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April 1, 2014

Ms. Joan Conrad, Executive Secretary
Iowa Utilities Board
1375 East Court Avenue, Room 69
Des Moines, IA 50319-0069

RE: Interstate Power and Light Company
Docket No. EPB-2014-0150
Emissions Plan and Budget
Application and Affidavit for Confidentiality

Dear Secretary Conrad:

Enclosed please find Interstate Power and Light Company's (IPL) Emissions Plan and Budget, as filed today on EFS.

Also enclosed is a copy of IPL's Application for Confidential Treatment and Affidavit in Support of Request for Confidentiality.

Very truly yours,

/s/ Paula N. Johnson

Paula N. Johnson
Senior Attorney - Regulatory

PNJ/kjf
Enclosures

cc: Iowa Department of Natural Resources (w/confidential materials and separate request for confidential treatment pursuant to IDNR requirements)

**FILED WITH
Executive Secretary**

April 01, 2014

IOWA UTILITIES BOARD

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INTERSTATE POWER AND LIGHT COMPANY EMISSIONS PLAN UPDATE: 2015-2016

A. Executive Summary

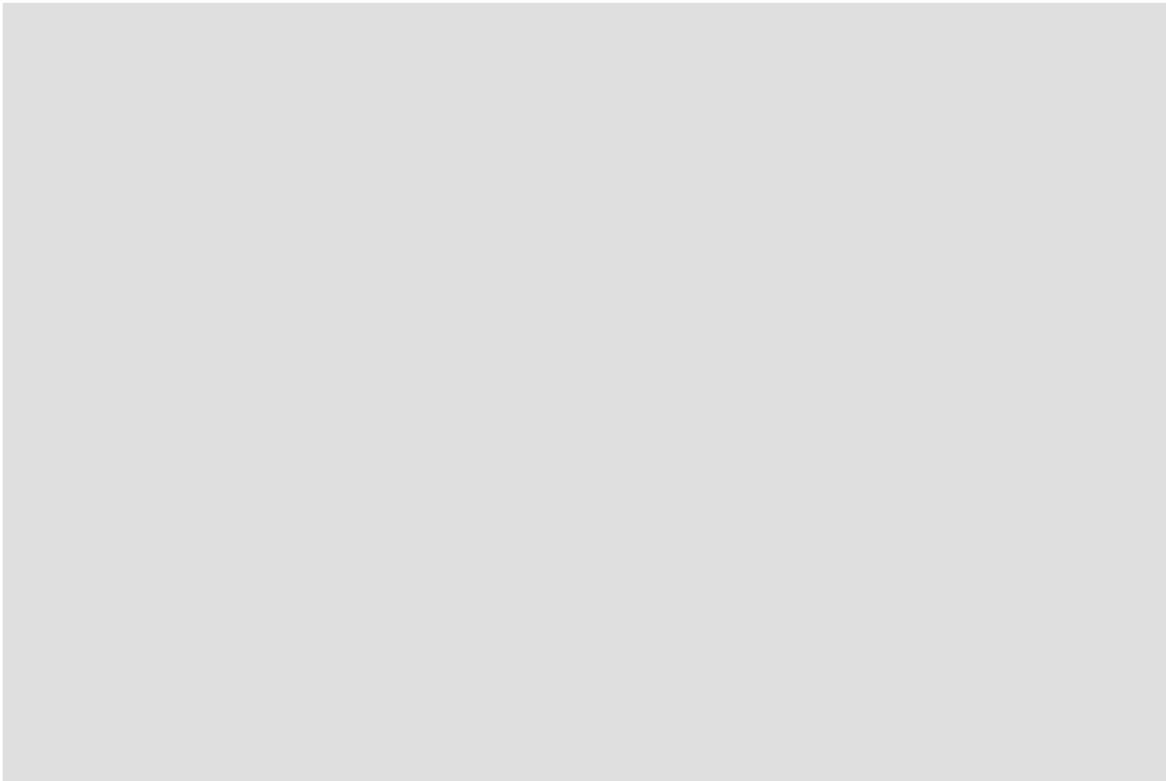
Interstate Power and Light Company (IPL) provides energy service in a manner that values the environment, safety, reliability, and its customers' financial concerns. IPL's strategy corresponds to the Iowa Legislature's stated Emissions Plan and Budget requirements that "reasonably balance costs, environmental requirements, economic development potential, and the reliability of the electric generation transmission system [Iowa Code § 476.6(21)"c."].

IPL has a long history of environmental stewardship, and is committed to complying with all environmental laws and regulations. IPL integrates environmental requirements into all planning, decision-making, construction, and operating and maintenance activities it performs. Employees must conduct work in a manner demonstrating IPL's concern for preserving natural resources and protecting wildlife – acting in accordance with its Core Value of Responsibility. IPL is unwavering in fulfilling its commitments to its customers, the Iowa Utilities Board (Board), and the State of Iowa, and will work cooperatively with the appropriate regulatory agencies and interested stakeholders in executing its duties.

Iowa Code § 476.6(21) requires Iowa's rate-regulated utilities to develop a multi-year Emissions Plan and associated Budget (referred to generally as the Emissions Plan and Budget, or EPB) for managing regulated emissions from their coal-fired facilities in a cost-effective manner with updates filed at least

every two years. In accordance with this statute, IPL submits the following EPB Update, which demonstrates IPL's continuing commitment to the environment and its customers in providing electric utility services.

This EPB Update specifically addresses compliance activities for the 2015-2016 period, as well as, an overview of IPL's longer term environmental compliance plan. The EPB Update provides IPL's understanding of current and emerging air, water, and waste environmental compliance requirements that will impact IPL generating units in the near future, and a discussion of how IPL will meet these requirements.



