,512	0.11	2,500	
Crawford	8	17,348	0.51	4,453	NA	NA	0.28	1,995	0.11	3,470	
Fisk	19	14,650	0.52	3,843	NA	NA	0.28	1,758	0.11	3,003	
Joliet 29	71	15,034	0.7	5,276	0.15	4,134	0.28	3,157	0.11	4,435	
Joliet 29	72	13,824	0.7	4,828	0.15	3,802	0.28	2,903	0.11	4,078	
Joliet 29	81	15,585	0.68	5,300	0.15	4,130	0.28	3,117	0.11	4,442	
Joliet 29	82	15,403	0.68	5,260	0.15	4,082	0.28	3,081	0.11	4,390	
Joliet 9	5	14,369	0.63	4,559	NA	NA	0.28	2,515	0.11	3,736	
Powerton	51	20,936	0.42	4,444	0.15	2,826	0.28	1,466	0.11	3,245	
Powerton	52	21,137	0.43	4,497	0.15	2,959	0.28	1,585	0.11	3,382	
Powerton	61	18,293	0.43	3,964	0.15	2,561	0.28	1,372	0.11	2,927	
Powerton	62	18,088	0.43	3,909	0.15	2,532	0.28	1,357	0.11	2,894	
Waukegan	17	7,502	0.44	1,642	NA	NA	0.28	600	0.11	1,238	
Waukegan	7	16,117	0.47	3,754	NA	NA	0.28	1,531	0.11	2,901	
Waukegan	8	21,950	0.49	5,385	NA	NA	0.28	2,305	0.11	4,171	
Will County	1	9,398	0.42	1,969	NA	NA	0.28	658	0.11	1,457	
Will County	2	8,293	0.39	1,617	NA	NA	0.28	456	0.11	1,161	
Will County	3	15,559	0.47	3,636	NA	NA	0.28	1,478	0.11	2,801	
Will County	4	27,585	0.47	6,462	0.15	4,414	0.28	2,621	0.11	4,965	
			0.515				31,440			35,465	61,194

*The CPS emission limits are a system-wide average and are not intended to reflect unit-specific emission limits.

4.1.2.1 CWLP

The subject-to-BART units at CWLP are Dallman 31, Dallman 32, and Lakeside 8. CWLP shut down the Lakeside unit in 2009. The Dallman 31 and 32 units are cyclone boilers and burn bituminous coal. CWLP currently operates SCRs and scrubbers on both Dallman units. It should be noted that CWLP's generating capacity is less than 750 MW, so the presumptive BART emission limits shown in Table 4.1 do not apply. Rather, the BART rule requires that such units operate SCRs, or equivalent controls, to control NO_x emissions on an annual basis. For SO₂, the BART rule requires 95% emissions reduction.

CWLP has agreed to operate SCRs on the two subject-to-BART units to meet an annual average emissions rate of 0.12 lb/mmBTU by 2015. CWLP also agreed to meet a NO_x emission rate of 0.11 lb/mmBTU by 2017. The Illinois EPA considers the operation of SCRs on the two subject-to-BART units at CWLP at the emission rates contained in the agreement between CWLP and the Illinois EPA to be sufficient to meet the BART requirement. For SO₂, the scrubbers on the Dallman units will achieve greater than 95% emissions reductions, which will meet the presumptive BART requirement for boilers burning bituminous coal (historical average sulfur content of 6.0 lbs/mmBTU). Tables 4.8 and 4.9 reflect the reductions expected from operation of these controls by 2015, and demonstrate that CWLP will achieve emission reductions for NO_x and SO₂, respectively, which meet or exceed the presumptive BART control requirements.

Table 4.8 NO_x Reductions from CWLP - BART vs. MOU

Plant	Unit	Base Year 2002			Presumptive BART		MOU 2015*		MOU Final*	
		1000 mmBTU	Lbs/mmBTU	Tons	Lbs/mmBTU	Tons/Year Reduction	Lbs/mmBTU	Tons/Year Reduction	Lbs/mmBTU	Tons/Year Reduction
Dallman	31	4,528	1.10	2,484	0.12	2,212	0.12	2,212	0.11	2,235
Dallman	32	4,787	1.11	2,654	0.12	2,366	0.12	2,366	0.11	2,391
Lakeside	8	1,593	0.94	749	0.12	653	0	749	0	749
						5,231		5,327		5,375

*The emission limit is an average between Dallman Units 31 and 32. The emission limits shown here are not intended to reflect unit-specific emission limits.

Table 4.9 SO₂ Reductions from CWLP - BART vs. MOU

Plant	Unit	Base Year 2002			Presumptive BART		MOU 2015*		MOU Final*	
		1000 mmBTU	Lbs/mmBTU	Tons	Lbs/mmBTU	Tons/Year Reduction	Lbs/mmBTU	Tons/Year Reduction	Lbs/mmBTU	Tons/Year Reduction
Dallman	31	4,528	0.33	753	0.30	74	0.25	187	0.23	232
Dallman	32	4,787	0.35	835	0.30	117	0.25	236	0.23	284
Lakeside	8	1,593	5.47	4,358	0.30	4,119	0	4,358	0	4,358
						4,310		4,781		4,875

* The emission limit is an average between Dallman Units 31 and 32. The emission limits shown here are not intended to reflect unit-specific emission limits.

4.1.2.2 Dominion Kincaid

Both boilers at Dominion's Kincaid facility are subject to BART. The two boilers are cyclones and both burn sub-bituminous coal. Dominion currently operates SCRs on both units at Kincaid to control NO_x emissions, which, when operated on an annual basis, will meet the presumptive BART control requirement for cyclone boilers. There are currently no controls in place to reduce emissions of SO₂. The original agreement between Dominion and the Illinois EPA required that SO₂ emissions be reduced at Kincaid from the current rate of 0.46 lbs/mmBTU to a rate of 0.20 lbs/mmBTU by January 1, 2014, and to 0.18 lbs/mmBTU by January 1, 2017. This emission rate did not meet the presumptive BART emission limit of 0.15 lb/mmBTU. Rather, Dominion conducted a site-specific BART analysis for the Kincaid plant, including a control technology review and CALPUFF modeling to assess the visibility impacts of several control alternatives. Dominion's site-specific analysis for the Kincaid plant is included as Appendix D.

In subsequent discussions, Dominion agreed to further reduce SO₂ emissions at the Kincaid plant to a rate of 0.15 lbs/mmBTU, which meets the presumptive BART emissions limit. Dominion has also agreed to meet the NO_x emission rate of 0.07 lbs/mmBTU, in accordance with the original agreement with Illinois EPA. This emission rate is considerably more stringent than the presumptive BART emission limit of 0.10 lbs/mmBTU. The final agreement between Dominion and the Illinois EPA requires the two subject-to-BART units at Kincaid to meet a NO_x emission rate of 0.07 lbs/mmBTU on a year-round basis beginning March 1, 2013, and that SO₂ emissions be reduced from the current rate of 0.46 lbs/mmBTU to a rate of 0.20 lbs/mmBTU by January 1, 2014, and to 0.15 lbs/mmBTU by January 1, 2017.

Dominion's site-specific analysis included a modeling analysis addressing the visibility impacts of the Kincaid plant at the two closest Class I areas, the Mingo National Wildlife Refuge in Missouri and at Mammoth Cave in Kentucky. The NO_x and SO₂ emission rates used in this modeling analysis reflected the original agreement between the Illinois EPA and Dominion. Dominion's modeling analysis also used a modeling methodology that was different from the methodology used by Illinois EPA in the CALPUFF modeling described in Section 3.0 of this report. The Illinois EPA has performed additional modeling, using the federally-approved modeling protocol, to assess the visibility improvements of both the original and the revised

agreements, and on an expanded list of Class I areas potentially impacted by the Kincaid plant. The list of Class I areas included in Illinois EPA's analysis is listed in Table 3.3. The results of this analysis are shown in Table 4.10.

The results shown in Table 4.10 compare the number of days exceeding the 0.5 deciview threshold at Class I areas for the following scenarios: NO_x and SO₂ emissions at Kincaid meeting the presumptive BART emission limits of 0.10 and 0.15 lbs/mmBTU, respectively; NO_x and SO₂ emissions at Kincaid meeting the emission limits of 0.07 and 0.18 lbs/mmBTU, respectively per the original agreement; and NO_x and SO₂ emissions at Kincaid meeting the emission limits of 0.07 and 0.15 lbs/mmBTU, respectively per the final agreement. The maximum number of days exceeding the 0.5 deciview threshold in any single year and the total number of days in all three years modeled are shown in the table. Only those Class I areas with days exceeding the threshold are listed in the table, in other words, all other modeled Class I areas were predicted to have no days exceeding 0.5 deciviews in either scenario. Comparing the number of days exceeding 0.5 deciviews between presumptive BART controls and the two control scenarios, the results demonstrate that Dominion's original control plan resulted in generally equivalent visibility improvements than would be expected from controls meeting the presumptive BART emission limits. At Mammoth Cave and Isle Royale, Dominion's original control plan resulted in fewer days exceeding 0.5 deciviews, compared to presumptive BART, but the presumptive BART scenario resulted in fewer days exceeding 0.5 deciviews at Mingo and Hercules Glade. The modeling results for the final agreement demonstrate visibility improvements at Mammoth Cave, Mingo, Seney, Isle Royale, and Hercules Glade, compared to both the presumptive BART scenario and the original agreement. At all other Class I areas, there is no difference in the number of days exceeding the threshold between the scenarios modeled. The Illinois EPA concludes that the modeling results demonstrate that Dominion's final control plan for the Kincaid facility will provide greater visibility improvements than the presumptive BART emission limits.

Table 4.10 Comparison of Visibility Impacts from Dominion Kincaid Emissions Control Scenarios – Number of Days with Impacts Greater Than 0.5 Deciviews

Class I Area	Presumptive BART		Original Agreement		Final Agreement	
	1 year	3 years	1 year	3 years	1 year	3 years
Mammoth Cave	5	9	4	7	4	5
Mingo	1	3	2	5	1	2
Seney	2	3	2	3	1	2
Isle Royale	2	3	1	2	1	1
Hercules Glade	1	1	1	2	0	0
Boundary Waters	1	1	1	1	1	1
Great Gulf	1	1	1	1	1	1

Tables 4.11 and 4.12 compare the emission reductions expected from Dominion’s final control plan and the emission reductions that would occur from compliance with the presumptive BART emission limits for NO_x and SO₂. As shown in the tables, expected NO_x emission reductions from Dominion’s final control plan exceed the reductions that would occur from implementation of presumptive BART by more than 900 TPY. Expected SO₂ emission reductions from Dominion Kincaid’s final control plan meet presumptive BART and greatly exceed the reductions expected in the original agreement with the Illinois EPA. Since air quality modeling has adequately demonstrated that the final control plan will result in greater visibility improvements than will the presumptive BART emission limits, the Illinois EPA believes the final control plan meets the BART requirement for the Kincaid facility.

Table 4.11 NO_x Reductions from Dominion - BART vs. MOU

Plant	Unit	Base Year 2002			Presumptive BART		Final Agreement	
		1000 mmBTU	Lbs/mmBTU	Tons	Lbs/mmBTU	Tons/Year Reduction	Lbs/mmBTU	Tons/Year Reduction
Kincaid	1	32,265	0.64	10,300	0.10	8,686	0.07	9,171
Kincaid	2	32,238	0.66	10,605	0.10	8,993	0.07	9,476
						17,679		18,648

* The emission limit is an average between Kincaid Units 1 and 2. The emission limits shown here are not intended to reflect unit-specific emission limits.

Table 4.12 SO₂ Reductions from Dominion - BART vs. Final Agreement

Plant	Unit	Base Year 2002			Presumptive BART		Final Agreement 2015*		Final Agreement 2017*	
		1000 mmBTU	Lbs/mmBTU	Tons	Lbs/mmBTU	Tons/Year Reduction	Lbs/mmBTU	Tons/Year Reduction	Lbs/mmBTU	Tons/Year Reduction
Kincaid	1	32,265	0.55	8,873	0.15	6,453	0.20	5,646	0.15	6,453
Kincaid	2	32,238	0.54	8,704	0.15	6,286	0.20	5,480	0.15	6,286
						12,739		11,126		12,739

*The The emission limit is an average between Kincaid Units 1 and 2. The emission limits shown here are not intended to reflect unit-specific emission limits.

4.2 BART Controls for Non-EGUs

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 in Lemont and the ExxonMobil refinery south of Joliet. 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. The consent decrees for ExxonMobil and CITGO are included in this document as Appendices E and F, respectively. The following subsections describe the requirements established by the consent decrees for these sources.

4.2.1 CITGO

The burners and heaters that are subject to BART are required by the consent decree to burn fuel gas having no more than 0.1 grains per dry standard cubic foot of hydrogen sulfide, consistent with Standards of Performance for New Stationary Sources (NSPS) Subpart J limits. (40 CFR §60.100) The Fluid Catalytic Cracking Unit (FCCU) has an SCR/wet gas scrubber system that began operation early in 2008. The FCCU controls will reduce SO₂ by more than 85% and NO_x by at least 90%. In 2008, a tail gas recovery unit was installed to control SO₂ emissions from the 119A and 119B sulfur trains. Units 119A and 119B had previously been uncontrolled. These controls have reduced SO₂ from each train by about 98%, reducing the emissions to below the NSPS Subpart J limit of 250 parts per million of volume (“ppmv”) of SO₂. Tables 4.13 and 4.14 compare expected emissions for NO_x and SO₂, respectively, from the application of controls on

units that are subject to BART, and on units affected by the consent decree. On a source-wide basis, the consent decree will decrease NO_x emissions by more than 1,200 TPY, and will decrease SO₂ emissions by more than 15,000 TPY. The Illinois EPA considers the requirements of the consent decree to be sufficient to meet the requirements for BART for the CITGO refinery.

4.2.2 ExxonMobil

As with CITGO, the combustion units at ExxonMobil are required by the consent decree to fire fuel gas that complies with NSPS Subpart J. The FCCU and the south sulfur recovery unit are the largest remaining emission units that are subject to BART. The FCCU is controlled by a wet gas scrubber installed in 2008. ExxonMobil is required under the consent decree to install and operate an SCR to control NO_x emissions from the FCCU by 2011. The south sulfur recovery unit now operates with a tail gas recovery unit installed in 2008, which reduces emissions of SO₂ to below the NSPS Subpart J limit of 250 ppmv of SO₂. Tables 4.15 and 4.16 compare expected emissions reductions for NO_x and SO₂, respectively, from the application of controls on units that are subject to BART, and on units affected by the consent decree. On a source-wide basis, the consent decree will decrease NO_x emissions by more than 1,600 TPY, and will decrease SO₂ emissions by more than 18,000 TPY. The Illinois EPA considers the requirements of the consent decree to be sufficient to meet the requirements for BART for the ExxonMobil refinery.