Section I of this filing describes the recently issued regulations and emerging environmental rules considered in IPL's emission planning efforts. Section II of this filing provides details of the ongoing compliance work and

additional investments anticipated for future compliance given IPL's current understanding of potential environmental rule outcomes. More specifically, IPL's Budget Update in Section II provides the specific actions to be taken at IPL coal-fired generation facilities, as well as these actions' timing and related costs. Section II also includes estimates of the specific types, amounts, vintages and costs of emission allowance purchases to enable IPL to meet these compliance requirements or portions thereof. Appendix A contains a summary of expected emissions changes associated with the ongoing implementation of IPL's compliance plans. Appendix B presents descriptions of the emission control technologies for pollutants described in this Plan. Appendix C contains a detailed breakdown of IPL's budget update cost figures for the activities presented in the Plan.

This EPB Update demonstrates IPL's fulfillment of the obligations of Iowa Code § 476.6(21). Specifically:

- The Plan Update demonstrates that IPL meets current applicable state environmental compliance requirements and federal air quality standards;
- The Plan Update is reasonably expected to achieve cost-effective compliance with applicable state environmental requirements and federal air quality standards; and
- The Plan Update reasonably balances costs, environmental requirements, economic development potential, and reliability of the electric generation and transmission system.

IPL plans to continue to execute a long-term, staged environmental compliance strategy that incorporates current regulations and emerging

environmental rules. IPL proactively manages the timing, cost and customer rate impact of the actions it entails in the implementation of this strategy. IPL will continue to monitor pending rules and legal challenges that may result in final rules being vacated or stayed and remanded for further reconsideration. IPL acknowledges that it may not have complete control over the timing of its planned installation dates, due to the need to coordinate system-wide outages in order to maintain reliability. However, IPL will maintain sufficient flexibility to ensure that environmental compliance requirements are met with sensitivity to minimize the resulting impact on customer rates. This plan covers coal-fired electric generation facilities for which IPL has operating responsibility. Future updates to this EPB will be performed at least every two years.

B. Emissions Plan History – IPL

In June 2001, the Iowa General Assembly enacted, and the Governor signed, House File 577. This legislation, which today is found in Iowa Code § 476.6(21), requires any Iowa rate-regulated electric utility that owns coal-fired power generation to develop a “multiyear plan and budget for managing regulated emissions from its facilities in a cost-effective manner.” IPL has complied with this legislative mandate since its first EPB filing in 2002, and its biennial updates filed since that time. After its initial litigated plan in Docket No. EPB-02-150, IPL has engaged, and successfully negotiated settled EPB terms with, the Office of Consumer Advocate (OCA), which have all been approved by

the Board.¹ IPL's most recent EPB update was filed on April 2, 2012, and subsequently approved by the Board on February 26, 2013 (Docket No. EPB-12-150), including the related settlement filed between IPL and the OCA.

C. 2015 – 2016 Emissions Plan Rule Update

1. Recent Air Compliance Rules

The Clean Air Act (CAA) and its amendments mandate preservation of air quality through existing regulations and periodic reviews to ensure adequacy of these provisions based on scientific data. As part of the basic framework under the CAA, the EPA is required to establish National Ambient Air Quality Standards (NAAQS), which serve to protect public health and welfare. These standards address six “criteria” pollutants. Criteria pollutants are common and found across the U. S. The EPA uses criteria pollutants as indicators of air quality. Areas that comply with NAAQS are considered to be in attainment, whereas routinely monitored locations that do not comply with these standards may be classified by the EPA as nonattainment and require further actions to reduce emissions.

Four of these criteria pollutants are particularly relevant to IPL's electric utility operations: Nitrogen Oxide (NO_x), sulfur dioxide (SO₂), particulate matter (PM), and ozone. Ozone is not directly emitted from IPL's generating facilities; however, NO_x emissions may contribute to its formation in the atmosphere. Fine particulate matter (PM_{2.5}) may also be formed in the atmosphere from SO₂ and NO_x emissions that react to form sulfate and nitrate aerosols. The CAA also regulates 187 toxic air pollutants, also known as hazardous air pollutants (HAPs),

¹ Please see Docket Nos. EPB-04-150, EPB-06-150, EPB-08-150, EPB-10-150, and EPB-12-150.

including mercury. In 2009, the EPA commenced regulation of six greenhouse gases (GHGs) including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs).

State implementation plans (SIPs) document the collection of regulations that individual state agencies will apply to maintain NAAQS and other CAA requirements for criteria pollutants, HAPs and GHGs. The EPA must approve each SIP, and if a SIP is not acceptable to the EPA or if a state chooses not to issue separate state rules, then the EPA can assume enforcement of the CAA in that state (in whole or part) by issuing a federal implementation plan (FIP).

Additional emissions requirements may also be applied under the CAA regulatory framework and are generally implemented using one of two policy approaches, either command-and-control or market-based cap-and-trade. In a command-and-control approach, EPA issues regulations that mandate specific standards of performance, such as achieving a percent of control or a minimum level of emission. These limits are generally applied to each emitting unit individually, although in some instances, averaging of emissions is allowed at the facility-level in order to provide additional compliance flexibility. In a market-based cap-and-trade approach, an overall limit, or “cap,” is set for the allowed emissions level. Regulated facilities receive authorizations to emit in the form of emissions allowances, with the total amount of allowances limited by the cap. Each regulated facility can determine its own compliance strategy to meet the overall reduction requirement, including sale or purchase of allowances,

installation of pollution controls, or other operational changes that will reduce emissions. Individual control requirements typically are not specified under a cap-and-trade program, but each regulated facility must surrender allowances equal to its actual emissions in order to comply.

The CAA also addresses new or modified emissions sources through the New Source Review (NSR) permitting program. NSR permitting ensures that air quality is not significantly degraded in areas that currently achieve the NAAQS, known as Prevention of Significant Deterioration (PSD) permits. It also requires more stringent controls in areas that exceed the NAAQS, known as nonattainment NSR permits. The NSR process requires industry to undergo a pre-construction review for environmental controls when building new facilities or making modifications to existing facilities that would result in a significant increase of a regulated air pollutant.