Table 4.13 NO_x Reductions from CITGO - BART vs. Consent Decree

Point	Unit #	2002 Base	BART Controls		Consent Decree 2013	
		Tons	Tons	Tons/Year Reduction	Tons	Tons/Year Reduction
3	ATMOSPHERIC HEATER 111B-1A	92.84	56.16	36.68	56.16	36.68
4	ATMOSPHERIC HEATER 111B-1B	74.55	56.16	18.39	56.16	18.39
5	CRUDE VACUUM HEATER 111B-2	9.36	9.36	0	9.36	0
7	FCCU CATALYST REGENERATION 112D-1	1065.67	106.57	959.10	106.57	959.10
11	COKER CHARGE HEATER 113B-1	12.74	12.74	0	12.74	0
19	CHARGE HEATER & STABILIZER REBOILER 116B-1	107.67	28.7	79.0	28.7	79.0
21	HOT OIL HEATER 118B-1	10.36	10.36	0	10.36	0
31	FEED HEATER 125B-1	6.45	6.45	0	6.45	0
37	AUXILIARY BOILER 430B-1	167.11	35.35	131.76	35.35	131.76
64	COKER CHARGE HEATER 113B-2	12.44	12.44	0	12.44	0
66	INTERHEATER & NAPHTHA STRIPPER REBOILER 116B-2	58.75	15.67	43.08	15.67	43.08
74	STRIPPER REBOILER 125B-2	18.21	18.21	0	18.21	0
215	CLAUS SULFUR RECOVERY UNITS 119A & B	9.56	9.56	0	9.56	0
216	CLAUS SULFUR RECOVERY UNITS 121C & D	10.38	10.38	0	10.38	0
				1268.01	1268.01	

Table 4.14 SO₂ Reductions from CITGO - BART vs. Consent Decree

Point	Unit #	2002 Base	BART controls		Consent Decree 2013	
		Tons	Tons	Tons/Year Reduction	Tons	Tons/Year Reduction
3	ATMOSPHERIC HEATER 111B-1A	4.93	4.93	0	4.93	0
4	ATMOSPHERIC HEATER 111B-1B	4.27	4.27	0	4.27	0
5	CRUDE VACUUM HEATER 111B-2	2.83	2.83	0	2.83	0
7	FCCU CATALYST REGENERATION 112D-1	10982.50	107.91	10874.59	107.91	10874.59
11	COKER CHARGE HEATER 113B-1	2.10	2.1	0	2.1	0
19	CHARGE HEATER & STABILIZER REBOILER 116B-1	3.76	3.76	0	3.76	0
21	HOT OIL HEATER 118B-1	1.16	1.16	0	1.16	0
31	FEED HEATER 125B-1	1.14	1.14	0	1.14	0
37	AUXILIARY BOILER 430B-1	5.68	5.68	0	5.68	0
38	BOILER #19	1.93	NA	NA	0	1.93
64	COKER CHARGE HEATER 113B-2	2.09	2.09	0	2.09	0
66	INTERHEATER & NAPHTHA STRIPPER REBOILER 116B-2	2.06	2.06	0	2.06	0
74	STRIPPER REBOILER 125B-2	2.97	2.97	0	2.97	0
215	CLAUS SULFUR RECOVERY UNITS 119A & B	4339.96	91.2	4248.76	91.2	4248.76
216	CLAUS SULFUR RECOVERY UNITS 121C & D	2.52	2.52	0	2.52	0
				15123.35	15125.28	

Table 4.15 NO_x Reductions from ExxonMobil - BART vs. Consent Decree

Point	Unit #	2002 Base	BART controls		Consent Decree 2011	
		Tons	Tons	Tons/Year Reduction	Tons	Tons/Year Reduction
2	AUX BOILER	19.61	19.61	0	19.61	0
4	REFINERY WASTE GAS BLOWDOWN SYSTEM AND 2 FLARES	810.3	810.3	*	810.3	*
12	SAT GAS LEAN OIL REBOILER	24.4	24.4	0	24.4	0
13	SULFUR TRAINS INCLUDING SULFUR PIT AND LOADING RACK	12.49	12.49	0	12.49	0
15	FLUID CATALYTIC CRACKING UNIT	1818.02	181.80	1636.22	181.80	1636.22
18	CRUDE UNIT HEATERS (#1B1A AND #1B1B)	288.72	288.72	0	288.72	0
19	CRUDE UNIT VACUUM HEATER	114.61	114.61	0	114.61	0
21	COKE CHARGE HEATERS (EAST AND WEST)	133.78	133.78	0	133.78	0
25	REFORMER CHARGE HEATERS (2B3, 2B4, 2B5, AND 2B6)	124.62	124.62	0	124.62	0
26	PT REFORMATE DEBUT REBOILER 2B7	23.07	23.07	0	23.07	0
27	PRETREAT REACTOR CHARGE HEATER 17-B-1	23.07	23.07	0	23.07	0
28	PRETREAT DEBUT REBOIL 17-B-2	32.91	32.91	0	32.91	0
33	CHD REACT CHARGE HEATER 3B1	35.87	35.87	0	35.87	0
34	CHD STRIP REBOILER 3B2	41.72	41.72	0	41.72	0
37	CHD REACTOR REGENERATION, 40 HR TWICE/YR M AND B	36.63	14.65	21.98	14.65	21.98
38	ALKY ISOSTRIP REBOILER HEATER 7B1	36.63	14.65	21.98	14.65	21.98
38	ALKY ISOSTRIP REBOILER HEATER 7B1	23.94	9.58	14.36	9.58	14.36
90	CCR REGENERATOR	0.41	0.41	0	0.41	0
113	CRUDE UNIT FEED PREHEATER 1-B3/13-B-4	31.27	31.27	0	31.27	0
				1694.54		1694.54

* Emission reductions are uncertain but the ExxonMobil Consent Decree requires that the facility have a flare minimization plan and to construct and operate flare gas recovery.

Table 4.16 SO₂ Reductions from ExxonMobil - BART vs. Consent Decree

Point	Unit #	2002 Base	BART controls		Consent Decree 2009	
		Tons	Tons	Tons/Year Reduction	Tons	Tons/Year Reduction
2	AUX BOILER	0.89	0.89	0	0.89	0
4	REFINERY WASTE GAS BLOWDOWN SYSTEM AND 2 FLARES	1156.32	1156.32	*	1156.32	*
12	SAT GAS LEAN OIL REBOILER	1.42	1.42	0	1.42	0
13	SULFUR TRAINS INCLUDING SULFUR PIT AND LOADING RACK	9340.6	186.81	9153.79	186.81	9153.79
15	FLUID CATALYTIC CRACKING UNIT	9865	197.3	9667.7	197.3	9667.7
18	CRUDE UNIT HEATERS (#1B1A AND #1B1B)	14.84	14.84	0	14.84	0
19	CRUDE UNIT VACUUM HEATER	4.36	4.36	0	4.36	0
21	COKE CHARGE HEATERS (EAST AND WEST)	8.9	8.9	0	8.9	0
25	REFORMER CHARGE HEATERS (2B3, 2B4, 2B5, AND 2B6)	10.8	10.8	0	10.8	0
26	PT REFORMATE DEBUT REBOILER 2B7	1.16	1.16	0	1.16	0
27	PRETREAT REACTOR CHARGE HEATER 17-B-1	0.09	0.09	0	0.09	0
28	PRETREAT DEBUT REBOIL 17-B-2	1.67	1.67	0	1.67	0
33	CHD REACT CHARGE HEATER 3B1	1.36	1.36	0	1.36	0
34	CHD STRIP REBOILER 3B2	2.14	2.14	0	2.14	0
37	CHD REACTOR REGENERATION, 40 HR TWICE/YR M AND B	0	0	0	0	0
38	ALKY ISOSTRIP REBOILER HEATER 7B1	1.89	1.89	0	1.89	0
38	ALKY ISOSTRIP REBOILER HEATER 7B1	0	0	0	0	0
90	CCR REGENERATOR	4.92	4.92	0	4.92	0
113	CRUDE UNIT FEED PREHEATER 1-B3/13-B-4	1.84	1.84	0	1.84	0
				18820.79		18820.79

* Emission reductions are uncertain but the ExxonMobil Consent Decree requires that the facility have a flare minimization plan and to construct and operate flare gas recovery.

5.0 Summary

USEPA has determined that, as part of a strategy to reduce pollutants found to negatively impact visibility in national parks and wilderness areas in the United States, certain stationary emission sources should be subject to a Best Available Retrofit Technology (“BART”) standard. The sources subject to a BART standard, according to "Guidelines for BART Determinations under the Regional Haze Rule" published by USEPA in July of 2005, must be one of 26 specified source categories; in existence in August 1977; began operating after August 1962; and have the potential to emit 250 tons per year or more of any air pollutant.

USEPA’s 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. The modeling approach used by the Illinois EPA to address BART was developed in consultation with the MRPO, the other participating MRPO states, the USEPA, and participating FLMs.

This document describes Illinois’ approach for meeting the BART requirements for emission sources in Illinois that have been shown to be BART-eligible. Technical analyses conducted by the Illinois EPA have shown that certain BART-eligible 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 State Implementation Plan to require that subject emission sources install cost-effective retrofit control technologies, or provide equivalent emission reductions.

Illinois has promulgated emission control requirements for most of the emission units in Illinois that are subject to BART that provide greater emission reductions, and greater environmental benefits, than would be provided by implementation of BART. Other emission units are subject to provisions contained in federally-enforceable consent decrees which meet or exceed the emission reductions than would be achieved by BART. The remaining emission units in Illinois that are subject to BART have committed to meet the BART requirements, as formalized in federally enforceable permits issued by the Illinois EPA and submitted to USEPA as SIP revisions to meet the BART requirements. These requirements, which were developed considering the technology available, the cost of controls, the non-air quality environmental impacts, the remaining useful life of the source, and the expected visibility improvement, will result in emission reductions that meet or exceed the reductions that would be achieved by the meeting the BART requirements contained in the Regional Haze Rule.

Illinois EPA has attempted in this document and its appendices to provide a complete record of the efforts made by it and by other entities on its behalf in order to: determine the Illinois sources that are subject to the BART requirements; detail the current emission controls and planned controls for those sources; and compare the current and planned controls and emission rates at affected sources to those required by the BART Guidelines.

References

1. **Regional Haze Regulations; Final Rule**, 64 Fed. Reg. 35714-35774 (July 1, 1999).
2. **Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations; Final Rule**, 70 Fed. Reg. 39104-39172 (July 6, 2005).
3. **Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts**, USEPA, EPA-454/R-98-019, December 1998.
www.epa.gov/scram001/7thconf/calpuff/phase2.pdf
4. National Park Service Class I Area Receptor Index is a database that can be accessed online at: <http://www.nature.nps.gov/air/Maps/Receptors/index.cfm>
5. **Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule**, USEPA, EPA-454/B-03-005, September 2003.
www.epa.gov/ttn/amtic/files/ambient/visible/natural.pdf
6. **Federal Land Managers Air Quality Related Values Workgroup (FLAG) Phase I Report**, U.S. Forest Service -- Air Quality Program, National Park Service -- Air Resources Division, U.S. Fish and Wildlife Service -- Air Quality Branch, December 2000. **www.nature.nps.gov/air/pubs/pdf/flag/flagfinal.pdf**
7. Scire, J.S., D.G. Strimaitis, R.J. Yamartino, 2000. A User's Guide for the CALPUFF Dispersion Model (Version 5). Earth Tech, Inc., Concord, MA
http://src.com/calpuff/download/CALPUFF_UsersGuide.pdf
8. Scire, J.S., F.R. Robe, M.E. Fernau, and R.J. Yamartino, 2000b: A User's Guide for the CALMET Meteorological Model (Version 5). Earth Tech, Inc., Concord, MA

information described in paragraph (b) of this section.

(b) *Required information*—(1) *In general.* The information required under paragraph (a) of this section shall include the following information:

(i) The passport applicant's full name and, if applicable, previous name;

(ii) Address of the passport applicant's regular or principal place of residence within the country of residence and, if different, mailing address;

(iii) The passport applicant's taxpayer identifying number (TIN), if such a number has been issued to the passport applicant. A TIN means the individual's social security number (SSN) issued by the Social Security Administration. A passport applicant who does not have an SSN must enter zeros in the appropriate space on the passport application; and

(iv) The passport applicant's date of birth.

(2) *Time for furnishing information.* A passport applicant must provide the information required by this section at the time of submitting his or her passport application, whether by personal appearance or mail, to the Department of State (including United States Embassies and Consular posts abroad).

(c) *Penalties*—(1) *In general.* If the information required by paragraph (b)(1) of this section is incomplete or incorrect, or the information is not timely filed, then the passport applicant shall be subject to a penalty equal to \$500 per application. Before assessing a penalty under this section, the IRS will ordinarily provide to the passport applicant written notice of the potential assessment of the \$500 penalty, requesting the information being sought, and offering the applicant an opportunity to explain why such information was not provided at the time the passport application was submitted. A passport applicant has 60 days (90 days if the notice is addressed to an applicant outside the United States) to respond to the notice. If, after considering all the surrounding circumstances, the passport applicant demonstrates to the satisfaction of the Commissioner or his delegate that the failure is due to reasonable cause and not due to willful neglect, then the IRS will not assess the penalty.

(2) *Example.* The following example illustrates the provisions of paragraph (c) this section.

Example. C, a citizen of the United States, makes an error in supplying information on his passport application. Based on the nature of the error and C's timely response to correct the error after being contacted by the IRS,

and considering all the surrounding circumstances, the Commissioner concludes that the mistake is due to reasonable cause and not due to willful neglect. Accordingly, no penalty is assessed.

(d) *Effective/applicability date.* The rules of this section apply to passport applications submitted after the date of publication of the Treasury decision adopting these rules as final regulations in the **Federal Register**.

Steven T. Miller,

Deputy Commissioner for Services and Enforcement.

[FR Doc. 2012-1567 Filed 1-25-12; 8:45 am]

BILLING CODE 4830-01-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R05-OAR-2011-0598; FRL-9622-6]

Approval and Promulgation of Air Quality Implementation Plans; Illinois; Regional Haze

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: EPA is proposing to approve revisions to the Illinois State Implementation Plan (SIP) addressing regional haze for the first implementation period. Illinois submitted its regional haze plan on June 24, 2011. The Illinois regional haze plan addresses Clean Air Act (CAA) section 169B and Regional Haze Rule requirements for states to remedy any existing and prevent future anthropogenic impairment of visibility at mandatory Class I areas. EPA is also proposing to approve two state rules and incorporating two permits into the SIP.

DATES: Comments must be received on or before February 27, 2012.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-R05-OAR-2011-0598, by one of the following methods:

1. *www.regulations.gov:* Follow the on-line instructions for submitting comments.

2. *Email:* blakley.pamela@epa.gov.

3. *Fax:* (312) 692-2450.

4. *Mail:* Pamela Blakley, Chief, Control Strategies Section, Air Programs Branch (AR-18J), U.S. Environmental Protection Agency, 77 West Jackson Boulevard, Chicago, Illinois 60604.

5. *Hand Delivery:* Pamela Blakley, Chief, Control Strategies Section, Air Programs Branch (AR-18J), U.S. Environmental Protection Agency, 77

West Jackson Boulevard, Chicago, Illinois 60604. Such deliveries are only accepted during the Regional Office normal hours of operation, and special arrangements should be made for deliveries of boxed information. The Regional Office official hours of business are Monday through Friday, 8:30 a.m. to 4:30 p.m., excluding Federal holidays.

Instructions: Direct your comments to Docket ID No. EPA-R05-OAR-2011-0598. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at www.regulations.gov, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through www.regulations.gov or email. The www.regulations.gov Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to EPA without going through www.regulations.gov your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional instructions on submitting comments, go to Section I of this document.

Docket: All documents in the docket are listed in the www.regulations.gov index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available either electronically in www.regulations.gov or in hard copy at the Environmental Protection Agency, Region 5, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604. This facility is open from 8:30 a.m. to 4:30 p.m., Monday through

Friday, excluding Federal holidays. We recommend that you telephone Matt Rau, Environmental Engineer, at (312) 886-6524 before visiting the Region 5 office.

FOR FURTHER INFORMATION CONTACT: Matt Rau, Environmental Engineer, Control Strategies Section, Air Programs Branch (AR-18J), Environmental Protection Agency, Region 5, 77 West Jackson Boulevard, Chicago, Illinois 60604, (312) 886-6524, rau.matthew@epa.gov.

SUPPLEMENTARY INFORMATION:

Throughout this document whenever “we,” “us,” or “our” is used, we mean EPA.

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- I. What should I consider as I prepare my comments for EPA?
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- V. What action is EPA taking?
- VI. Statutory and Executive Order Reviews

I. What should I consider as I prepare my comments for EPA?

When submitting comments, remember to:

1. Identify the rulemaking by docket number and other identifying information (subject heading, **Federal Register** date and page number).
2. Follow directions—EPA may ask you to respond to specific questions or organize comments by referencing a Code of Federal Regulations (CFR) part or section number.
3. Explain why you agree or disagree; suggest alternatives and substitute language for your requested changes.
4. Describe any assumptions and provide any technical information and/or data that you used.
5. If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.
6. Provide specific examples to illustrate your concerns, and suggest alternatives.
7. Explain your views as clearly as possible, avoiding the use of profanity or personal threats.
8. Make sure to submit your comments by the comment period deadline identified.

II. What is the background for EPA’s proposed action?

A. The Regional Haze Problem

Regional haze is visibility impairment that is produced by a multitude of sources and activities located across a broad geographic area that emit fine

particles (PM_{2.5}) (e.g., sulfates, nitrates, organic carbon, elemental carbon, and soil dust) and its precursors—sulfur dioxide (SO₂), nitrogen oxides (NO_x), and in some cases ammonia (NH₃) and volatile organic compound (VOCs). Fine particle precursors react in the atmosphere to form fine particulate matter. Aerosol PM_{2.5} impairs visibility by scattering and absorbing light. Visibility impairment reduces the clarity and distance one can see. PM_{2.5} can also cause serious health effects and mortality in humans and contributes to detrimental environmental effects such as acid deposition and eutrophication.

Data from the existing visibility monitoring network, the “Interagency Monitoring of Protected Visual Environments” (IMPROVE) monitoring network, show that visibility impairment caused by air pollution occurs virtually all of the time at most national park and wilderness areas. The average visual range, the distance at which an object is barely discernable, in many Class I areas¹ in the western United States is 100–150 kilometers. That is about one-half to two-thirds of the visual range that would exist without anthropogenic air pollution. In the eastern and midwestern Class I areas of the United States, the average visual range is generally less than 30 kilometers, or about one-fifth of the visual range that would exist under estimated natural conditions. 64 FR 35715 (July 1, 1999).

B. Requirements of the Clean Air Act and EPA’s Regional Haze Rule

In section 169A of the 1977 Amendments to the CAA, Congress created a program for protecting visibility in the nation’s national parks and wilderness areas. This section of the CAA establishes as a national goal the “prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I

¹ Areas designated as mandatory Class I Federal areas consist of national parks exceeding 6000 acres, wilderness areas, and national memorial parks exceeding 5000 acres and all international parks that were in existence on August 7, 1977. 42 U.S.C. 7472(a). In accordance with section 169A of the CAA, EPA, in consultation with the Department of Interior, promulgated a list of 156 areas where visibility is identified as an important value. 44 FR 69122 (November 30, 1979). The extent of a mandatory Class I area includes subsequent changes in boundaries, such as park expansions. 42 U.S.C. 7472(a). Although states and tribes may designate as Class I additional areas which they consider to have visibility as an important value, the requirements of the visibility program set forth in section 169A of the CAA apply only to “mandatory Class I Federal areas.” Each mandatory Class I Federal area is the responsibility of a “Federal Land Manager.” 42 U.S.C. 7602(i). When we use the term “Class I area,” we mean “mandatory Class I Federal area.”

Federal areas which impairment results from manmade air pollution.” On December 2, 1980, EPA promulgated regulations to address visibility impairment in Class I areas that is “reasonably attributable” to a single source or small group of sources known as, “reasonably attributable visibility impairment” (RAVI). 45 FR 80084. These regulations represented the first phase in addressing visibility impairment. EPA deferred action on regional haze that emanates from a variety of sources until monitoring, modeling, and scientific knowledge about the relationships between pollutants and visibility impairment were improved.

Congress added section 169B to the CAA in 1990 to address regional haze issues. EPA promulgated the Regional Haze Rule (RHR) on July 1, 1999 (64 FR 35713). The RHR revised the existing visibility regulations to integrate into the regulations provisions addressing regional haze impairment and established a comprehensive visibility protection program for Class I areas. The requirements for regional haze, found at 40 CFR 51.308 and 51.309, are included in EPA’s visibility protection regulations at 40 CFR 51.300–309. Some of the main elements of the regional haze requirements are summarized in section III. The requirement to submit a regional haze SIP applies to all 50 states, the District of Columbia, and the Virgin Islands.²

C. Roles of Agencies in Addressing Regional Haze

Successful implementation of the regional haze program will require long-term regional coordination among states, tribal governments, and Federal agencies. Pollution affecting the air quality in Class I areas can be transported over long distances, even hundreds of kilometers. Therefore, effectively addressing the problem of visibility impairment in Class I areas means that states need to develop coordinated strategies that take into account the effect of emissions from one jurisdiction on the air quality of another state.

EPA has encouraged the states and tribes to address visibility impairment from a regional perspective because the pollutants that lead to regional haze can originate from sources located across broad geographic areas. Five regional planning organizations (RPOs) were developed to address regional haze and

² Albuquerque/Bernalillo County, New Mexico must also submit a regional haze SIP to satisfy the section 110(a)(2)(D) requirements of the CAA for the entire state under the New Mexico Air Quality Control Act (section 74–2–4).

related issues. The RPOs first evaluated technical information to better understand how their states and tribes impact Class I areas across the country and then pursued the development of regional strategies to reduce PM_{2.5} emissions and other pollutants leading to regional haze.

The Midwest RPO (MRPO) is a collaborative effort of state governments and various Federal agencies established to initiate and coordinate activities associated with the management of regional haze, visibility, and other air quality issues in the Midwest. The member states are Illinois, Indiana, Michigan, Ohio, and Wisconsin.

III. What are the requirements for regional haze SIPs?

Regional haze SIPs must assure reasonable progress toward the national goal of achieving natural visibility conditions in Class I areas. Section 169A of the CAA and EPA's implementing regulations require states to establish long-term strategies for making reasonable progress toward meeting this goal. Plans must also give specific attention to certain stationary sources that were in existence on August 7, 1977, but were not in operation before August 7, 1962, and must require those sources to install emission controls reducing visibility impairment if appropriate. The specific regional haze SIP requirements are discussed in further detail below.

A. Determination of Baseline, Natural, and Current Visibility Conditions

The RHR establishes the deciview³ (dv) as the principal metric or unit for expressing visibility impairment. This visibility metric expresses uniform proportional changes in haziness in terms of common increments across the entire range of visibility conditions, from pristine to extremely hazy conditions. Visibility expressed in deciviews is determined by using air quality measurements to estimate light extinction and then transforming the value of light extinction using a logarithm function. The deciview is a more useful measure for tracking progress in improving visibility than light extinction itself because each deciview change is an equal incremental change in visibility perceived by the human eye. Most people can detect a change in visibility at one deciview.

The deciview is used in expressing RPGs, defining baseline, current, and

natural conditions, and tracking changes in visibility. The regional haze SIPs must contain measures that ensure "reasonable progress" toward the national goal of preventing and remedying visibility impairment in Class I areas caused by anthropogenic air pollution. The national goal is a return to natural conditions such that anthropogenic sources of air pollution would no longer impair visibility in Class I areas.

To track changes in visibility over time at each of the 156 Class I areas covered by the visibility program (40 CFR 81.401–437) and as part of the process for determining reasonable progress, states must calculate the degree of existing visibility impairment at each Class I area at the time of each regional haze SIP submission and at the progress review every five years, midway through each 10-year implementation period. The RHR requires states with Class I areas (Class I states) to determine the degree of impairment in deciviews for the average of the 20 percent least impaired (best) and 20 percent most impaired (worst) visibility days over a specified time period at each of its Class I areas. Each state must also develop an estimate of natural visibility conditions for the purpose of comparing progress toward the national goal. Natural visibility is determined by estimating the natural concentrations of pollutants that cause visibility impairment and then calculating total light extinction based on those estimates. EPA has provided guidance to states regarding how to calculate baseline, natural, and current visibility conditions in documents titled, EPA's *Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule*, September 2003, (EPA-454/B-03-005 located at http://www.epa.gov/ttncaaa1/t1/memoranda/rh_envcurhr_gd.pdf) (hereinafter referred to as "EPA's 2003 Natural Visibility Guidance") and *Guidance for Tracking Progress Under the Regional Haze Rule* (EPA-454/B-03-004 September 2003 located at http://www.epa.gov/ttncaaa1/t1/memoranda/rh_tpurhr_gd.pdf) (EPA's 2003 Tracking Progress Guidance).

For the first regional haze SIP, the "baseline visibility conditions" are the starting points for assessing "current" visibility impairment. Baseline visibility conditions represent the degree of visibility impairment for the 20 percent best days and 20 percent worst days for each calendar year from 2000 to 2004. Using monitoring data for 2000 through 2004, states calculate the average degree of visibility impairment for each Class I area, based on the average of annual

values over the five-year period. The comparison of initial baseline visibility conditions to natural visibility conditions indicates the amount of improvement necessary to attain natural visibility, while the future comparison of baseline conditions to the then current conditions will indicate the amount of progress made. In general, the 2000 to 2004 baseline period is considered the time from which improvement in visibility is measured.

B. Determination of Reasonable Progress Goals (RPGs)

The vehicle for ensuring continuing progress towards achieving the natural visibility goal is the submission of a series of regional haze SIPs from the states that establish two distinct RPGs, one for the best days and one for the worst days for every Class I area for each approximately 10-year implementation period. The RHR does not mandate specific milestones or rates of progress, but instead calls for states to establish goals that provide for "reasonable progress" toward achieving natural visibility conditions. In setting RPGs, Class I states must provide for an improvement in visibility for the worst days over the approximately 10-year period of the SIP and ensure no degradation in visibility for the best days.

Class I states have significant discretion in establishing RPGs, but are required to consider the following factors established in section 169A of the CAA and in EPA's RHR at 40 CFR 51.308(d)(1)(i)(A): (1) The costs of compliance; (2) the time necessary for compliance; (3) the energy and non-air quality environmental impacts of compliance; and, (4) the remaining useful life of any potentially affected sources. The state must demonstrate in its SIP how these factors are considered when selecting the RPGs for the best and worst days for each applicable Class I area. States have considerable flexibility in how they take these factors into consideration, as noted in EPA's *Guidance for Setting Reasonable Progress Goals Under the Regional Haze Program*, ("EPA's Reasonable Progress Guidance"), July 1, 2007, memorandum from William L. Wehrum, Acting Assistant Administrator for Air and Radiation, to EPA Regional Administrators, EPA Regions 1–10 (pp. 4–2, 5–1). In setting the RPGs, states must also consider the rate of progress needed to reach natural visibility conditions by 2064 ("uniform rate of progress" or "glide path") and the emissions reduction needed to achieve that rate of progress over the approximately 10-year period of the SIP.

³ The preamble to the RHR provides additional details about the deciview. 64 FR 35714, 35725 (July 1, 1999).

In setting RPGs, each Class I state must also consult with potentially contributing states, *i.e.* those states that may affect visibility impairment at the Class I state's areas. 40 CFR 51.308(d)(1)(iv).

C. Best Available Retrofit Technology (BART)

Section 169A of the CAA directs states to evaluate the use of retrofit controls at certain older large stationary sources to address visibility impacts from these sources. Specifically, CAA section 169A(b)(2)(A) requires states to revise their SIPs to contain such measures as may be necessary to make reasonable progress towards the natural visibility goal including a requirement that certain categories of existing major stationary sources built between 1962 and 1977 procure, install, and operate BART as determined by the state. The set of "major stationary sources" potentially subject to BART is listed in CAA section 169A(g)(7). The state can require source-specific BART controls, but it also has the flexibility to adopt an alternative such as a trading program as long as the alternative provides greater progress towards improving visibility than BART.

On July 6, 2005, EPA published the *Guidelines for BART Determinations Under the Regional Haze Rule* at Appendix Y to 40 CFR Part 51 (BART Guidelines) to assist states in determining which of their sources should be subject to the BART requirements and in determining appropriate emission limits for each applicable source. A state must use the approach in the BART Guidelines in making a BART determination for fossil fuel-fired electric generating units (EGUs) with total generating capacity in excess of 750 megawatts. States are encouraged, but not required, to follow the BART Guidelines in making BART determinations for other sources.

States must address all visibility-impairing pollutants emitted by a source in the BART determination process. The most significant visibility impairing pollutants are SO₂, NO_x, and PM. EPA has stated that states should use their best judgment in determining whether VOC or NH₃ compounds impair visibility in Class I areas.

States may select an exemption threshold value for their BART modeling under the BART Guidelines, below which a BART-eligible source would not be expected to cause or contribute to visibility impairment in any Class I area. The state must document this exemption threshold value in the SIP and must state the basis for its selection of that value. The

exemption threshold set by the state should not be higher than 0.5 dv. Any source with emissions that model above the threshold value would be subject to a BART determination review. The BART Guidelines acknowledge varying circumstances affecting different Class I areas. States should consider the number of emission sources affecting the Class I areas at issue and the magnitude of the individual source's impact.

The state must identify potential BART sources in its SIP, described as "BART-eligible sources" in the RHR, and document its BART control determination analyses. In making BART determinations, section 169A(g)(2) of the CAA requires the state to consider the following factors: (1) The costs of compliance; (2) the energy and non-air quality environmental impacts of compliance; (3) any existing pollution control technology in use at the source; (4) the remaining useful life of the source; and, (5) the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. A regional haze SIP must include source-specific BART emission limits and compliance schedules for each source subject to BART. The BART controls must be installed and in operation as expeditiously as practicable, but no later than five years after the date of EPA's approval of the state's regional haze SIP. CAA section 169(g)(4); 40 CFR 51.308(e)(1)(iv). In addition to what is required by the RHR, general SIP requirements mandate that the SIP must also include all regulatory requirements related to monitoring, recordkeeping, and reporting for the BART controls on the source.

D. Long-Term Strategy

Consistent with the requirement in section 169A(b) of the CAA that states include in their regional haze SIP a 10 to 15 year strategy for making reasonable progress, section 51.308(d)(3) of the RHR requires that states include a long-term strategy (LTS) in their regional haze SIPs. The LTS is the compilation of all control measures a state will use during the implementation period of the specific SIP submittal to meet applicable RPGs. The LTS must include enforceable emissions limitations, compliance schedules, and other measures as necessary to achieve the RPGs for all Class I areas within or affected by emissions from the state. 40 CFR 51.308(d)(3).

When a state's emissions are reasonably anticipated to cause or contribute to visibility impairment in a

Class I area located in another state, the RHR requires the impacted state to coordinate with the contributing states in order to develop coordinated emissions management strategies. 40 CFR 51.308(d)(3)(i). In such cases, the contributing state must demonstrate that it has included in its SIP all measures necessary to obtain its share of the emission reductions needed to meet the RPGs for the Class I area. The RPOs have provided forums for significant interstate consultation, but additional consultations between states may be required to address interstate visibility issues sufficiently.

States should consider all types of anthropogenic sources of visibility impairment in developing their LTS, including stationary, minor, mobile, and area sources. At a minimum, states must describe how each of the following seven factors are taken into account in developing their LTS: (1) Emission reductions due to ongoing air pollution control programs, including measures to address RAVI; (2) measures to mitigate the impacts of construction activities; (3) emissions limitations and schedules for compliance to achieve the RPG; (4) source retirement and replacement schedules; (5) smoke management techniques for agricultural and forestry management purposes including plans as currently exist within the state for these purposes; (6) enforceability of emissions limitations and control measures; and, (7) the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the LTS. 40 CFR 51.308(d)(3)(v).

E. Coordinating Regional Haze and Reasonably Attributable Visibility Impairment Long-Term Strategy

EPA revised 40 CFR 51.306(c) as part of the RHR regarding the LTS for RAVI to require that the RAVI plan must provide for a periodic review and SIP revision not less frequently than every three years until the date of submission of the state's first plan addressing regional haze visibility impairment in accordance with 40 CFR 51.308(b) and (c). The state must revise its plan to provide for review and revision of a coordinated LTS for addressing RAVI and regional haze on or before this date. It must also submit the first such coordinated LTS with its first regional haze SIP. Future coordinated LTSs, and periodic progress reports evaluating progress towards RPGs, must be submitted consistent with the schedule for SIP submission and periodic progress reports set forth in 40 CFR 51.308(f) and 51.308(g), respectively.

The periodic review of a state's LTS must report on both regional haze and RAVI impairment and be submitted to EPA as a SIP revision.

F. Monitoring Strategy and Other Implementation Plan Requirements

Section 51.308(d)(4) of the RHR includes the requirement for a monitoring strategy for measuring, characterizing, and reporting of regional haze visibility impairment that is representative of all mandatory Class I Federal areas within the state. The strategy must be coordinated with the monitoring strategy required in section 51.305 for RAVI. Compliance with this requirement may be met through participation in the IMPROVE network, meaning that the state reviews and uses monitoring data from the network. The monitoring strategy must also provide for additional monitoring sites if the IMPROVE network is not sufficient to determine whether RPGs will be met. The monitoring strategy is due with the first regional haze SIP and must be reviewed every five years.

The SIP must also provide for the following:

- Procedures for using monitoring data and other information in a state with mandatory Class I areas to determine the contribution of emissions from within the state to regional haze visibility impairment at Class I areas both within and outside of the state;
- Procedures for using monitoring data and other information in a state with no mandatory Class I areas to determine the contribution of emissions from within the state to regional haze visibility impairment at Class I areas in other states.
- Reporting of all visibility monitoring data to the Administrator at least annually for each Class I area in the state, and where possible in electronic format;
- A statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area. The inventory must include emissions for a baseline year, emissions for the most recent year with available data, and future projected emissions. A state must also make a commitment to update the inventory periodically; and
- Other elements including reporting, recordkeeping, and other measures necessary to assess and report on visibility;

The RHR requires control strategies to cover an initial implementation period extending to the year 2018 with a comprehensive reassessment and revision of those strategies, as appropriate, every 10 years thereafter.

Periodic SIP revisions must meet the core requirements of section 51.308(d) with the exception of BART. The requirement to evaluate sources for BART applies only to the first regional haze SIP. Facilities subject to BART must continue to comply with the BART provisions of section 51.308(e), as noted above. Periodic SIP revisions will assure that the statutory requirement of reasonable progress will continue to be met.

G. Consultation With States and Federal Land Managers

The RHR requires that states consult with Federal Land Managers (FLMs) before adopting and submitting their SIPs. 40 CFR 51.308(i). States must provide FLMs an opportunity for consultation, in person and at least 60 days prior to holding any public hearing on the SIP. This consultation must include the opportunity for the FLMs to discuss their assessment of impairment of visibility in any Class I area and to offer recommendations on the development of the RPGs and on the development and implementation of strategies to address visibility impairment. Further, a state must include in its SIP a description of how it addressed any comments provided by the FLMs. Finally, a SIP must provide procedures for continuing consultation between the state and FLMs regarding the state's visibility protection program, including development and review of SIP revisions, five-year progress reports, and the implementation of other programs having the potential to contribute to impairment of visibility in Class I areas.