This section contains a brief overview of environmental air regulations issued under the EPA's CAA authority that currently apply to IPL's coal-fired facilities and that impact the operation of the electric generating units (EGUs) at these sites. Compliance with these regulations will require additional emissions reductions or other responsive actions including monitoring, reporting and permitting.

a. Clean Air Interstate Rule/Cross State Air Pollution Rule

In May 2005, the EPA issued the Clean Air Interstate Rule (CAIR) to address CAA requirements that air pollution created in an upwind state does not add to unhealthy pollution levels in downwind states (70 Fed. Reg. 25161). This is

commonly referred to as the CAA “good neighbor” provision. The purpose of CAIR is to limit the transport of NO_x and SO₂ emissions from certain states in the eastern United States, including Iowa, because these emissions were found to contribute to the downwind formation of PM_{2.5} and ozone at levels above the EPA's NAAQS. The EPA issued allowed emissions budgets for NO_x and SO₂ in order to limit emissions coming from each CAIR-regulated state. CAIR provides a regulatory framework that allows states to achieve required NO_x and SO₂ emissions reductions from fossil-fueled power plants by participation in an EPA-administered market-based cap-and-trade system.

In July 2008, the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit Court) vacated CAIR in its entirety (*State of North Carolina v. EPA*). In response, the EPA and other affected parties filed petitions requesting the D.C. Circuit Court review the decision, including a request that CAIR be remanded to the EPA for reconsideration and not vacated in its entirety, as originally decided. In December 2008, the D.C. Circuit Court issued an order that denied rehearing of the original court decision, but decided to remand, rather than vacate, CAIR for revision by the EPA to address flaws identified in the July 2008 opinion. In the interim, CAIR emissions reduction obligations became effective for NO_x on January 1, 2009 and for SO₂ on January 1, 2010. These specific reduction obligations will remain in place until a final CAIR replacement rule becomes effective.

CAIR provides for a large regional cap-and-trade system and does not restrict the amount of emissions allowances that can be traded between states. In addition, EPA sought to harmonize CAIR with the existing Acid Rain Program

(ARP), which is a market-based cap-and-trade rule that requires SO₂ reductions from electric utilities. In particular, EGUs are allowed to apply ARP SO₂ allowances for compliance with both rules. However, to gain additional emissions reductions under CAIR, the EPA required these SO₂ allowances to be surrendered at a higher rate. Each allowance under the CAIR Phase I program is equivalent to 50% of an ARP allowance (i.e., a 50% reduction). Similarly, each allowance under the CAIR Phase II program would be equivalent to 35% of an ARP allowance (i.e., a 65% reduction). CAIR also created new annual and ozone season NO_x allowances that are traded at one ton per allowance. Furthermore, existing EGUs continue to receive ARP and CAIR allowances in perpetuity, even if a unit is retired.

In August 2011, the EPA issued the Cross-State Air Pollution Rule (CSAPR) to replace CAIR and address state obligations to reduce transport of emissions causing downwind nonattainment of the EPA's NAAQS (76 Fed. Reg. 48208). Similar to CAIR, CSAPR established NO_x and SO₂ emissions budgets for fossil-fueled EGUs located in the eastern half of the United States, including Iowa. The first phase of CSAPR was intended to commence on January 1, 2012, and a second phase of CSAPR, with lower NO_x and SO₂ emissions budgets, was intended to commence on January 1, 2014.

The requirements of CSAPR never took effect because it was stayed by the D.C. Circuit Court in December 2011 and subsequently vacated by the same court in August 2012 in response to several legal challenges (*EME Homer City Generation, L.P. v. EPA, et. al.*). In October 2012, the EPA asked for a rehearing of the CSAPR case from the full D.C. Circuit Court (i.e., an “en banc rehearing”).

This request was denied in January 2013. In response, the EPA successfully petitioned the U.S. Supreme Court to review the D.C. Circuit Court CSAPR decision. The U.S. Supreme Court heard oral arguments on the CSAPR decision in December 2013. A decision from the U.S. Supreme Court on CSAPR is expected in the first half of 2014.

At this time, IPL anticipates one of the following three outcomes, or some combination thereof, regarding interstate transport during 2015 and 2016:

1. CAIR continues to be implemented (Phase II begins in 2015);
2. CSAPR is reinstated, assuming a U.S. Supreme Court decision in the EPA's favor. This scenario would likely require the EPA to re-evaluate and update the CSAPR emissions budgets and adjust the compliance timeframes; or,
3. The EPA issues a new rule to address interstate transport of air pollutants. In fact, the EPA announced in January 2014 that a new rule will be proposed to replace CSAPR in October 2014. Unlike CSAPR, the EPA stated that this new rule would only address the ozone NAAQS and not the PM_{2.5} NAAQS. This means emission reductions would likely only be established for NO_x. The EPA has stated that the purpose of this rule would be to help states meet the 2008 ozone NAAQS of 75 parts per billion (ppb). If the EPA moves forward with this plan, a final rule would be anticipated sometime in late 2015 with compliance beginning sometime thereafter.

b. Mercury and Air Toxics Standards

In 2009, the EPA announced its intention to develop Maximum Achievable Control Technology (MACT) rules for EGUs, pursuant to Section 112 of the CAA, to reduce emissions of mercury and other federal HAPs. The CAA Section 112 requires a command-and-control technology driven approach to develop MACT

standards. The MACT standards are designed to reduce HAPs emissions to a maximum achievable degree, taking into consideration the cost of reductions, non-air quality health effects, environmental impacts and energy requirements.

In March 2011, the EPA issued the proposed Utility MACT rule for coal-fired EGUs, also referred to as the “Mercury and Air Toxics Standards” (“Utility MATS”). In February 2012, the EPA published Utility MATS, and the final rule became effective on April 16, 2012 (77 Fed. Reg. 9304). The final rule requires coal-fired EGUs to comply with emission limits for mercury, filterable PM as a substitute for non-mercury metal HAPs, and hydrogen chloride (HCl) as a substitute for acid gas HAPs. The EPA also proposed alternative standards for total or individual non-mercury metals emissions (instead of filterable PM) and SO₂ emissions (instead of HCl for acid gases if a scrubber is installed). In addition, work practice standards were proposed for organic HAP emissions to ensure proper combustion.