IV. What is EPA's analysis of Illinois' regional haze plan?

Illinois submitted its regional haze plan on June 24, 2011, which included revisions to the Illinois SIP to address regional haze.

A. Class I Areas

States are required to address regional haze affecting Class I areas within a state and in Class I areas outside the state that may be affected by the state's emissions. 40 CFR 51.308(d). Illinois does not have any Class I areas within the state. Illinois reviewed technical analyses conducted by MRPO to determine what Class I areas outside the state are affected by Illinois emission sources. MRPO conducted both a back trajectory analysis and modeling to determine the effects of its states' emissions. The conclusion from the technical analysis is that emissions from Illinois sources affect 19 Class I areas. The affected Class I areas are: Sipsey

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

B. Baseline, Current, and Natural Conditions

The RHR requires states with Class I areas to calculate the baseline and natural conditions for their Class I areas. Because Illinois does not have any Class I areas, it was not required to address the requirements for calculating baseline and natural conditions.

C. Reasonable Progress Goals

Class I states must set RPGs that achieve reasonable progress toward achieving natural visibility conditions. Because Illinois does not have any Class I areas, it is not required to establish RPGs. Illinois consulted with affected Class I states to ensure that it achieves its share of the overall emission reductions necessary to achieve the RPGs of Class I areas that it impacts. Illinois's coordination with affected Class I states is discussed under Illinois Long Term Strategy, in Section IV. E.

Illinois included the MRPO technical support document (TSD) in its submission. In Section 5 of the TSD, MRPO assessed the reasonable progress for regional haze. It first assessed potential control measures using the four factors required to be considered by Class I states when selecting the RPGs: the cost of compliance, time needed, energy and non-air impacts, and remaining useful life of any potentially affected sources. The cost of compliance factor includes calculating the average cost effectiveness and can include costs to health and industry vitality as well as considering the different visibility effects of different pollutants. The time necessary for compliance factor considers whether control measures can be implemented by 2018. The third factor, energy and non-air quality impacts, considers additional energy consumed by or because of the control measure as well as effects due to waste

generated or water consumption. The final factor, remaining useful life, allows states to consider planned source retirements in calculating costs.

MRPO also assessed the visibility benefits of existing programs. MRPO considered existing on-highway mobile source, off-highway mobile source, area source, power plant, and other point source programs. MRPO also included reductions from the Clean Air Interstate Rule (CAIR) in its analysis, as well from rules adopted by Illinois and included in its regional haze SIP requiring the control of emissions from EGUs.

Illinois has a distinctive situation regarding CAIR, insofar as it has adopted state rules that require EGUs to control NO_x and SO₂ emissions beyond the control expected from CAIR, even in the absence of CAIR, particularly by 2018 and beyond. Further discussion of these Illinois rules is provided below. The RPGs that pertinent Class I states have adopted are predicated on other contributing states achieving the EGU emission reductions anticipated under CAIR. Since Illinois is mandating a greater degree of control than is expected from other states, EPA concludes that Illinois's regional haze plan is expected to provide emission reductions representing an appropriate contribution toward meeting the RPGs for the affected Class I areas, irrespective of the status of CAIR and irrespective of the associated issues regarding the adequacy of other state's plans. For similar reasons, EPA believes that the approvability of the Illinois plan is also not affected by the status of the Transport Rule, which was promulgated on August 8, 2011 at 76 FR 48208 and stayed on December 30, 2011.

D. Best Available Retrofit Technology

States are required to submit an implementation plan containing emission limitations representing BART and schedules for compliance with BART for each BART-eligible source that may reasonably be anticipated to cause or contribute to any impairment in a Class I area, unless the State demonstrates that an emissions trading program or other alternative will achieve greater reasonable progress toward natural visibility conditions. 40 CFR 51.308(e).

Using the criteria in the BART Guidance at 40 CFR 51.308(e) and Appendix Y, Illinois first identified all of the BART-eligible sources and assessed whether the BART-eligible sources were subject to BART. Illinois initially identified 26 potential BART facilities—11 EGUs, four petroleum refineries, three chemical process

plants, two Portland cement plants, two glass fiber processing plants, one lime plant, and one iron and steel plant. The state further analyzed these facilities to identify those sources subject to BART. Illinois relied on modeling conducted by MRPO using a modeling protocol MRPO developed. MRPO conferred with its states, EPA, and the FLMs in developing its BART modeling protocol. EPA guidance says that, "any threshold that you use for determining whether a source 'contributes' to visibility impairment should not be higher than 0.5 dv." The Guidelines affirm that states are free to use a lower threshold if the location of a large number of BART-eligible sources in proximity of a Class I area justifies this approach. Illinois used a contribution threshold of 0.5 dv for determining which sources warrant being subject to BART. Illinois concluded that the threshold of 0.5 dv was appropriate since its BART-eligible sources are located state-wide and no Class I areas are nearby causing Illinois to correctly conclude that a stricter contribution threshold is not justified. The modeled impact of these facilities indicated that 11 sources have at least 0.5 dv impact (98th percentile) and thus are subject to BART. The 11 sources determined to be subject to BART are nine EGUs and two petroleum refineries. The other 15 potential BART sources were determined not to be subject to BART because the analysis showed impacts well below the 0.5 dv contribution threshold.

The EGUs subject to BART are:

- Dynegy Midwest Generating—Baldwin Boilers 1, 2, and 3.
- Dominion Kincaid Generation—Boilers 1 and 2.
- Ameren Energy Generating—Coffeen Boilers CB-1 and CB-2.
- Ameren Energy Generating—E.D. Edwards Boilers 2 and 3.
- Ameren Energy Generating—Duck Creek Boiler 1.
- Midwest Generation—Powerton Boilers 51, 52, 61, and 62.
- Midwest Generation—Joliet Boilers 71, 72, 81, and 82.
- Midwest Generation—Will County Boiler 4.
- City Water, Light, and Power—Dallman Boiler 1 and 2.
- City Water, Light, and Power—Lakeside Boiler 8.

To address mercury emissions from EGUs, Illinois adopted Part 225 of Illinois's air pollution regulations, entitled "Control of Emissions from Large Combustion Sources." In this rule, Illinois offered affected utilities two options, one of which imposes stringent limits on mercury emissions alone and the other of which mandates

implementation of specific mercury control technology in conjunction with satisfaction of stringent emission limits for SO₂ and NO_x. Part 225 includes section 225.233, entitled "Multi-Pollutant Standards," addressing emissions from facilities owned by Ameren and Dynegy, and sections 225.293 to 225.299, collectively referred to as the Combined Pollutant Standards (CPS), addressing emissions from facilities owned by Midwest Generation. In all cases, the utilities have selected the option including mercury control technology and applicability of the SO₂ and NO_x limits. The emission limits are in the earlier noted sections of the state rules, so these SO₂ and NO_x limits are now fully enforceable by the state.

The SO₂ and NO_x emission limits in Part 225 rules reflect substantial averaging across units and across facilities. For example, the collective set of facilities in Illinois owned by Midwest Generation (as listed in the Part 225 rules) are subject to NO_x and SO₂ limits based on annual average emissions across all facilities. The limit for NO_x emissions is 0.11 pounds per million British Thermal Units (lb/MMBTU) starting in 2012 and the limits for SO₂ are 0.15 lb/MMBTU in 2017 and 0.11 lb/MMBTU starting in 2019. The collective set of Ameren facilities in Illinois, under the Multi-Pollutant Standards (MPS), must meet an annual average emission limit for NO_x of 0.11 lb/MMBTU starting in 2012 and for SO₂ of 0.23 lb/MMBTU starting in 2017. Similar limits under the MPS apply to the Dynegy facilities in Illinois.

EPA believes this degree of averaging is acceptable in this context. The limits that Illinois has imposed are sufficiently stringent that the companies have only limited latitude to over control at some facilities in trade for having elevated emissions at other facilities. The facilities owned by each company are sufficiently close to each other, relative to their distances from the nearest Class I areas, that modest shifts in emissions from one facility to another should have minimal impact on the combined impact on regional haze at the Class I areas. Furthermore, regional haze is evaluated across a considerable number of days, e.g., the 20 percent of days with the worst visibility. Therefore, a limit that allows elevated emissions on individual days, so long as other days have lower emissions, should suffice to address the pertinent measures of regional haze. Illinois's limits should also be adequately enforceable since the sources at issue are required to conduct continuous emission monitoring of both SO₂ and NO_x.

Dynergy has five facilities with 10 units covered by MPS, including the three Dynergy Baldwin units that are subject to BART. Emission reductions required for seven other Dynergy units not subject to BART will allow it meet the MPS reduction requirements. MPS will reduce emissions from all Dynergy facilities by 23,831 tons per year (TPY) of NO_x and 47,347 TPY of SO₂, as compared to emissions in the 2002 base year.

Ameren has seven facilities with 21 units covered by MPS. This includes the subject to BART units: Coffeen units 1 and 2, Duck Creek unit 1, and Edwards units 2 and 3. Ameren has installed selective catalytic reduction (SCR) for NO_x control and wet scrubbers to limit SO₂ emissions from both Coffeen units. Duck Creek unit 1 is controlled by low NO_x burners, SCR, and wet scrubbers. Edwards unit 2 will receive an upgraded low NO_x burner and overfire air (OFA) to reduce NO_x emissions. Edwards unit 3 is already controlled for NO_x with low NO_x burners, OFA, and SCR. Ameren plans to install a new scrubber and fabric filter at Edwards unit 3. Company-wide reductions from Ameren EGUs are projected to be 27,896 TPY NO_x and 131,367 TPY SO₂ by 2015 and 134,464 TPY of SO₂ by 2017.

Midwest Generating operates six facilities with 19 total units that must comply with CPS, including the Midwest Generation units subject to BART: Powerton units 51, 52, 61, and 62; Joliet units 71, 72, 81, and 82; and Will County unit 4. The four Powerton units currently have low NO_x burners and OFA. Midwest Generation plans to add selective non-catalytic reduction (SNCR) in 2012 to reduce NO_x emissions and flue gas desulfurization (FGD) in 2013 to cut SO₂ emissions. Both control improvements will be added to all four units. Midwest Generating's Joliet facility currently has low NO_x burners and OFA on its four BART units. SNCR is expected to be added in 2012 to all four BART units. Midwest Generating is also planning to add FGD on units 71, 72, 81, and 82 by 2019. Will County unit 4 is currently controlled with low NO_x burners and OFA. Midwest Generating plans to upgrade the NO_x control to SNCR in 2012 and to add FGD control by 2019. CPS will reduce NO_x emissions from all Midwest Generating facilities by 38,155 TPY, while SO₂ emissions will decrease by 35,465 TPY in 2015, increasing to a 61,194 TPY reduction in 2019.

A state may opt to implement an alternate measure rather than requiring each subject to BART unit to install, operate, and maintain BART if it demonstrates that the alternate measure

will achieve greater reasonable progress. The criteria for the assessment if an alternative measure demonstrates greater reasonable progress are provided in 40 CFR 51.308(e)(2). MPS will reduce emissions from both subject to BART and non-BART units at the Ameren and Dynergy facilities. Similarly, CPS will require emission reductions from Midwest Generation's subject to BART and non-BART units. Illinois elected to use MPS and CPS participation as alternative to requiring BART control on each of the Ameren, Dynergy, and Midwest Generation units subject to BART. Illinois stated that implementation of the MPS and CPS emission limits will provide much deeper NO_x and SO₂ reductions than implementing BART on the subject to BART units and thus the alternate will provide greater reasonable progress. However, Illinois did not provide an analysis comparing BART for each subject unit to the alternative. Illinois compared the emission reductions from MPS and CPS to the presumptive BART emission levels suggested in EPA's guidance. EPA generally requires states to compare the alternative strategy to a fully analyzed set of BART limits for the BART-subject units. However, in this case, the results of such a comparison are clear even without Illinois conducting a full BART analysis for these units. The total NO_x emission reductions due to MPS on Dynergy EGUs are greater than the base year NO_x emissions from Dynergy's subject to BART units. Therefore, the emission reductions from MPS are greater than the maximum possible reductions from the BART units. The same is true for SO₂ emissions for the Dynergy EGUs, the NO_x emissions from the Ameren EGUs, and the SO₂ emissions from the Ameren EGUs. Similarly, the total NO_x emission reductions from all Midwest Generating are greater than the NO_x emissions from the BART units and the same for its SO₂ emissions. Therefore, even without a full analysis of the precise emission levels that would constitute BART for the BART-subject units, EPA finds that the Illinois rules, MPS and CPS, are an acceptable BART alternative because the emission reductions are greater than the reductions that could possibly be obtained by only requiring BART at the BART-subject units.

Three other EGUs, owned by two other utilities Dominion Energy and the City of Springfield's City Water, Light, and Power (CWLP), are not covered by MPS and CPS but have units subject to BART. CWLP is a smaller utility with a total generating capacity of less than 750 MW and Dominion Energy has only one

electric generating facility in Illinois such that these utilities do not have the opportunities for multi-plant averaging of emission limits that the larger utilities have. Rather than adopting an alternative program to address the BART requirements for these two utilities, Illinois is requiring these utilities to meet the BART requirements for the units subject to BART and establish enforceable emission limits for SO₂ and NO_x. CWLP's Dallman and Lakeside plants, along with Dominion's Kincaid plant, have units subject to BART. Both utilities must reduce emissions to meet the BART limits. The emission limits for Dallman units 31 and 32, Lakeside unit 8, and Kincaid units 1 and 2 are contained in Joint Construction and Operating permits. Illinois evaluated potential controls and what control level the current emission controls can achieve in setting the BART emission limits for the CWLP Dallman and Dominion Kincaid units.

CWLP currently has SCRs and FGD on Dallman units 31 and 32. As of 2010, CWLP has been operating the SCRs to achieve an annual average NO_x emission rate of 0.14 lb/MMBTU on both Dallman units, combined. The annual average NO_x emission rate will be limited to 0.12 lb/MMBTU by 2015 and then further decreased to 0.11 lb/MMBTU by 2017 for both units, combined. CWLP will operate the controls to achieve an annual average SO₂ emissions rate on both Dallman units, combined, of 0.29 lb/MMBTU by 2012, then reduced to 0.25 lb/MMBTU by 2015, and finally to 0.23 lb/MMBTU by 2017. Illinois has determined these emission limits satisfy BART for both units. CWLP permanently shut down Lakeside unit 8 in 2009, which is reflected in the permit.

Dominion's Kincaid facility operates SCRs on its units 1 and 2. The permit for the Kincaid facility limits NO_x emissions to an annual average of 0.07 lb/MMBTU by March 1, 2013, on both units, combined. Illinois determined the appropriate SO₂ control system for Kincaid is a dry sorbent injection system along with using low sulfur coal. Illinois initially gave the Kincaid facility a SO₂ emission limit of 0.20 lb/MMBTU on both units, but found that a stricter limit of 0.15 lb/MMBTU can be achieved with the control system. Illinois thus set the SO₂ emission limits for both Kincaid units, combined, at an annual average emission rate of 0.20 lb/MMBTU by January 1, 2014, and reduced the limit further to an annual average emission rate of 0.15 lb/MMBTU beginning on January 1, 2017.

Illinois issued the Joint Construction and Operating permits pursuant to its

authority in the SIP and submitted the two permits as part of its Regional Haze plan to be incorporated into the SIP.

The permits set Federally enforceable NO_x and SO₂ limits as necessary to meet the Regional Haze requirements of the CAA and effectively mandate that the utilities to run the SCR's year round and for CWLP to shut down its Lakeside unit 8.

Two petroleum refineries, the CITGO and Exxon Mobil refineries, also have units subject to BART: the CITGO refinery in Lemont, Illinois and the Exxon Mobil refinery south of Joliet, Illinois. Both refineries will be required to reduce emissions by a Federal consent decree resolving an enforcement action brought by EPA against a number of refineries. The consent decrees require the CITGO, Exxon Mobil, and the other refineries to operate controls at the Best Available Control Technology level. Illinois evaluated the subject-to-BART units at the CITGO and Exxon Mobil refineries. It found that the NO_x and SO₂ emission limits on the subject-to-BART units in the consent decrees satisfy BART.

A consent decree between the United States and CITGO Petroleum Corporation was entered in the U.S. District Court for the Southern District of Texas on October 6, 2004 (No. H-04-3883). The consent decree requires the company to operate SCR and a wet scrubbing system at its Fluid Catalytic Cracking Unit (FCCU) that will reduce NO_x emissions by more than 90 percent and SO₂ emissions by 85 percent. The controls on the FCCU will result in a reduction of NO_x emissions from 1,065.7 to 106.6 TPY and SO₂ emissions from 10,982.5 to 107.9 TPY by 2013. CITGO has also added a tail gas recovery unit that reduces SO₂ emissions from its sulfur train units from 4340.0 to 91.2 TPY, a 98 percent reduction. The emission controls on all units at CITGO's Lemont refinery will reduce NO_x emissions by 1,268 TPY and SO₂ emissions by 15,123 TPY.

A consent decree between the United States and Exxon Mobil Corporation was entered in the U.S. District Court for the Northern District of Illinois on October 11, 2005 (No. O5-C-5809). The consent decree for Exxon Mobil requires SCR operation on its FCCU in addition to maintenance of the existing wet scrubbing system. The controls on the FCCU result in a 1,636.2 TPY decrease in NO_x emissions from 1,818.0 to 181.8 TPY and a 9,667.7 TPY decrease in SO₂ emissions from 9,865.0 to 197.3 TPY. Exxon Mobil also has added a tail gas recovery unit on its south sulfur recovery unit. That reduces SO₂ emissions by 9,153.8 TPY to 186.8 TPY.

The emission controls at Exxon Mobil's Joliet refinery will reduce 1,695 TPY NO_x and 18,821 TPY SO₂.

These two consent decrees are Federally enforceable and also require that the refineries submit permit applications to Illinois to incorporate the required emission limits into Federally enforceable air permits (other than Title V). Therefore, emission limits established by the consent decrees may be relied upon by Illinois for addressing the BART requirement for these facilities.

Based on modeling, MRPO determined that the visibility impact of directly emitted particulate matter from the facilities with subject to BART units is minimal. In particular, MRPO assessed the impact of the directly emitted particulate matter from all facilities potentially subject to BART in the five MRPO states, and found the impact to be less than 0.5 dv at any Class I area as compared to natural background conditions. Illinois therefore concludes that PM emissions from its subset of these BART sources have a negligible visibility impact. Furthermore, these facilities are already subject to federally enforceable PM emission control requirements mandated by SIP-approved state particulate matter regulations, so that there is minimal potential for further PM emission reductions. Therefore, based particularly on the substantial existing controls on these facilities—fabric filters, electrostatic precipitators, and cyclones; and the minimal benefits of further control, Illinois concluded that BART did not include further control of PM emissions from these facilities.

EPA is satisfied with the state's BART determinations. The emission limits that Illinois adopted generally will require state-of-the-art emission controls, not just at the units subject to BART requirements but also at numerous units that are not subject to BART. The Illinois facilities subject to BART are a long distance from any Class I area such that, so the geographical redistributions of emissions within Illinois do not significantly affect visibility and the benefits of alternate control strategies may be judged simply by comparing the net emission reductions. The MPS and CPS provide emission reduction well in excess of simply implementing BART on subject units. The reduction in NO_x emissions from the Ameren, Dynege, and Midwest Generation units by 2015 from MPS and CPS is expected to be 89,882 TPY. Illinois estimated that simply implementing BART on the subject units from these entities would yield 32,992 TPY of NO_x emission

reductions, which is 56,890 TPY less than that from MPS and CPS. Illinois estimated that implementing BART on the subject units at Ameren, Dynege, and Midwest Generation facilities would require an 117,252 TPY reduction in SO₂ emission, but MPS and CPS will require a 214,179 TPY SO₂ reduction by 2015. Thus, Illinois estimated that its plan will require 96,927 TPY lower SO₂ emissions than simply requiring BART. EPA believes that Illinois has thereby demonstrated the emission limits on the subject to BART units covered by MPS and CPS satisfy the BART requirements.

Illinois did not rely on the Clean Air Interstate Rule (CAIR) for its BART determinations. Illinois is in the CAIR region. However, it used its state rules, permits, and consent decrees to achieve emission reductions that satisfy BART. This means that Illinois is not reliant on CAIR and, thus, it has avoided the issues of other CAIR region states that relied on CAIR. For similar reasons, Illinois' satisfaction of regional haze rule requirements is not contingent on the Transport Rule and thus is not affected by the stay of that rule.

E. Long-Term Strategy

Under section 169A(b)(2) of the CAA and 40 CFR 51.308(d), states' regional haze programs must include an LTS for making reasonable progress toward meeting the national visibility goal. Illinois's LTS must address visibility improvement for the Class I areas impacted by Illinois sources. Section 51.308(d)(3) requires that Illinois consult with the affected states in order to develop a coordinated emission management strategy. A contributing state, such as Illinois, must demonstrate that it has included, in its SIP, all measures necessary to obtain its share of the emissions reductions needed to meet the RPGs for the Class I areas affected by Illinois sources. As described in section III.D. of this proposed rule, the LTS is the compilation of all control measures Illinois will use to meet applicable RPGs. The LTS must include enforceable emissions limitations, compliance schedules, and other measures as necessary to achieve the RPGs for all Class I areas affected by Illinois emissions.

Illinois complied with the consulting requirements by participating in meetings and conference calls with affected Class I states and RPOs to discuss the states' assessments of visibility conditions, analyses of culpability, and possible measures that could be taken to meet visibility goals. Illinois engaged in extensive

consultations with other MRPO states, including Indiana, Michigan, Ohio, and Wisconsin. Illinois also consulted with Arkansas, Kentucky, Minnesota, Missouri, New Hampshire, New Jersey, and Vermont. As part of the MRPO, Illinois participated in inter-RPO consultation on regional haze. This consultation is detailed in Chapter 9 of the state's plan. EPA finds that the state's consultation with Class I states satisfies applicable consultation requirements.

Illinois's LTS includes the modeling and monitoring results on which it relied to determine its share of emission reductions necessary to meet the reasonable progress goals of impacted Class I areas. This information is provided in Chapter 9 of the Illinois regional haze plan. Portions of this technical work were provided by MRPO as it worked with other RPOs to provide this information on Class I areas outside the Midwest.

At 40 CFR 51.308(d)(3)(v), the RHR identifies seven factors that a state must consider in developing its LTS: (A) Emission reductions due to ongoing programs; (B) measures to mitigate impact from construction; (C) emission limits to achieve the RPG; (D) replacement and retirement of sources; (E) smoke management techniques; (F) Federally enforceable emission limits and control measures; and (G) the net effect on visibility due to projected emission changes over the LTS period. Illinois considered the seven factors in developing its LTS. Chapter 8 of the Illinois regional haze plan provides a full analysis of each factor.

Illinois relied on MRPO's modeling and analysis along with its emission information in developing a LTS. Illinois considered the factors set out in 51.308(d)(3)(v) in developing its LTS. Based on these factors and the MRPO's technical analysis, in conjunction with RPGs that were set by the pertinent Class I states in consultation with Illinois and other contributing states, Illinois concludes that existing control programs, together with the BART controls described above, address Illinois's impact on Class I areas. This is because the combination of the existing controls and the BART controls suffice to meet the impacted Class I areas' RPGs by 2018. These existing control programs include Federal motor vehicle emission control program, reformulated gasoline, emission limits for area sources of VOCs, Title IV, the NO_x SIP Call, NO_x Reasonable Achievable Control Technology, Maximum Achievable Control Technology standards, and Federal non-road standards for construction

equipment and vehicles. As discussed in prior sections, implementation of the existing control programs, supplemented by the control measures in the submission that require power plant and petroleum refinery emission reductions, will satisfy the LTS requirements because, for reasons discussed above, the expected emission reductions will meet requirements both to provide for BART and to provide emission reductions in Illinois that, in combination with emission reductions elsewhere, should improve visibility sufficiently for the pertinent Class I areas to meet their RPGs.

Illinois assessed all point sources in the state that emit at least 1,000 TPY of NO_x and SO₂ combined and are more than 100 km from a Class I area to determine if the sources could potentially affect visibility in a Class I area. The assessment followed EPA guidance in calculating the ratio of emission rate in TPY (Q) to the distance to the nearest Class I area (d). The exclusions also followed guidance. Illinois found 15 facilities with a Q/d ratio equal to and greater than 10, EPA's recommended threshold. The results of the Q/d assessment are found in Table 8.1 in the Illinois TSD. Illinois found that it expects the implementation of existing control measures will result in emission reductions from the 15 facilities. As such, Illinois believes that the expected emission reductions will ensure reasonable progress.

F. Monitoring Strategy

Illinois maintains a monitoring network that provides data to analyze air quality problems including regional haze. Illinois's monitoring network includes State and Local Air Monitoring Sites (SLAMS), Special Purpose Monitors (SPM), Photochemical Assessment Monitoring Sites (PAMS), and PM_{2.5} speciation sites. Illinois does not operate any sites under the IMPROVE program, but does have a site in Bondville, Illinois that monitors using the IMPROVE procedure method. Illinois is required under 40 CFR 51.308(d)(4) to have procedures for using the monitoring data to determine the contribution of emissions from within the state to affected Class I areas. Illinois developed procedures in conjunction with the MRPO. The procedures are detailed in the MRPO TSD. EPA finds that Illinois's regional haze plan meets the monitoring requirements for the RHR and that Illinois's network of monitoring sites is satisfactory to measure air quality and assess its contribution to regional haze.

G. Federal Land Manager Consultation

Illinois was required to consult with the FLMs under 40 CFR 51.308(i). Illinois consulted with the FLMs electronically and by telephone. The FLMs were also included in discussions with Illinois during MRPO conference calls and meetings. A draft regional haze plan was submitted for FLMs comments on August 6, 2009. Illinois then provided the FLMs a revised regional haze plan on October 7, 2010 for review. That provided the FLMs enough time to comment prior to the December 6, 2010, public hearing on the regional haze plan. Illinois has included comments from the FLMs in Attachment 9 to its regional haze plan, a document providing the comments Illinois received and its responses. The state has committed to consulting the FLMs on future SIP revisions and progress reports.

H. Comments

Illinois took comments on its proposed regional haze plan. It held a public hearing on December 6, 2010. The public comment period ended on January 5, 2011. Evidence of the public notice and evidence of the public hearing were submitted to EPA.

Illinois's submission includes a document, Attachment 9, which summarized the comments it received from both the FLMs and from the public and provides its responses to the comments. The state revised portions of its plan based on the comments to correct errors and clarify portions that caused confusion. Illinois responded to other comments without revising its plan. EPA concludes that Illinois has satisfied the requirements from 40 CFR Part 51, Appendix V to provide evidence that it gave public notice, took comments, and that it compiled and responded to comments.

V. What action is EPA taking?

EPA is proposing to approve revisions to the Illinois SIP, submitted on June 24, 2011, addressing regional haze for the first implementation period. The revisions address CAA and regional haze rule requirements for states to remedy any existing anthropogenic and prevent future impairment of visibility at Class I areas. EPA finds that Illinois has satisfied all the requirements and, thus, is proposing approval of the regional haze plan. EPA is also proposing to approve two state rules, MPS and CPS, and incorporating two permits, issued to City Water, Light, & Power and to Dominion Energy, into the SIP.

VI. Statutory and Executive Order Reviews

Under the CAA, the Administrator is required to approve a SIP submission that complies with the provisions of the CAA and applicable Federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the CAA. Accordingly, this action merely approves state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this action:

- Is not a "significant regulatory action" subject to review by the Office of Management and Budget under Executive Order 12866 (58 FR 51735, October 4, 1993);
 - Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);
 - Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);
 - Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4);
 - Does not have Federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
 - Is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
 - Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
 - Is not subject to requirements of Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the CAA; and
 - Does not provide EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).
- In addition, this rule does not have tribal implications as specified by Executive Order 13175 (65 FR 67249, November 9, 2000), because the SIP is not approved to apply in Indian country located in the state, and EPA notes that it will not impose substantial direct costs on tribal governments or preempt tribal law.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Intergovernmental relations, Nitrogen dioxide, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Volatile organic compounds.

Dated: January 17, 2012.

Susan Hedman,

Regional Administrator, Region 5.

[FR Doc. 2012-1606 Filed 1-25-12; 8:45 am]

BILLING CODE 6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R05-OAR-2011-0080; FRL-9622-7]

Approval and Promulgation of Air Quality Implementation Plans; Indiana; Regional Haze

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: EPA is proposing a limited approval of revisions to the Indiana State Implementation Plan (SIP) addressing regional haze for the first implementation period. Indiana submitted its regional haze plan on January 14, 2011, and supplemented it on March 10, 2011. The Indiana regional haze plan addresses the requirements of the Clean Air Act (CAA or Act) and Regional Haze Rule (RHR) requirements for states to remedy any existing and prevent future anthropogenic impairment of visibility in mandatory Class I areas caused by emissions of air pollutants from numerous sources located over a wide geographic area (also referred to as the "regional haze program"). States are required to assure reasonable progress toward the national goal of achieving natural visibility conditions in Class I areas. EPA is proposing a limited approval of these SIP revisions to implement the regional haze requirements for Indiana on the basis that the revisions, as a whole, strengthen the Indiana SIP. In a separate action, EPA has previously proposed a limited disapproval of the Indiana regional haze SIP because of the deficiencies in Indiana's regional haze SIP submittal arising from the remand by the U.S. Court of Appeals for the District of Columbia (D.C. Circuit) to EPA of the Clean Air Interstate Rule (CAIR). Consequently, we are not proposing to take action in this notice to address the state's reliance on CAIR to meet certain regional haze requirements.

DATES: Comments must be received on or before February 27, 2012.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-R05-OAR-2011-0080, by one of the following methods:

1. *www.regulations.gov*: Follow the on-line instructions for submitting comments.
2. *Email*: blakley.pamela@epa.gov.
3. *Fax*: (312) 692-2450.
4. *Mail*: Pamela Blakley, Chief, Control Strategies Section, Air Programs Branch (AR-18J), U.S. Environmental Protection Agency, 77 West Jackson Boulevard, Chicago, Illinois 60604.
5. *Hand Delivery*: Pamela Blakley, Chief, Control Strategies Section, Air Programs Branch (AR-18J), U.S. Environmental Protection Agency, 77 West Jackson Boulevard, Chicago, Illinois 60604. Such deliveries are only accepted during the Regional Office normal hours of operation, and special arrangements should be made for deliveries of boxed information. The Regional Office official hours of business are Monday through Friday, 8:30 a.m. to 4:30 p.m., excluding Federal holidays.

Instructions: Direct your comments to Docket ID No. EPA-R05-OAR-2011-0080. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at www.regulations.gov, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through www.regulations.gov or email. The www.regulations.gov Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to EPA without going through www.regulations.gov your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of

States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a “major rule” as defined by 5 U.S.C. 804(2).

C. Petitions for Judicial Review

Under section 307(b)(1) of the CAA, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by September 4, 2012. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this action for the purposes of judicial review nor does it extend the time within which a petition for judicial review may be filed, and shall not postpone the effectiveness of

such rule or action. This action pertaining to Maryland’s Regional Haze Plan for the first implementation period, through 2018 may not be challenged later in proceedings to enforce its requirements. See section 307(b)(2) of the CAA.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Nitrogen dioxide, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Volatile organic compounds.

Dated: June 13, 2012.
W.C. Early,
Acting Regional Administrator, Region III.
 Therefore, 40 CFR part 52 is amended as follows:

PART 52—[AMENDED]

■ 1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart V—Maryland

■ 2. In § 52.1070, the table in paragraph (e) is amended by adding the entry for the Maryland Regional Haze Plan at the end of the table to read as follows:

§ 52.1070 Identification of plan.

* * * * *
 (e) * * *

Name of non-regulatory SIP revision	Applicable geographic area	State submittal date	EPA approval date	Additional explanation
<p style="text-align: center;">* * * * *</p> Maryland Regional Haze Plan	<p style="text-align: center;">* * * * *</p> Statewide	<p style="text-align: center;">* * * * *</p> 2/13/12	<p style="text-align: center;">* * * * *</p> 7/6/2012	<p style="text-align: center;">* * * * *</p> [Insert page number where the document begins].

[FR Doc. 2012–16417 Filed 7–5–12; 8:45 am]
BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA–R05–OAR–2011–0598; FRL–9683–6]

Approval and Promulgation of Air Quality Implementation Plans; Illinois; Regional Haze

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: EPA is approving revisions to the Illinois State Implementation Plan, submitted on June 24, 2011, addressing regional haze for the first implementation period. EPA received comments disputing its proposed finding regarding best available retrofit technology, but EPA continues to believe that Illinois’ plan limits power plant emissions as well as would be achieved by directly requiring best available retrofit technology. Therefore, EPA finds that the Illinois regional haze plan satisfactorily addresses Clean Air Act section 169A and Regional Haze Rule requirements for states to remedy any existing and prevent future anthropogenic impairment of visibility at mandatory Class I areas. EPA is also approving two state rules and

incorporating two permits into the state implementation plan.

DATES: This final rule is effective on August 6, 2012.