Compliance is required within three years of the final rule’s effective date, which will be April 16, 2015. However, an entity can request an additional fourth year for compliance, which may be granted on a case-by-case basis by state permitting authorities for units that are needed to assure power reliability, units repowering to gas, or units that need additional time to install air pollution control technology. More specifically, the one-year compliance extension for the Utility MATS requirements must be obtained from the Iowa Department of Natural Resources (IDNR) pursuant to CAA Section 112(i)(3), and the revised

compliance schedule issued as an amendment into the applicant's CAA Title V air operating permit.

The Utility MATS rule remains subject to legal challenges and oral arguments for this case (*White Stallion Energy Center, LLC v. EPA*) took place in the D.C. Circuit in December 2013. A decision in this case is anticipated in 2014. In addition, in June 2013, the EPA re-opened the public comment for the startup and shutdown provisions of the MATS rule. EPA's final rule reconsideration for the startup and shutdown provisions is expected in 2014. At this time, IPL does not anticipate significant changes to the MATS emissions limitations or compliance deadlines as a result of the litigation or rule reconsideration.

c. Greenhouse Gas Reporting and Permitting

In October 2009, the EPA issued its final Mandatory GHG Reporting rule (74 Fed. Reg. 56260). The final rule does not require control of GHG emissions; rather, it requires that sources above certain threshold levels monitor and report emissions. The EPA anticipates that the data collected by this rule will improve the U. S. government's ability to formulate a set of climate change policy options. Emissions of GHGs are reported at the facility level in CO₂-equivalent (CO₂e) and include those facilities that emit 25,000 metric tons or more of CO₂e annually. The CO₂e is an aggregate measure used to compare total GHG impacts by taking into account the relative global warming potential (GWP) for each individual GHG and adding these contributions into a single value. The final rule applies to electric utility operations at IPL for GHG emissions of CO₂, CH₄, and N₂O from combustion of fossil fuels. IPL submitted its first mandatory

GHG annual emissions reports to the EPA for calendar year 2010 by the required due date of September 30, 2011. IPL is maintaining its emissions monitoring methodologies and data collection procedures for ongoing compliance with the EPA's mandatory GHG reporting rule.

In June 2010, the EPA issued the GHG Tailoring Rule with these new permitting requirements commencing as of January 2, 2011 (75 Fed. Reg. 31514). This rule established a GHG emissions threshold for major sources under the PSD permitting program of 100,000 tons per year (tpy) of CO₂e. The rule also established a threshold for what will be considered a significant increase in GHG emissions of 75,000 tpy for CO₂e. New major sources and significantly modified existing sources of GHGs are required to obtain PSD construction permits that demonstrate Best Available Control Technology (BACT) emissions measures to minimize GHGs. In February 2013, the U.S. Supreme Court heard oral arguments in *Utility Air Regulatory Group v. EPA*. This case represents an appeal of *CRR v. EPA*, in which the D.C. Circuit upheld EPA's suite of greenhouse gas regulations. The U.S. Supreme Court has granted review on the limited question of “[w]hether EPA permissibly determined that its regulation of greenhouse gas emissions from new motor vehicles triggered permitting requirements under the Clean Air Act for stationary sources that emit greenhouse gases.” The U.S. Supreme Court ruling in this case is expected in 2014 and could have implications to the GHG Tailoring Rule.

IPL is evaluating changes to GHGs resulting from various plant modifications, including many of those identified in the Budget Update, and

submitting PSD air permit applications to the IDNR on a project-specific basis. On January 12, 2012, the IDNR issued a PSD permit (No. 78-A-019-P10) for the Ottumwa Generating Station construction of air pollution controls including a baghouse/carbon injection and scrubber system and also for the completion of power plant operating efficiency improvements. An evaluation of BACT was completed for this permit including consideration of GHGs and resulted in emission limits for CO₂ and CO₂e.

2. Recent Water Compliance Rules

Section 316(a) of the Federal Clean Water Act (CWA) requires the EPA to regulate thermal impacts from wastewater discharges of industrial facilities, including those from EGUs. States have authority to establish standards for these discharges in order to minimize adverse environmental impacts to aquatic life. The IDNR is required to regulate thermal impacts from wastewater discharges of industrial facilities, including IPL facilities that discharge water into nearby rivers and streams. Compliance with the thermal rules will be evaluated on a case-by-case basis when wastewater discharge permits for IPL's generating facilities are renewed. Exceptions to the thermal limitation requirements are allowed under the temperature variance provisions of Section 316(a). Under this provision of the CWA, permittees must demonstrate that the variance for the thermal component of the discharge assures the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in the receiving water.

IPL is currently addressing the need for thermal discharge requirements on a case-by-case basis with the IDNR as each power plant's National Pollutant Discharge Elimination System (NPDES) permit becomes subject to renewal. If thermal limits are not attainable, thermal modeling studies are conducted and submitted to the IDNR for review as part of the CWA 316(a) variance application. IPL is currently obtaining 316(a) variances at two sites with active NPDES permits - M.L. Kapp and Prairie Creek Generating Stations. However, IPL also expects that 316(a) modeling and variances will be necessary for the discharges at other electric generating facilities including Burlington, Dubuque, and Lansing.

In addition, Section 316(b) of the CWA requires that NPDES permits for facilities with cooling water intake structures ensure that the location, design, construction, and capacity of the structures reflect the "best technology available" or "BTA" to minimize harmful impacts to fish and other aquatic life. This EPA regulation became effective in 2004 and applies to existing cooling water intake structures at large steam EGUs. In 2007, a court opinion invalidated aspects of the Section 316(b) regulation, which allowed for consideration of cost-effectiveness when determining the appropriate compliance measures. As a result, the EPA formally suspended the Section 316(b) regulation in 2007. In 2009, the U.S. Supreme Court granted the EPA authority to use a cost-benefit analysis when setting technology-based requirements under Section 316(b). In April 2011, the EPA issued a proposal revising the Section 316(b) rule that remains pending final issuance, although EPA recently stated it expects to issue

a final rule April 17, 2014. Possible implications of the EPA's efforts to reconsider the 316(b) requirements are discussed below in Section I.F.5.