ADDRESSES: EPA has established a docket for this action under Docket ID No. EPA–R05–OAR–2011–0598. All documents in the docket are listed on the *www.regulations.gov* web site. Although listed in the index, some information is not publicly available, i.e., Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through *www.regulations.gov* or in hard copy at the Environmental Protection Agency, Region 5, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604. This facility is open from 8:30 AM to 4:30 PM, Monday through Friday, excluding Federal holidays. We recommend that you telephone John Summerhays, Environmental Scientist, at (312) 886–6067 before visiting the Region 5 office.

FOR FURTHER INFORMATION CONTACT: John Summerhays, Environmental Scientist, Attainment Planning and Maintenance Section, Air Programs Branch (AR–18J), Environmental Protection Agency, Region 5, 77 West Jackson Boulevard,

Chicago, Illinois 60604, (312) 886–6067, *summerhays.john@epa.gov*.

SUPPLEMENTARY INFORMATION: This supplementary information section is arranged as follows:

- I. Synopsis of Proposed Rule
- II. Comments and Responses
- III. What action is EPA taking?
- IV. Statutory and Executive Order Reviews

I. Synopsis of Proposed Rule

Illinois submitted a plan on June 24, 2011, to address the requirements of Clean Air Act section 169A and the Regional Haze Rule, as codified in Title 40 Code of Federal Regulations Part 51.308 (40 CFR 51.308).

EPA published a notice of proposed rulemaking evaluating Illinois’ submittal on January 26, 2012, at 77 FR 3966. This notice described the nature of the regional haze problem and the statutory and regulatory background for EPA’s review of Illinois’ regional haze plan. The notice provided a lengthy delineation of the requirements that Illinois intended to meet, including requirements for mandating BART, consultation with other states in establishing goals representing reasonable progress in mitigating anthropogenic visibility impairment, and adoption of limitations as necessary to implement a long-term strategy for reducing visibility impairment.

Of particular interest were EPA’s findings regarding BART. States are required to address the BART

requirements for sources with significant impacts on visibility, which Illinois defined as having at least 0.5 deciview impact on a Class I area. Using modeling performed by the Lake Michigan Air Directors Consortium (LADCO), Illinois identified 10 power plants and two refineries as having sufficient impact to warrant being subject to a requirement representing BART.¹

Seven of the power plants that were identified as being subject to the requirement for BART are addressed in one of two sets of provisions of Illinois' rules known respectively as the Combined Pollutant Standards (CPS), 35 Ill. Administrative Code 225.233, and the Multi-Pollutant Standards (MPS), 35 Illinois Administrative Code 225.293–225.299. These provisions are included in Illinois' mercury rules. These rules offer the affected utilities (Midwest Generation, Dynegy, and Ameren) a choice of limitations, either to include 1) specific mercury emission limitations effective in 2015 with no limits on emissions of sulfur dioxide (SO₂) or nitrogen oxides (NO_x) or 2) work practice requirements for installation of mercury control equipment in conjunction with limits on SO₂ and NO_x emissions. Illinois' submittal includes letters from the affected companies choosing the option that includes SO₂ and NO_x emission limits, which pursuant to Illinois' rules establishes these limits as enforceable limits. In the case of Midwest Generation, three of its power plants meet the criteria for being subject to BART, and six plants are governed by the SO₂ and NO_x limits in the Multi-Pollutant Standards. In the case of Dynegy, one of its power plants meets the criteria for being subject to BART, and four coal-fired power plants are governed by the SO₂ and NO_x limits in the (CPS). In the case of Ameren, three of its power plants meet the criteria for being subject to BART, and five coal-fired plants are governed by the SO₂ and NO_x limits in the (CPS). In the notice of proposed rulemaking, EPA proposed to conclude that the emission reductions from the (MPS) and the (CPS) would be greater than the reductions that would occur with unit-specific implementation of BART on the subset of these sources that meet the criteria for being subject to BART. Therefore, EPA proposed to find that the (MPS) and the (CPS) suffice to address

the BART requirement for the power plants of these three utilities.

Illinois also developed source-specific limits to mandate BART for three additional power plants. These limits are adopted into two permits, one for Kincaid Generation's Kincaid Station and one for City Water, Light, and Power's (CWLP) Dallman Station and Lakeside Station. CWLP shutdown Lakeside Station in 2009, and the CWLP permit requires that the Lakeside Station never resume operation. Finally, Illinois found that Federal consent decrees regulating emissions from the two refineries with units subject to BART (facilities owned by ExxonMobil and Citgo) mandate control at the refineries in Illinois at least as much as would be required as BART. EPA proposed to conclude that Illinois satisfied BART requirements for the affected Illinois power plants and refineries.

As stated in the notice of proposed rulemaking, Illinois did not rely on the Clean Air Interstate Rule (CAIR) for its BART determinations. Illinois is in the CAIR region. However, it used its state rules, permits, and consent decrees to achieve emission reductions that satisfy BART. This means that Illinois is not reliant on CAIR and, thus, it has avoided the issues of other CAIR region states that relied on CAIR. For similar reasons, Illinois' satisfaction of regional haze rule requirements is not contingent on the Cross-State Air Pollution Rule (CSAPR) and thus is not affected by the stay of that rule.

II. Comments and Responses

EPA received comments from three commenters on its proposed rulemaking on the Illinois regional haze plan. These commenters included ExxonMobil, the U.S. Forest Service, and the Environmental Law and Policy Center (ELPC).

ExxonMobil comments that section 169A(b)(2)(A) requires sources to implement BART *as determined by the state* (emphasis in the original), and agrees with Illinois' and EPA's conclusion that "emission limits established by the consent decrees may be relied upon by Illinois for addressing the BART requirement for these facilities." While EPA has the responsibility to evaluate whether it believes that states have made appropriate determinations as to what restrictions constitute BART, EPA appreciates the comment supporting its position, which EPA has no reason to change, that the Federal consent decrees for ExxonMobil and Citgo adequately mandate BART for the two Illinois refineries.

The U.S. Forest Service wrote to express its appreciation to Illinois for addressing prior Forest Service comments and to express support for EPA's proposed approval of Illinois' plan.

ELPC sent extensive comments objecting that control requirements for power plants in Illinois do not suffice to meet the BART requirements and leave Illinois short of meeting reasonable progress requirements. These comments are addressed in detail in the discussion that follows.

Comment: ELPC argues that "the plain language of the Clean Air Act precludes alternatives to BART." Since the Illinois plan establishes limits that govern the collective emissions of multiple power plants owned by pertinent utilities, the plan relies on an alternative to BART as described in 40 CFR 51.308(e)(2) rather than mandating BART on a source-specific basis. ELPC states that BART at BART-eligible sources is expressly mandated in Clean Air Act section 169A(b)(2)(A). ELPC acknowledges that the Clean Air Act authorizes limited exemptions from BART, in cases which EPA determines pursuant to section 169A(c)(1) that "the source does not either by itself or in combination with other sources 'emit any air pollutant which may reasonably be anticipated to cause or contribute to a significant impairment of visibility in any mandatory class I federal area.'" ELPC observes that "[n]owhere in Section 169A did Congress contemplate or sanction sweeping alternative programs" such as Illinois uses to address BART for many of its BART-subject power plants "in lieu of source specific BART."

ELPC acknowledges that EPA promulgated regulations reflecting its interpretation that BART requirements may be satisfied by alternative programs, and ELPC acknowledges that "the DC Circuit Court of Appeals has upheld [these] regulations." Nevertheless, "because these [court rulings] cannot be reconciled with the plan language of the Clean Air Act," ELPC urges that "EPA should not rely on [this interpretation] to exempt Illinois from implementing BART."

Response: In several previous rules, EPA has concluded that Clean Air Act section 169A may reasonably be interpreted to provide that the requirement for BART may be satisfied by an alternative program that provides greater visibility protection in lieu of limitations that directly mandate BART for individual sources determined to be subject to the BART requirement. See 40 CFR 51.308(e), 64 FR 35741–35743 (July 1, 1999), and 70 FR 39136 (July 6, 2005).

¹ The notice of proposed rulemaking lists 10 EGUs as being subject to BART (including two facilities owned by City Water Light and Power (CWLP)) but states that only 9 EGUs are subject to BART. This is because CWLP shut down the Lakeside plant that was subject to BART in 2009.

As ELPC acknowledges, the Court of Appeals for the District of Columbia Circuit supports that interpretation, *Center for Energy and Economic Development v. EPA*, 398 F.3d 653, 660 (D.C. Cir. 2005) (“*CEED*”) (finding reasonable EPA’s interpretation of CAA section 169(a)(2) as requiring BART only as necessary to make reasonable progress), as has the Ninth Circuit, *Central Arizona Water Conservation District v. EPA*, 990 F.2d 1531, 1543 (9th Cir. 1993). Therefore, EPA views Illinois’ approach as an acceptable means of addressing the BART requirement in section 169A.

Comment: ELPC comments that “Illinois was required, but failed, to make a BART determination for each source subject to BART in the state.” ELPC lists the elements of a BART analysis that a state “*must submit*” (emphasis in original) pursuant to 40 CFR 51.308(e)(2), and ELPC states that Illinois has failed to make the BART determination based on source-specific information that EPA’s regulations require. “Rather than make a BART determination for each individual source subject to BART that would be covered by Illinois’ proposed alternative,” ELPC objects that the state “simply compared projected emissions reductions [from the adopted restrictions] to presumptive BART emissions.” ELPC comments that “[b]ecause Illinois entirely failed to use source-specific information or undertake a comprehensive five factor analysis to determine BART, its proposed Regional Haze State Implementation Plan (SIP) may not be approved.

Response: The primary requirement, as specified in Clean Air Act section 169A, is for sources to procure, install, and operate BART. In some cases this requirement is met with an analysis of potential controls considering five factors set out in EPA’s regional haze rule (a “five-factor analysis”). 40 CFR 51.308(e)(1)(ii)(A). As noted above, EPA has determined that this requirement can be met by a state establishing an alternative set of emission limits which mandate greater reasonable progress toward visibility improvement than direct application of BART on a source-by-source basis.

In promulgating the 1999 regional haze regulations, EPA stated that to demonstrate that emission reductions of an alternative program would result in greater emission reductions, “the State

must estimate the emission reductions that would result from the use of BART-level controls. To do this, the State could undertake a source-specific review of the sources in the State subject to BART, or it could use a modified approach that simplifies the analysis.” 64 FR 35742 (July 1, 1999).

In guidance published on October 13, 2006, EPA offered further clarification for states for assessing alternative strategies, in particular regarding the benchmark definition of BART to use in judging whether the alternative is better. See 71 FR 60612. In this rulemaking, EPA stated in the preamble that the presumptive BART levels given in the BART guidelines would be a suitable baseline against which to compare alternative strategies where the alternative has been designed to meet a requirement other than BART. 71 FR at 60619; *see also* 40 CFR 51.308(e)(2)(i)(C). Illinois’ analysis is fully consistent with EPA’s conclusions in this rulemaking.

Nevertheless, EPA undertook further analysis comparing Illinois’ strategy against more stringent definitions of BART. In brief, EPA found that the alternative restrictions imposed by Illinois can be demonstrated to provide greater emission reductions and greater visibility improvement than even very conservative definitions of BART, even without a full analysis of the emission levels that constitute BART. The demonstration is discussed below, in the context of response to comments addressing the magnitude of controls at Illinois power plants.

Comment: ELPC believes that the pertinent requirements in Illinois’ plan “will not achieve greater reasonable progress toward natural visibility conditions than BART.” Furthermore, “the MPS/CPS contains absolutely no requirements for specific control equipment to be installed or operated at any source subject to BART in Illinois.” ELPC identifies several examples of BART units that are expected to comply with the MPS or CPS with controls that are less effective than BART-level controls. ELPC also finds it problematic that “requirements for 2017 for Ameren exceed presumptive BART requirements for NO_x at one of the three plants subject to BART, and far exceed presumptive SO₂ BART limits at *all three* (emphasis in original) Ameren plants subject to BART.” ELPC raises similar concerns in relation to specified Midwest Generation (MWG) plants. For

this reason, “and because Ameren and MWG need not meet even those weak requirements at their plants subject to BART, the MPS/CPS is not ‘better’ than presumptive BART limits.”

Response: ELPC appears to misunderstand the applicable test for alternate strategies for addressing BART. In particular, ELPC appears to believe that under the alternative approach, Illinois must require BART-level controls at each unit subject to BART. In fact, the underlying principle of EPA’s guidance on alternative measures is to offer states the flexibility to require less control at BART units than BART-level control, provided the states provide additional control at non-BART units that more than compensates for any degree to which control at BART units falls short of BART. Illinois is using precisely this flexibility. Irrespective of the degree to which control at individual power plant BART units may be less stringent than the limits that for those particular units would be defined as BART, Illinois is requiring control across a universe of sources that includes many sources that are not subject to BART, thereby providing reductions that under EPA’s rules and BART guidelines on alternative measures can compensate for any shortfall in control at BART units.

In response to these comments, EPA conducted further analysis of whether Illinois’ requirements, addressing a substantial number of sources, can be expected to provide greater reasonable progress toward visibility protection than application of BART to the more limited number of units subject to a requirement for BART. EPA’s analysis did not rely on a full five-factor analysis of BART at each BART-subject unit. Instead of using presumptive limits, EPA used emission limits described in EPA’s RACT/BACT/LAER Clearinghouse as being applied to new sources. These limits, namely 0.06 pounds per million British Thermal Units (#/MMBTU) for NO_x and also 0.06 #/MMBTU for SO₂, are as stringent and are probably more stringent than would generally be expected to be met at existing power plants, due to the design constraints that are sometimes inherent in controlling emissions at an existing facility.

A more complete description of EPA’s analysis is provided in the technical support document being placed in the docket for this rule. Table 1 provides a summary of the results of this analysis.

TABLE 1—EMISSION REDUCTIONS MANDATED BY ILLINOIS' PLAN AND CONSERVATIVE ESTIMATES OF BART REDUCTIONS

Company	BART units	Total units	NO _x reductions (tons/year)		SO ₂ reductions (tons/year)	
			IL Plan	Lowest BART	IL Plan	Lowest BART
Ameren	5	24	24,074	23,849	111,997	74,349
Dynergy	3	10	23,867	18,551	47,378	22,444
MWG	9	19	37,819	28,061	61,292	38,963
CWLP	3	3	5,375	5,560	4,875	5,619
Kincaid	2	2	16,874	18,970	12,827	15,730
Totals	22	58	108,009	94,991	238,369	157,105

This table shows that the reductions from Illinois' plan, including reductions from the MPS, the CPS, and the permits for CWLP and Kincaid Generation, provide significantly greater emission reductions, especially for SO₂ but also for NO_x, than even very conservative definitions of BART for the BART-subject units. While Illinois' limits for the CWLP and Kincaid facilities viewed individually are subject to limits at approximately presumptive levels, and thus mandate less reduction than would be mandated by conservative definitions of BART, this analysis indicates that the collective emission reductions from Illinois power plants are greater than those that would be achieved by requiring achievement of even very conservative limits at the units that are subject to a BART requirement.

An additional point to be addressed is whether Illinois' plan, achieving greater emission reductions overall than application of BART on BART-subject units, can be expected also to achieve greater visibility protection than application of BART on BART-subject units. In general, Illinois' power plants are substantial distances from any Class I area. The least distance from any BART-subject Illinois power plant to any Class I area is from Dynergy's Baldwin power plant to the Mingo Wilderness Area, a distance of about 140 kilometers. The CWLP and Kincaid facilities are in the middle of the State; for example, Kincaid Station is about 300 kilometers from the Mingo Wilderness Area. Given these distances, and given that the averaging in Illinois' plan (averaging among Illinois plants of an individual company) is only authorized within the somewhat limited region within which each utility's plants are located, a reallocation of emission reductions from one plant to another is unlikely to change the impact of those emission reductions significantly. Consequently, in these circumstances, EPA is confident that the significantly greater emission reductions that Illinois mandates will yield greater progress toward visibility protection as

compared to the benefits of a conservative estimate of BART.

Comment: ELPC comments that the "MPS/CPS does not require that all necessary emissions reductions take place during the first long-term strategy for regional haze."

Response: EPA does not prohibit reductions after the BART compliance deadline (in 2017); Illinois is only required to mandate at least measures that will achieve greater reasonable progress by the BART compliance deadline. While the MPS and the CPS establish a series of progressively more stringent limits extending to 2017 and beyond, both Illinois' analysis and the EPA analysis discussed above (summarized in Table 1) evaluate satisfaction of BART requirements by considering the emission limits in effect in 2017. The conclusion of that analysis is that the reductions necessary to meet BART requirements occur by the deadline for such reductions to occur. The fact that Illinois' plan requires additional reductions after 2017 is not a shortcoming of Illinois' plan.

Comment: ELPC expects the affected utilities to use the reductions mandated here to comply with CSAPR. ELPC concludes that these reductions cannot be considered surplus and thus are not creditable for meeting BART requirements.

Response: Under 40 CFR 51.308(e)(2), the alternative measures need only be surplus to reductions from measures adopted to meet requirements of the Clean Air Act as of the baseline date of the SIP, i.e. 2002. (See 40 CFR 51.308(e)(2)(iv).) In addition, 40 CFR 51.308(e) expressly provides that the BART requirements may be met by compliance with a trading program of adequate stringency even without establishment of state-specific limits. Therefore, the existence of a trading program, and influence that the state limits have on a utility's strategy for complying with the trading program requirements, cannot be grounds for disapproving a state plan that satisfies

alternative BART requirements without reliance on the trading program.

Comment: ELPC expresses a number of concerns about the BART analysis for Kincaid Station. ELPC particularly expresses concern that the company analyzes wet flue gas desulfurization for a scenario based on a relatively high sulfur Illinois coal but analyzes dry sorbent injection based on a low sulfur western coal, biasing the comparison toward a conclusion that use of the control that is least effective at removing SO₂ nevertheless achieves the lowest emissions of SO₂.

Response: EPA agrees that use of higher sulfur coal in the scenario of wet flue gas desulfurization creates a mismatch in comparing this control to the other control options. However, ELPC does not demonstrate that a more appropriate comparison would yield a different result. Indeed, given how much more expensive wet flue gas desulfurization has been estimated to be for this facility as compared to dry sorbent injection (company estimates of annualized costs of \$125 million versus \$25 million), EPA believes that a revised BART analysis that used the same fuel for all scenarios, and thus achieved lower emissions with wet flue gas desulfurization, would still show that wet flue gas desulfurization is not cost-effective for this facility. Therefore, EPA continues to believe that Illinois made the appropriate BART determination for this facility.

Comment: ELPC objects to the use of annual average limits, expressing concern that annual average limits allow individual days of concern to have excessive visibility impairment.

Response: EPA's BART guidance establishes presumptive averaging times of 30 days or shorter, but EPA also finds Illinois' limits to be approvable. While a limit expressed as an annual average is inherently less stringent than the same limit expressed as a 30-day average, EPA believes that Illinois provides adequate compensation in part by setting some limits below presumptive levels and in part by

limiting several units that are not subject to a BART requirement.

A useful perspective is to examine the metrics by which regional haze is evaluated. These metrics are averages of visibility across 20 percent of the days of the year, in particular across the 20 percent of days with the worst visibility and across the 20 percent of days with the best visibility. (See 64 FR 35734) Twenty percent of 365 days in a year is 73 days. Furthermore, the days that have better or worse visibility are distributed throughout the year, so that allowance of greater variability in daily or monthly emissions would not necessarily yield worse (or better) visibility. Thus, while a 30-day average limit would be better suited to assuring appropriate mitigation of visibility impairment, EPA finds Illinois' annual average limitations to be adequately commensurate with the averaging time inherent in the visibility metrics being addressed.

Another facet of the use of annual rather than 30-day or shorter averages is stringency. Given normal variability in emissions, an annual average limitation is by definition less stringent than a 30-day or shorter average limitation set at the same level. In some contexts, especially those involving short-term air quality standards, EPA would not accept an annual average limitation without a demonstration that the limitation suffices to mandate that short-term average emission levels must remain below some definable, adequate level. However, different criteria are warranted in the context of regional haze, for which the relevant emissions are the emissions on the 20 percent of days with worst visibility and the 20 percent of days with best visibility. Examining the stringency of the particular limitations that Illinois has adopted, and considering degree of variability in 73-day average emissions that might be expected with an annual average emission limit, EPA finds that Illinois' annual average limitations are sufficiently stringent to conclude that emissions on a 30-day average basis can be expected to provide the visibility improvement that Illinois is required to provide.

Comment: ELPC comments that Illinois' long-term strategy must be disapproved. ELPC expresses particular concern that Illinois' plan does not mandate emission reductions for two power plants, specifically Ameren's Joppa plant and Southern Illinois Power Company's Marion plant, which ELPC believes must be mandated "to achieve the reasonable progress goals for Class I areas affected by the state." ELPC notes that "Illinois claimed that existing or

soon-to-be-implemented regulatory program"—in particular, the MPS/CPS and CSAPR—"would require sufficient emissions reductions on the 15 most significant sources so as to ensure achievement of reasonable progress goals in impacted Class I areas." ELPC acknowledges that the Joppa Plant is addressed to the extent that Ameren's plants are collectively limited under the MPS, but ELPC observes that Ameren has the choice to comply with the MPS "without making any reductions at Joppa," even though the plant has "a Q/D ratio" (dividing emissions by distance to the nearest Class I area) that is "nearly three times larger than any other evaluated source." ELPC also objects that CSAPR "also does not ensure emission reductions at either Joppa or Marion, because (1) the rule is under legal challenge, is currently stayed, and may never go into effect, (2) "does not require emission reductions at particular plants," and (3) by restricting annual emissions does not necessarily limit emissions in seasons when the most degradation in visibility may occur.

Response: Achievement of the applicable reasonable progress goals is not contingent on Illinois limiting emissions from the Joppa or Marion plants in particular. Given the distances of the sources in Illinois from affected Class I areas, the least of which is about 120 kilometers from the Joppa plant to Mingo Wilderness Area, the impact on visibility is primarily dependent on the total emission reductions and not on the geographical distribution of those reductions. That is, even if Ameren for example were to opt to control its Coffeen plant (about 240 kilometers from Mingo Wilderness Area) more than its Joppa plant, the net effect on visibility would likely be similar.

EPA recognizes that CSAPR is under challenge and is currently stayed. However, Illinois is not relying on additional reductions from CSAPR to provide its appropriate contribution toward achieving reasonable progress in visibility protection. Therefore, the litigation status of CSAPR is not germane to the approvability of Illinois' regional haze plan.

III. What action is EPA taking?

EPA is approving Illinois' regional haze plan as satisfying the applicable requirements in 40 CFR 51.308. Most notably, EPA concludes that Illinois has satisfied the requirements for BART in 40 CFR 51.308(e) and has adopted a long-term strategy that reduces emissions in Illinois that, in combination with similar reductions elsewhere, EPA expects to suffice to

achieve the reasonable progress goals at Class I areas affected by Illinois.

In this action, EPA is also approving a set of rules and two permits for incorporation into the state implementation plan. Specifically, EPA is approving the following rules: Title 35 of Illinois Administrative Code Rules 225.233 (paragraphs a, b, e, and g), 225.291, 225.292, 225.293, 225.295, 225.296 (except paragraph d), and 225 Appendix A. While the rules provide the SO₂ and NO_x limits as one of two options that the affected utilities may choose between, EPA is incorporating into the SIP Illinois' submittal of letters from the affected utilities choosing the option including the SO₂ and NO_x limits, which under the approved rules makes these limits permanently enforceable. Therefore, these SO₂ and NO_x limits are state enforceable and, with this SIP approval, now become federally enforceable as well. EPA also considers the limits of the state permits and the refinery consent decrees to be enforceable. While Illinois adopted the above rules as part of a state rulemaking which mostly addressed mercury emissions, the mercury provisions are not germane to this rulemaking, Illinois did not submit the mercury-related rules, and the limited set of rules that Illinois submitted suffice to mandate the SO₂ and NO_x emission controls that are pertinent to this action.

IV. Statutory and Executive Order Reviews

Under the Clean Air Act, the Administrator is required to approve a SIP submission that complies with the provisions of the Clean Air Act and applicable Federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, EPA's role is to approve state choices, provided that they meet the criteria of the Clean Air Act. Accordingly, this action merely approves state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this action:

- Is not a "significant regulatory action" subject to review by the Office of Management and Budget under Executive Order 12866 (58 FR 51735, October 4, 1993);
- Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);
- Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);

- Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4);
 - Does not have Federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
 - Is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
 - Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
 - Is not subject to requirements of Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the Clean Air Act; and
 - Does not provide EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).
- In addition, this rule does not have tribal implications as specified by Executive Order 13175 (65 FR 67249, November 9, 2000), because the SIP is not approved to apply in Indian country located in the state, and EPA notes that it will not impose substantial direct costs on tribal governments or preempt tribal law.
- The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this action and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a "major rule" as defined by 5 U.S.C. 804(2).
- Under section 307(b)(1) of the Clean Air Act, petitions for judicial review of this action must be filed in the United States Court of Appeals for the appropriate circuit by September 4, 2012. Filing a petition for reconsideration by the Administrator of this final rule does not affect the finality of this action for the purposes of judicial review nor does it extend the time

within which a petition for judicial review may be filed, and shall not postpone the effectiveness of such rule or action. This action may not be challenged later in proceedings to enforce its requirements. (See section 307(b)(2).)

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides.

Dated: May 29, 2012.

Susan Hedman,

Regional Administrator, Region 5.

40 CFR part 52 is amended as follows:

PART 52—[AMENDED]

- 1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

Subpart O—Illinois

- 2. Section 52.720 is amended by adding paragraph (c)(192) to read as follows:

§ 52.720 Identification of plan.

* * * * *

(c) * * *

(192) On June 24, 2011, Laurel Kroack, Illinois Environmental Protection Agency, submitted Illinois' regional haze plan to Cheryl Newton, Region 5, EPA. This plan includes a long-term strategy with emission limits for mandating emission reductions equivalent to the reductions from implementing best available retrofit technology and with emission reductions to provide Illinois' contribution toward achievement of reasonable progress goals at Class I areas affected by Illinois. The plan specifically includes regulations establishing Multi-Pollutant Standards and Combined Pollutant Standards, along with letters from the affected electric utilities establishing the applicability and enforceability of the option that includes sulfur dioxide and nitrogen oxide emission limits. The plan also includes permits establishing sulfur dioxide and nitrogen oxide emission limits for three additional electric generating plants and two consent decrees establishing sulfur dioxide and nitrogen oxide emission limits for two refineries.

(i) Incorporation by reference.

(A) The following sections of Illinois Administrative Code, Title 35: Environmental Protection, Subtitle B: Air Pollution, Chapter 1: Pollution

Control Board, Subchapter c: Emission Standards and Limitations for Stationary Sources, Part 225, Control of Emissions from Large Combustion Sources, published at 33 IL Reg 10427, effective June 26, 2009, are incorporated by reference:

(1) Subpart B: Control Of Mercury Emissions From Coal-Fired Electric Generating Units, Section 225.233 Multi-Pollutant Standards (MPS), only subsections (a), (b), (e), and (g), Section 225.291 Combined Pollutant Standard: Purpose, Section 225.292 Applicability of the Combined Pollutant Standard, Section 225.293 Combined Pollutant Standard: Notice of Intent, Section 225.295 Combined Pollutant Standard: Emissions standards for NO_x and SO₂, and Section 225.296 Combined Pollutant Standard: Control Technology Requirements for NO_x, SO₂, and PM Emissions, except for 225.296(d).

(2) Section 225. Appendix A Specified EGUs for Purposes of the CPS (Midwest Generation's Coal-Fired Boilers as of July 1, 2006).

(B) Joint Construction and Operating Permit: Application Number 09090046, Issued on June 23, 2011, to City Water, Light & Power, City of Springfield.

(C) Joint Construction and Operating Permit: Application Number 09050022, Issued on June 24, 2011, to Kincaid Generation, LLC.

(ii) Additional material.

(A) Letter from Guy Gorney, Midwest Generation to Dave Bloomberg, Illinois EPA, dated December 27, 2007, choosing to be subject to provisions of the Multi-Pollutant Standards that include emission limits for sulfur dioxide and nitrogen oxides.

(B) Letter from R. Alan Kelley, Ameren, to Jim Ross, Illinois EPA, dated December 27, 2007, choosing to be subject to provisions of the Combined Pollutant Standards that include emission limits for sulfur dioxide and nitrogen oxides.

(C) Letter from Keith A. McFarland, Dynegy, to Raymond Pilapil, Illinois EPA, dated November 26, 2007, choosing to be subject to provisions of the Combined Pollutant Standards that include emission limits for sulfur dioxide and nitrogen oxides.

[FR Doc. 2012-16557 Filed 7-5-12; 8:45 am]

BILLING CODE 6560-50-P

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
AMENDMENTS TO)
35 ILL. ADM. CODE 225.233) R18-20
MULTI-POLLUTION STANDARDS) (Rulemaking – Air)
(MPS))

NOTICE OF FILING

PLEASE TAKE NOTICE that I have filed with the Illinois Pollution Control Board the Pre-Filed Testimony of Brian Urbaszewski on behalf Sierra Club, Environmental Law and Policy Center, and Respiratory Health Association of Metropolitan Chicago on the Pollution Control Board's First Notice Proposal, a copy of which is hereby served upon you.

Respectfully submitted,

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Dated: February 6th, 2018

*See electronic filing for attachments/
Exhibits*

*Exhibit 34
3/7/18
R18-20
mt*

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CERTIFICATE OF SERVICE

I, Akriti Bhargava, so certify that on February 6th, 2018, I served copies of Pre-Filed Testimony of Brian P. Urbaszewski on the Pollution Control board's First Notice Proposal, and the Notice of filing upon the parties and persons listed in the attached Service List by email for those who have consented to email service and by U.S. Mail for all others.

/s/ Akriti Bhargava
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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
AMENDMENTS TO)
35 ILL. ADM. CODE 225.233) R18-20
MULTI-POLLUTION STANDARDS) (Rulemaking – Air)
(MPS))

**PRE-FILED TESTIMONY OF BRIAN P. URBASZEWSKI ON THE POLLUTION
CONTROL BOARD'S FIRST NOTICE PROPOSAL**

Environmental Law & Policy Center, Respiratory Health Association of Metropolitan Chicago, and Sierra Club, hereby file the testimony of Brian P. Urbaszewski directed to the Illinois Pollution Control Board (“Board”) in this matter, as provided by the Hearing Officer Order issued on January 29, 2017.

I. INTRODUCTION

I am the Director of Environmental Health Programs at Respiratory Health Association of Metropolitan Chicago. I work to promote clean air in Illinois and metropolitan Chicago through public policy advocacy and public education. I have worked to implement protective local, state and national air quality policies and legislation covering coal power plant emissions, diesel and gasoline vehicle emission standards, national air quality health standards, climate change health risks, as well as various air pollution education and awareness campaigns. I have spoken at local university and college classes, presented at academic and professional symposia. I have also testified before both the Illinois General Assembly and the Chicago City Council on environmental health policy matters and has provided public comment on behalf of RHA to the US Environmental Protection Agency. I joined Respiratory Health Association in 1998. I hold degrees from the University of Chicago (AB Geographical Studies) and the University of Illinois

(Masters in Urban Planning and Policy). I previously worked for the Illinois Environmental Protection Agency.

Respiratory Health Association's mission is to prevent lung disease, promote clean air and help people live better through education, research, and policy change. Respiratory Health Association has been a local public health leader since 1906. As health practices and treatments, medicines, and environmental factors have evolved, so has RHA. Today we address asthma, COPD, lung cancer, tobacco control and air quality with a comprehensive approach.

II. HEALTH EFFECTS OF SO₂

High concentrations of sulfur dioxide (SO₂) for short periods of time can harm the respiratory system and cause breathing problems. Short-term exposure to SO₂ can cause wheezing, chest tightness and shortness of breath. Even low concentrations of sulfur dioxide, however, still pose a threat of respiratory problems for children, the elderly, and those who suffer from asthma. Repeated, long-term exposure to lower levels of sulfur dioxide may decrease pulmonary function and cause bronchitis.

In addition, SO₂ reacts with other compounds in the atmosphere to form small particles and contribute to particulate matter (PM) pollution. Fine particulates penetrate deeply into the lungs and cause serious health problems including heart attacks, aggravated asthma and decreased lung function. Studies have found significant evidence of adverse effects of exposure to fine particle pollution at levels below current national standards—the National Ambient Air Quality Standards (NAAQS).^{1 2}

¹ Di, Qian et al., *Association of Short-term Exposure to Air Pollution With Mortality in Older*

Electronic Filing: Received, Clerk's Office 2/6/2018

This effect was most pronounced racial minorities and low income individuals.³ In other words, the scientific consensus, including at USEPA is that there is no safe threshold level of fine particle pollution below which there is no risk to human health from exposure.⁴

The NAAQS are required to protect public health “with an adequate margin of safety.” “An adequate margin of safety” obviously still requires a judgment call by the United States Environmental Protection Agency (U.S. EPA) and does not mean that U.S. EPA picks a threshold below which no health harms occur.⁵

U.S. EPA’s assessment for the SO₂ NAAQS was slightly different than PM because of the manner in which SO₂ causes negative health effects. For SO₂, it is short term spikes that trigger measurable health harms. But short spikes are hard to measure, so U.S. EPA set a longer-term average (i.e. hourly) that is sufficiently low in order to limit excessive short term spikes and also the magnitude of spikes. But even then U.S. EPA expressed concerns that this method under-estimated potential exposure:

These results may suggest that a single peak approach (i.e., 24 peak concentrations per day) for estimating the number of persons and days with 5-minute SO exposures as a

Adults, 318 JAMA 2446 (Dec. 26,2017).