3. Recent Emissions Compliance Requirements for IPL

As was noted in Section I.C.1.a, IPL must continue to address air emissions compliance requirements associated with CAIR pending a decision by the U.S. Supreme Court regarding CSAPR or a new transport rule finalized from the EPA. The Iowa Environmental Protection Commission (IEPC) approved IDNR regulations for EGUs that allow Iowa's utilities to participate in the EPA's federal CAIR interstate cap-and-trade program. These rules are codified under 567 Iowa Administrative Code (IAC) Chapter 34, "Provisions for Air Quality Emissions Trading Programs." The Iowa CAIR rules were effective as of July 2006 and received SIP approval from the EPA in August 2007.

At the time of this filing, the CAIR program remains in place until the legal challenges to CSAPR are resolved. Due to this regulatory uncertainty, it remains unclear what specific emissions requirements may apply during 2015 and 2016. Therefore, the remainder of this section provides a summary of IPL's position with respect to CAIR. If the CSAPR requirements happen to be reinstated, the EPA would likely need to re-evaluate and update CSAPR emissions budgets and adjust the compliance timeframes. In addition, if the EPA proposes a new rule to address interstate transport, the emissions limitations are unknown at this time. While this creates a planning challenge, IPL believes the proposed plan and budget are flexible enough to meet future interstate transport rule requirements.

The IDNR is required to implement the EPA's Utility MATS regulation at affected EGUs. The IDNR is currently working to incorporate the Utility MATS, along with other federal regulations, by reference into the IAC, under 567 IAC Chapter 23. This effort is scheduled to be completed in 2014. A brief discussion of the emissions standards and compliance requirements applicable to IPL's coal-fired EGUs as a result of the Utility MATS regulation is provided in this section.

a. Nitrogen Oxide (NO_x) Emissions

Iowa is currently implementing the CAIR Phase I provisions that began in 2009 and remain in effect for annual and ozone season NO_x emissions until CAIR Phase II becomes effective in January 2015. Since the IDNR adopted the EPA's model rules, IPL's regulated EGUs are able to participate in the EPA-administered regional cap-and-trade CAIR program for NO_x. The annual and ozone season NO_x allocations for CAIR are listed for regulated IPL-owned units (in whole or in part) in Table 1 and Table 2. Some of the EGUs listed are not coal-fired, because the emission allowances from CAIR are managed at a fleet-level.

Table 1 – IPL Regulated Units and Annual NO_x Allocations

Facility	Unit ID	Approx. Capacity (Megawatts)	CAIR Phase I Annual NO _x (Tons Per Year)	CAIR Phase II Annual NO _x (Tons Per Year)
Burlington	1	212	1,151	979
Dubuque	1	38	211	179
Dubuque	5	25	145	123
Dubuque	6	15	21	18
Grinnell	1	25	-	-
Grinnell	2	25	-	-
Lansing	1	18	5	5
Lansing	2	12	13	11
Lansing	3	32	161	137
Lansing	4	260	1,165	991
Lime Creek	1	35	3	2
Lime Creek	2	35	2	2
Marshalltown	1	26	4	4
Marshalltown	2	26	7	6
Marshalltown	3	26	5	5
Milton L Kapp	2	217	1,089	926
North Centerville	1	27	1	1
North Centerville	2	27	1	1
Ottumwa ^(a)	1	715	2,001	1,703
Prairie Creek	3	44	317	270
Prairie Creek	4	130	771	656
Sixth Street	1	10	-	-
Sixth Street	2	6	118	100
Sixth Street	3	14	124	106
Sixth Street	4	14	93	79
Sixth Street	5	25	198	169
Sutherland	1	33	211	180
Sutherland	2	33	213	181
Sutherland	3	75	529	450
Emery	11	150	130	65
Emery	12	150	130	65
Emery	13	250	187	93
Louisa ^(b)	4	700	158	134
George Neal ^(b)	3	515	753	641
George Neal ^(b)	4	644	907	772
Total			10,824	9,054

Notes:

(a) IPL operated, jointly owned unit representing 48% ownership share.

(b) IPL jointly owned unit, operated by MidAmerican representing the following ownership share: 4% Louisa; 28% George Neal 3; and 25.7% George Neal 4.

Table 2 – IPL Regulated Units and Ozone Season NO_x Allocations

Facility	Unit ID	Approx. Capacity (Megawatts)	CAIR Phase I Ozone Season NO _x (Tons Per Year)	CAIR Phase II Ozone Season NO _x (Tons Per Year)
Burlington	1	212	549	467
Dubuque	1	38	104	88
Dubuque	5	25	66	56
Dubuque	6	15	14	12
Lansing	1	18	4	3
Lansing	2	12	6	5
Lansing	3	32	77	66
Lansing	4	260	495	421
Lime Creek	1	35	2	2
Lime Creek	2	35	2	1
Marshalltown	1	26	3	2
Marshalltown	2	26	3	2
Marshalltown	3	26	3	2
Milton L Kapp	2	217	486	414
North Centerville	1	27	1	1
North Centerville	2	27	1	1
Ottumwa ^(a)	1	715	845	719
Prairie Creek	3	44	134	114
Prairie Creek	4	130	366	312
Sixth Street	2	6	54	46
Sixth Street	3	14	52	44
Sixth Street	4	14	44	38
Sixth Street	5	25	83	71
Sutherland	1	33	95	81
Sutherland	2	33	94	80
Sutherland	3	75	245	209
Emery	11	150	57	29
Emery	12	150	57	29
Emery	13	250	81	41
Louisa ^(b)	4	700	65	56
George Neal ^(b)	3	515	333	283
George Neal ^(b)	4	644	391	333
Total			4,812	4,028

Notes:

(a) IPL operated, jointly owned unit representing 48% ownership share.

(b) IPL jointly owned unit, operated by MidAmerican representing the following ownership share:
4% Louisa; 28% George Neal 3; and 25.7% George Neal 4.