Attached hereto as Exhibit 1

² Di, Qian et al., *Air Pollution and Mortality in the Medicare Population*, 376 NEJM 2513 (June 29, 2017)

Attached hereto as Exhibit 2

³ *Id.*

⁴ Letter from Gina McCarthy, Asst. Administrator, EPA, to Fred Upton, Chairman, US House Committee on Energy and Commerce, (Feb. 3, 2012) (on file with EPA)

Attached hereto as Exhibit 3

⁵ *Id.*

surrogate for all possible peak exposure events may lead to an under-estimate in the number of potential exposures.⁶

In addition, there are higher risks for sensitive subgroups:

Overall, the ISA concludes that epidemiologic and controlled human exposure studies indicate that individuals with pre-existing respiratory diseases, particularly asthma, are at greater risk than the general population of experiencing SO₂-associated health effects (ISA, section 4.2.1.1).⁷

The range of levels for the one hour SO₂ NAAQS that the U.S. EPA was considering was 50 to 150 ppb. Ultimately, U.S. EPA selected 75ppb. There were, however, demonstrated health effects down to 50 ppb levels. The U.S. EPA administrator noted that there were at least two studies that documented health effects at levels as low as 50ppb that were available at the time of the last SO₂ NAAQS review process:

The Administrator notes that selecting a standard level of 50 ppb would place considerable weight on the two U.S. emergency department visit studies conducted in locations where 99th percentile 1-hour SO₂ concentrations were approximately 50 ppb (i.e., Wilson et al., (2005) in Portland, ME and Jaffe et al., (2003) in Columbus, OH).⁸

Of the alternative regulatory scenarios analyzed, only the 50 ppb/99th percentile daily maximum 1-hr standard is estimated to reduce risks in one of the two modeling study areas (i.e., St. Louis) relative to the "as is" air quality scenario.⁹

⁶ U.S. EPA SO₂ Risk and Exposure Assessment, July 2009 at 302. Found at <https://www3.epa.gov/ttn/naaqs/standards/so2/data/200908SO2REAFinalReport.pdf>
Attached hereto as Exhibit 4

⁷ *Id.* at 24

⁸ Primary National Ambient Air Quality Standards, 75 Fed. Reg. 35,543 (Jun. 22, 2010) (to be codified at 40 C.F.R. pt. 50, 53 and 58)
Attached hereto as Exhibit 5

⁹ U.S. EPA SO₂ Risk and Exposure Assessment, July 2009 at 302. Found at <https://www3.epa.gov/ttn/naaqs/standards/so2/data/200908SO2REAFinalReport.pdf>
Attached hereto as Exhibit 4

In addition, in areas with air pollution caused by multiple pollutants, there were also increased risks to sensitive subgroups:

A 99th percentile 1-hour daily maximum standard at 50 ppb would provide an increased margin safety against the air quality levels observed in the cluster of epidemiologic studies observing statistically significant positive associations between SO₂ and respiratory-related ED visits and hospitalizations in studies with multipollutant models with PM (i.e. 99th percentile 1-hour daily maximum SO₂ concentrations \geq 78 ppb).¹⁰

U.S.EPA's findings that there are health effects even below the level of the NAAQS is further documented in the Federal Register notice setting the SO₂ NAAQS level:

Finally, the Administrator noted that two epidemiologic studies reported generally positive associations between ambient SO₂ and emergency department visits in cities when 99th percentile 1-hour daily maximum SO₂ concentrations were approximately 50 ppb, but did not consider that evidence strong enough to propose setting a standard level lower than 50 ppb.¹¹

In addition, the St. Louis exposure analysis estimates that a 99th percentile 1-hour daily maximum standard set at a level of 50 ppb would likely protect > 99% of asthmatic children at moderate or greater exertion from experiencing at least one 5-minute exposure both \geq 400 and $>$ 200 ppb per year (see proposal section II.F.4.b and Table 3).¹²

The Administrator noted that the lower end of the proposed range was consistent with CASAC advice that there is clearly sufficient evidence for consideration of standard levels starting at 50 ppb (Samet 2009, p. 16).¹³

III. CONCLUSION

In short, from a health perspective, even though Illinois Environmental Protection Agency claims the proposed rule does not allow SO₂ emissions to exceed the NAAQS, it still poses a risk to public health. The current rule, by imposing a fleet wide average, has prevented

¹⁰ *Id.* at 394

¹¹ Primary National Ambient Air Quality Standards, 75 Fed. Reg. 35,542 (Jun. 22, 2010) (to be codified at 40 C.F.R. pt. 50, 53 and 58)

Attached hereto as Exhibit 5

¹² *Id.* at 35.542

¹³ *Id.* at 35,542

SO₂ “hot spots” and prevented many short term spikes in SO₂ that have been tied to health effects. An annual cap removes the mechanism that has prevented SO₂ ‘hot spots’ by allowing SO₂ emissions to increase at individual plants if other plants shut down.

As indicated above, higher localized SO₂ emissions (especially if they occur in short term spikes) pose a health threat, especially to sensitive subgroups and even if they do not exceed the NAAQS.

Respectfully submitted,



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Dated: February 6th, 2018

Exhibits to Pre-Filed Testimony of Brian P. Urbaszewski

Exhibit 1 - Di, Qian et al., *Association of Short-term Exposure to Air Pollution With Mortality in Older Adults*, 318 JAMA 2446 (Dec. 26, 2017).

Exhibit 2 - Di, Qian et al., *Air Pollution and Mortality in the Medicare Population*, 376 NEJM 2513 (June 29, 2017)

Exhibit 3 - Letter from Gina McCarthy, Asst. Administrator, EPA, to Fred Upton, Chairman, US House Committee on Energy and Commerce, (Feb. 3, 2012) (on file with EPA)

Exhibit 4 - U.S. EPA SO₂ Risk and Exposure Assessment, July 2009 at 302. Retrieved from: <https://www3.epa.gov/ttn/naaqs/standards/so2/data/200908SO2REAFinalReport.pdf>

Exhibit 5 - Primary National Ambient Air Quality Standards, 75 Fed. Reg. 35,542 (Jun. 22, 2010) (to be codified at 40 C.F.R. pt. 50, 53 and 58)

EXHIBIT 1

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
AMENDMENTS TO) R18-20
) (Rulemaking – Air)
35 ILL. ADM. CODE 225.233,)
MULTI-POLLUTANT STANDARDS (MPS))

NOTICE

TO: Don Brown
Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph St., Suite 11-500
Chicago, IL 60601-3218

SEE ATTACHED SERVICE LIST

PLEASE TAKE NOTICE that I have today electronically filed with the Office of the Clerk of the Illinois Pollution Control Board the ILLINOIS ENVIRONMENTAL PROTECTION AGENCY'S PREFILED QUESTIONS FOR BRIAN P. URBASZEWSKI, a copy of which is herewith served upon you.

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: /s/ Antonette R. Palumbo
Antonette R. Palumbo
Assistant Counsel
Division of Legal Counsel

DATED: March 2, 2018

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Exhibit 35
R18-20
3/10/18
MEJ

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
AMENDMENTS TO) R18-20
35 ILL. ADM. CODE 225.233,) (Rulemaking – Air)
MULTI-POLLUTANT STANDARDS (MPS))

**ILLINOIS ENVIRONMENTAL PROTECTION AGENCY’S
PREFILED QUESTIONS FOR BRIAN P. URBASZEWSKI**

NOW COMES the Illinois Environmental Protection Agency (“Illinois EPA” or “Agency”), by one of its attorneys, and hereby submits prefiled questions for Brian P. Urbaszewski.

1. Before submitting your prefiled testimony to the Illinois Pollution Control Board (“Board”), did you read the entirety of your submittal, including all of the attachments?
2. You state on page 3 of your testimony that, “*there is no safe threshold level of fine particle pollution below which there is no risk to human health from exposure.*” You attribute your quote to a letter from Gina McCarthy, Assistant Administrator, United States Environmental Protection Agency (“USEPA”), to Fred Upton, Chairman, House Committee on Energy and Commerce, attached to your testimony as Exhibit 3. Is that an exact quote from the letter itself? If so, could you please cite the page number and paragraph?
3. That letter is an explanation of how rulemaking benefits were monetized by USEPA in performing cost-benefit analyses, correct?
4. In the letter Ms. McCarthy states, in part, “...there is no threshold level of fine particle pollution below which health risk reductions are not achieved by reduced exposure.” The purpose of this statement is simply to defend monetizing reductions below the National Ambient Air Quality Standard (“NAAQS”) levels in USEPA’s cost benefit analysis, correct?
5. This letter was not sent to that Committee to suggest that a different standard be set by that Committee or any other legislative or administrative body that there be zero particulate pollution in populated areas, correct?

6. In your testimony, you state that in setting a NAAQS, “*An adequate margin of safety’ obviously still requires a judgment call by the United States Environmental Protection Agency (U.S. EPA) and does not mean that U.S. EPA picks a threshold below which no health harms occur.*” Are you suggesting that the Board make a different judgment call and attempt to set its own standard below the NAAQS in this rulemaking?
7. Exhibit 4, attached to your testimony, *Risk and Exposure Assessment to Support the Review of the SO₂ Primary NAAQS: Final Report* is 895 pages of your 1003-page testimony package. How many studies did the USEPA conduct and review before setting the SO₂ NAAQS?
8. In this Assessment, did USEPA analyze the evidence of health effects of SO₂, potential alternative standards, exposure assessments, health risk characterizations for peak SO₂ exposures, exposure analyses and health risk assessments for at-risk populations, and risk-based considerations related to the SO₂ NAAQS?
9. Are you suggesting that USEPA did not conduct a thorough review in 2009 before promulgating that standard in 2010?
10. Also in your testimony, you assert, “For SO₂, it is short term spikes that trigger measurable health harms.” The Agency is unaware of any definition of “spikes” under Illinois laws or regulations. Could you quantify what you consider a “spike” in SO₂ concentrations? In other words, what concentration of SO₂ in ambient air do you consider a “spike”? Over what time interval would you consider that concentration to be a “spike”?
11. In your conclusion, you claim, “*The current rule, by imposing a fleet wide average, has prevented SO₂ ‘hot spots’ and prevented many short term spikes in SO₂ that have been tied to health effects.*” The Agency is unaware of any definition of “hot spot” under Illinois laws or regulations. Please explain what you mean by “hot spots.” In other words, what pollutant concentrations or emissions levels, over what interval of time, do you consider a “hot spot”?
12. Please detail specific instances where the current Multi-Pollutant Standards (“MPS”) prevented short-term increases that you would consider “spikes” in SO₂.
13. In any instances detailed in response to Question 12, please explain how the current *annual* fleet-wide average prevented any short-term increases that you would consider “spikes.”
14. Please detail specific instances where the current MPS prevented SO₂ hot spots.

15. In any instances detailed in response to Question 14, please explain how the current *annual* fleet-wide average prevented any annual localized mass emission increases that you would consider “hot spots.”

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY,

/s/ Antonette R. Palumbo
Antonette R. Palumbo
Assistant Counsel
Division of Legal Counsel

Dated: March 2, 2018

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter of:)
)
AMENDMENTS TO) **R18-20**
35 ILL. ADM. CODE 225.233,) **(Rulemaking – Air)**
MULTI-POLLUTANT STANDARDS (MPS))

NOTICE OF FILING

To: ALL PARTIES ON THE ATTACHED SERVICE LIST

PLEASE TAKE NOTICE that I have today electronically filed with the Office of the Clerk of the Illinois Pollution Control Board the attached **PREFILED QUESTIONS FOR BRIAN URBASZEWSKI**, copies of which are herewith served upon you.

/s/ Ryan Granholm

Ryan Granholm

Dated: March 2, 2018

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Exhibit 36
R18-20
3/7/18
MT

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter of:)
)
AMENDMENTS TO) **R18-20**
35 ILL. ADM. CODE 225.233,) **(Rulemaking – Air)**
MULTI-POLLUTANT STANDARDS (MPS))

PREFILED QUESTIONS FOR BRIAN URBASZEWSKI

NOW COME Dynegy Midwest Generation, LLC, Illinois Power Generating Company, Illinois Power Resources Generating, LLC and Electric Energy, Inc. (collectively, “Dynegy”), by their attorneys, Schiff Hardin LLP, and hereby submit prefiled questions for Brian Urbaszewski. Dynegy requests that the Hearing Officer allow follow-up questioning to be asked at hearing based on the answers provided.

1. Have you ever been found to be an expert by any court of law?
2. Do you hold any degrees in epidemiology or toxicology?
 - a. How many college level or graduate level courses have you taken in epidemiology or toxicology? Please identify the course title, the year you took the course, and the school that offered the course.
3. Have you ever conducted any risk assessments associated with human exposure to sulfur or nitrogen compounds in the air?
 - a. If so, please describe the assessments and findings.
4. When setting the National Ambient Air Quality Standards (“NAAQS”), U.S. EPA reviews epidemiological studies, correct?
 - a. And, you reference a number of them in your prefiled testimony, correct?
5. What do you mean by “short term spikes in SO₂,” as used on pgs. 6 & 9 of your pre-filed testimony?
 - a. What is considered “short term” as opposed to “long term”?
 - b. Is it your opinion that “hot spots” are the result of short term spikes in SO₂ emissions?

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- i. If yes, what is the basis for your opinion?
6. When setting the SO₂ NAAQS, U.S. EPA set a limit that is intended to limit short term spikes, correct?
7. Under the current MPS, SO₂ and NO_x emissions are allowed to fluctuate at each plant, so long as the system-wide average annual emission rate is met, right?
 - a. So under the current MPS, annual SO₂ emissions from any single plant could be higher in 2018 than they were in 2016, so long as the system-wide annual emission rate is met in 2018, right?
 - b. Under the current MPS, SO₂ emissions are allowed to fluctuate at each unit on a day-to-day basis, so long as the system-wide annual emission rate is met, right?
 - c. Under the current MPS, SO₂ emissions are allowed to fluctuate at each unit on an hour-to-hour basis, so long as the system-wide annual emission rate is met, right?
8. Have you done any analysis to determine how the MPS units are expected to operate in the future if the MPS proposal is not adopted?
9. Have you done any analysis to determine how the MPS units are expected to operate in the future if the MPS proposal is adopted?
10. In the conclusion of your prefiled testimony (pg. 9) you use the term "hot spots." What do you mean by that term?
11. Is it your opinion that the current MPS SO₂ annual system-wide emission rate limits prevent SO₂ "hot spots?"
 - a. If so, what is the basis for that conclusion?
 - b. What is the basis for your statement in the conclusion of your prefiled testimony that "[a]n annual cap removes the mechanism that has prevented SO₂ 'hot spots' by allowing SO₂ emissions to increase at individual plants if other plants shut down"? (pg. 9.)
 - c. What in the current MPS rule prevents emissions from one plant increasing if another plant in the MPS is shut down?
12. Have you reviewed any information indicating that plants subject to the MPS will shut down if the MPS proposal is adopted?
 - a. If so, please identify the information.
13. Does the analysis included in your prefiled testimony consider actual concentrations of NO_x or SO₂ in Illinois over the last 10 years?

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- a. Did you evaluate whether any actual “short term spikes in SO₂” have occurred in the areas around the plants subject to the MPS at any time over the last 10 years?
14. Do you believe adverse health effects occur at SO₂ levels below 75 ppb?
- a. If yes, please explain the basis for your answer.
 - b. Are you suggesting that the SO₂ NAAQS should be lower than 75 ppb?
 - i. If so, at what level should the SO₂ NAAQS be set and what is the basis for your conclusion?
 - ii. If so, are you suggesting that U.S. EPA has failed to do their job in establishing the proper SO₂ NAAQS?
15. Do you believe adverse health effects occur at SO₂ levels below 50 ppb?
- a. If yes, please explain the basis for your answer.
 - b. At what level of SO₂ do you believe adverse health effects do not occur? Please explain the rationale for your answer.
16. In your prefiled testimony you single out two epidemiologic studies that you believe support your position (pg. 7). Do you know how many epidemiological studies U.S. EPA reviewed when setting the SO₂ NAAQS?

CERTIFICATE OF SERVICE

I, the undersigned, certify that on this 2nd day of March, 2018, I have electronically served the attached **PREFILED QUESTIONS FOR BRIAN URBASZEWSKI**, upon all parties on the attached service list.

My e-mail address is rgranholm@schiffhardin.com;

The number of pages in the e-mail transmission is 6.

The e-mail transmission took place before 5:00 p.m.

/s/ Ryan Granholm

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