Figure 1 presents IPL's CAIR Phase I and II NO_x annual emission allowances and IPL's 2012 annual NO_x emissions. Similarly, Figure 2 shows IPL's CAIR Phase I and II NO_x ozone season emissions allowances and IPL's 2012 ozone season NO_x emissions. Both of these figures reflect IPL's ownership share for each of its jointly-owned units. These figures show IPL's 2012 annual NO_x emissions with respect to both the annual and ozone season CAIR Phase I and II NO_x emissions limits. IPL's actual emissions are currently below the required levels. IPL will continue to comply with the required reductions through a combination of emissions controls, banked or purchased NO_x allowances, fuel switching and unit retirements.

FIGURE 1

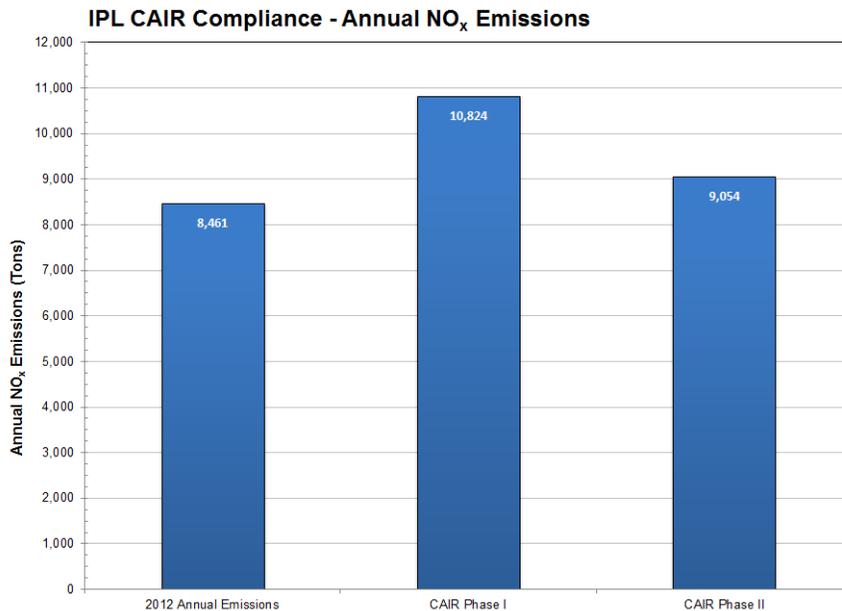
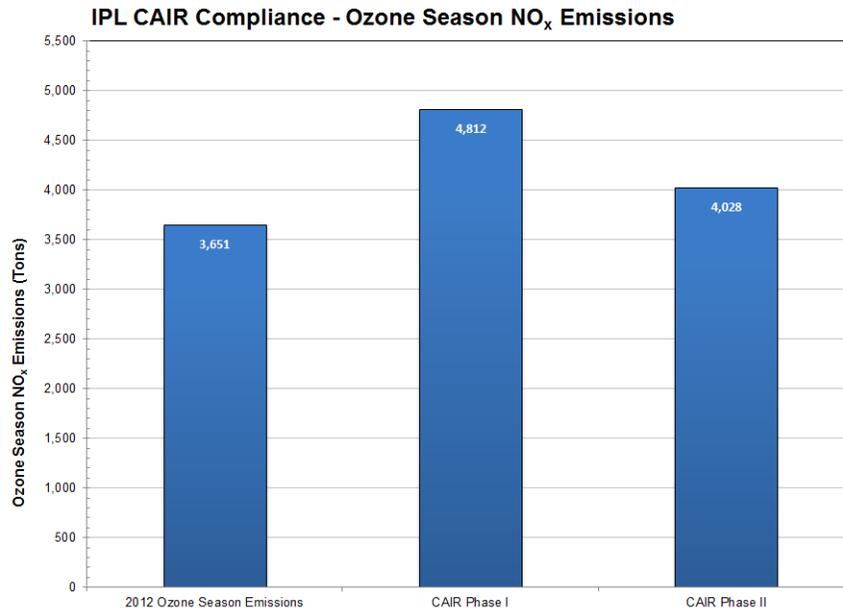


FIGURE 2



b. Sulfur Dioxide (SO₂) Emissions

Iowa is currently implementing the CAIR Phase I provisions that began in 2010 and remain in-effect for SO₂. Since the IDNR adopted the EPA’s model rules, IPL’s regulated EGUs are able to participate in the EPA-administered regional cap-and-trade CAIR program for SO₂. Currently, ARP allowances are surrendered for CAIR SO₂ compliance. If CAIR continues to be implemented, Phase II provisions would begin in January 2015.

Table 3 lists the regulated IPL-owned units (in whole or in part) and SO₂ allocations for ARP and CAIR. Some of the EGUs listed are not coal-fired because the allowances from these programs are managed at a fleet level.

Table 3 – IPL Regulated Units and SO₂ Allocations

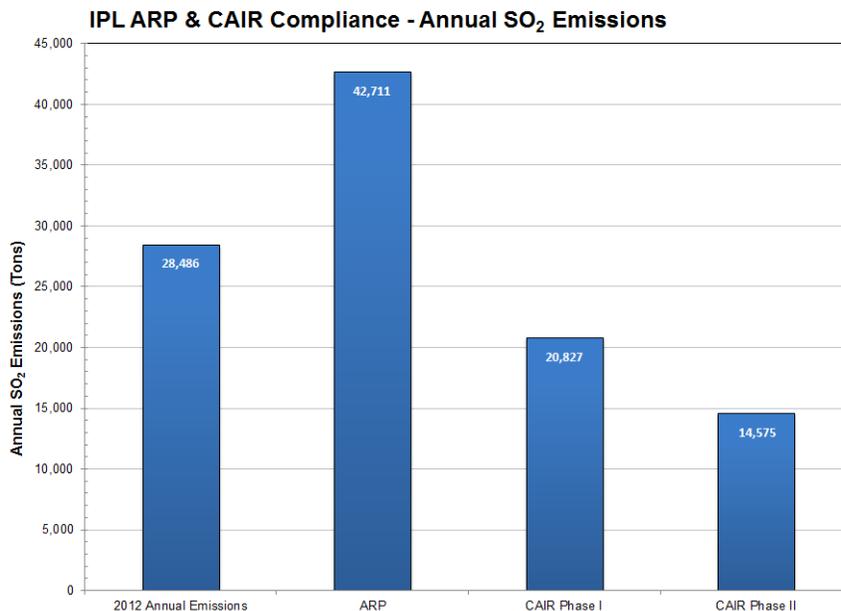
Facility	Unit ID	Approx. Capacity (Megawatts)	ARP SO ₂ Allocation (Tons Per Year)	CAIR Phase I Annual SO ₂ (Tons Per Year)	CAIR Phase II Annual SO ₂ (Tons Per Year)
Burlington	1	212	4,507	2,254	1,577
Dubuque	1	38	1,122	561	393
Dubuque	5	25	306	153	107
Grinnell	1	25	-	-	-
Grinnell	2	25	-	-	-
Lansing	3	32	479	240	168
Lansing	4	260	4,344	2,172	1,520
Lime Creek	1	35	255	128	89
Lime Creek	2	35	255	128	89
Marshalltown	1	26	-	-	-
Marshalltown	2	26	-	-	-
Marshalltown	3	26	-	-	-
Milton L Kapp	2	217	5,805	2,903	2,032
North Centerville	1	27	-	-	-
North Centerville	2	27	-	-	-
Ottumwa ^(a)	1	715	9,181	4,591	3,213
Prairie Creek	3	44	727	364	254
Prairie Creek	4	130	3,440	1,720	1,204
Sixth Street	1	10	815	408	285
Sixth Street	2	6	177	89	62
Sixth Street	3	14	154	77	54
Sixth Street	4	14	77	39	27
Sixth Street	5	25	308	154	108
Sutherland	1	33	200	100	70
Sutherland	2	33	376	188	132
Sutherland	3	75	2,196	1,098	769
Emery	11	150	-	-	-
Emery	12	150	-	-	-
Emery	13	250	-	-	-
Louisa ^(b)	4	700	625	313	219
George Neal ^(b)	3	515	2,396	1,198	838
George Neal ^(b)	4	644	3,898	1,949	1,365
Fox Lake ^(c)	3	84	1,068	N/A	N/A
Total			42,711	20,827	14,575

Notes:

- (a) IPL operated, jointly owned unit representing 48% ownership share.
- (b) IPL jointly owned unit, operated by MidAmerican representing the following ownership share:
4% Louisa; 28% George Neal 3; and 25.7% George Neal 4.
- (c) Fox Lake is located in Minnesota, which was removed from the existing CAIR program.

Figure 3 shows the current annual ARP allowances allocated to IPL, the corresponding annual CAIR allowances for Phase I and II and the total annual SO₂ emissions from IPL affected facilities during 2012. This figure reflects IPL's ownership share for jointly-owned units. These figures show IPL's 2012 annual SO₂ emissions with respect to the allowed ARP, as well as CAIR Phase I and II SO₂ emissions limits. While current emissions levels are above the allowed limits, IPL continues to comply with the required reductions through a combination of emissions controls, banked or purchased SO₂ allowances, fuel switching and unit retirements.

FIGURE 3



c. Mercury and HAP Emissions

The EPA has issued its final Utility MATS regulation, which requires EGUs to reduce mercury and other hazardous air pollutant (HAP) emissions to levels established as equivalent to MACT. This rule affects IPL’s coal-fired EGUs in Iowa that are over 25 Megawatts (MW). Table 4 shows the final Utility MATS emissions limitations, measured either in terms of heat input (lb/MMBtu) or gross output (lb/MWh), for which compliance is required to be determined on the basis of a 30-boiler operating day rolling average period.

Table 4 – Utility MATS Final Emission Standards			
Compliance Required with Primary Standard or Alternative Standard		Limit	Units
Non-Hg Metals:			
Primary	Filterable Particulate (PM)	0.030	lb/MMBtu
		0.30	lb/MWh
Alternative	Total Non-Hg HAP metals	0.000050	lb/MMBtu
		0.00050	lb/MWh
Alternative	Individual HAP metals:	Limit	Units
	Antimony (Sb)	0.80	lb/TBtu
		0.0080	lb/GWh
	Arsenic (As)	1.1	lb/TBtu
		0.020	lb/GWh
	Beryllium (Be)	0.20	lb/TBtu
		0.0020	lb/GWh
	Cadmium (Cd)	0.30	lb/TBtu
		0.0030	lb/GWh
	Chromium (Cr)	2.8	lb/TBtu
		0.030	lb/GWh
	Cobalt (Co)	0.80	lb/TBtu
		0.0080	lb/GWh
	Lead (Pb)	1.2	lb/TBtu

		0.020	lb/GWh
	Manganese (Mn)	4.0	lb/TBtu
		0.050	lb/GWh
	Nickel (Ni)	3.5	lb/TBtu
		0.040	lb/GWh
	Selenium (Se)	5.0	lb/TBtu
		0.060	lb/GWh
Acid Gases:			
Primary	Hydrogen Chloride (HCl)	0.0020	lb/MMBtu
		0.020	lb/MWh
Alternative ^(a)	Sulfur Dioxide (SO₂)	0.20	lb/MMBtu
		1.5	lb/MWh
Mercury:			
Primary	Mercury (Hg)	1.2	lb/TBtu
		0.0130	lb/GWh
Organic HAPs (Dioxin/Furan):			
Primary ^(b)	Work Practice Standard requires a combustion process performance tune-up.		

Notes:

(a) Only EGUs that have a flue gas desulfurization (FGD) system and SO₂ CEMs installed can utilize the SO₂ limits.

(b) Work practice standard. For the performance tune-up work practice requirements, EGUs must demonstrate continuous compliance by conducting the work practice at least once every 36 calendar months (48 calendar months if a neural network is employed). The work practice involves maintaining and inspecting the burners and associated combustion controls, tuning the specific burner type, as applicable, to optimize combustion, obtaining and recording CO and NO_x values before and after burner adjustments, keeping records of activity and measurements, and submitting a report for each tune-up conducted. A combustion tune-up will involve optimizing combustion of the unit consistent with manufacturer's instruction as applicable, or in accordance with best combustion engineering practice for that burner type.

In addition, the Utility MATS requires affected EGUs to demonstrate compliance through one of two basic approaches: (1) use of continuous monitoring [either continuous emission monitors (CEMs) or a continuous parametric monitoring system (CPMS) for particulate matter]; or (2) periodic quarterly stack testing. The EPA included provisions for averaging of emissions from existing EGUs at the same facility as another possible compliance

demonstration method. For mercury emissions only, the emissions averaging plan may use an alternate compliance approach consisting of a 90-boiler operating day rolling average period emission limitation of 1.0 lb/TBtu or 0.011 lb/GWh.

D. Ongoing Environmental Compliance Practices

The following section provides a description of the ongoing practices that are currently used to control emissions and also for demonstrating environmental compliance at Iowa-based IPL-operated coal-fired facilities including those previously accepted by the IUB.

1. Regulated Air Emissions

Air emissions regulated by local, state, and federal agencies are currently managed through air pollution control equipment, plant operating practices, type of fuel burned, emissions allowances, monitoring and site-specific permitting. Substantial capital resources have been invested by IPL in air pollution control equipment to comply with emissions requirements. Plant operating practices and regular maintenance are required to keep the control equipment functioning properly. Inspections, record keeping, and report submittals are required by facility CAA Title V air operating permits. Within the Title V air operating permits, IPL submits semi-annual certification documents to the IDNR verifying ongoing compliance. The ARP requires management of SO₂ allowances and maintenance of a NO_x emissions limit. Similarly, the CAIR program requirements the management of SO₂ and NO_x allowances. Federal and state regulations require that these air emissions be monitored with CEMs. The CEMs rules

require diligent maintenance, record keeping, quality assurance procedures, quality control practices and reporting to maintain the accuracy of the monitoring systems. Management of plant emissions also includes administrative activities such as training and permit renewals.

2. Regulated Water Discharges

Regulated water discharges at IPL's coal-fired electric generation facilities are managed through plant operating practices and site-specific permitting. The NPDES regulations, adopted by the EPA and administered by the IDNR, require that point-source discharges of water meet safe levels including the CWA requirements for 316(a) and 316(b). The Storm Water Pollution Prevention (SWPP) regulations, also adopted by the EPA and administered by the IDNR, require that area-source discharges of water meet safe levels. Plant operating practices, equipment maintenance, water sampling, and laboratory analysis are required to properly control chemical use within the plants and minimize the discharge of pollutants in plant process water. Special discharge structures that control water flow, retention ponds for settling and treating pollutants, and pollutant-specific control equipment are examples of plant equipment installed to control water emissions. Managing compliance with the NPDES and SWPP regulations also includes administrative activities such as record keeping, inspection, training, pollution prevention plans, regulatory interpretations, permit renewals, submittal of monthly discharge monitoring reports, and reporting to environmental regulatory agencies.

3. Coal Combustion Residual Management

Coal combustion residuals (CCRs) are the solid residue, consisting mainly of coal ash, remaining from the combustion of coal fuel. The EPA and the IDNR require CCRs to be managed to prevent harmful emissions or releases into the environment. Landfills have been constructed and are operated to manage the disposal of CCRs in compliance with state and federal regulations. CCR sampling, ground water sampling, laboratory analysis, landfill management plans, landfill permits, record keeping and monitoring reports are examples of activities required to comply with disposal regulations. In addition, IPL has an ash pond inspection and management plan. IPL strives to minimize landfill disposal of CCRs by identifying and participating in acceptable beneficial use alternatives for the materials.

4. Hazardous Waste and Chemical Management

Many different state and federal regulations govern the management of hazardous waste, materials and chemicals to prevent releases into the environment. These programs include requirements such as spill prevention planning, training, record keeping and reporting of accidental chemical releases to the environment.

The Spill Prevention Control & Countermeasure (SPCC) regulations promulgated by the EPA are intended to prevent releases of petroleum products into streams and other water bodies. SPCC rules require proper storage vessels, secondary containment structures, inspection programs, spill response training, spill response equipment, and prevention plan development.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) provides EPA with authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. IPL annually reports hazardous substance volumes stored at each facility, toxic release inventories, and accidental releases under this regulation. Clean-up of hazardous waste sites are also managed under this regulation. The Resource Conservation and Recovery Act (RCRA) regulations require proper handling, storage, transportation and disposal of hazardous and non-hazardous wastes. In addition, Polychlorinated Biphenyl (PCB) fluids that may be found in older electrical equipment are managed under the Toxic Substances Control Act (TSCA). IPL uses operational procedures to ensure safe and proper disposal of all hazardous wastes while maintaining regulatory compliance.

E. Other Plan Considerations

IPL's development of the EPB Update also considers economic development potential, as well as, the reliability of the electric generation and transmission system.

1. Economic Development

Reducing emissions can have both a direct and indirect economic development benefit to Iowa. By reducing emissions, IPL supports improved air quality in Iowa to levels meeting and exceeding the NAAQS. This provides increased PSD increment for other emissions sources applying for pre-construction air permit approvals. PSD increment is the amount of pollution an

area is allowed to increase. PSD increments are threshold levels set to prevent the air quality in clean areas that achieve the NAAQS from deteriorating. Therefore, the amount of air emission increment available for other industrial developments to expand operations will typically increase as a result of reduced IPL air emissions.

More importantly, reduced air emissions will maximize the opportunity for Iowa to avoid nonattainment status. The CAA defines a "nonattainment area" as a locality where air pollution levels persistently exceed NAAQS, or that contributes through emissions transport to ambient air quality in a nearby area that fails to meet standards. Designating an area as nonattainment is a formal rulemaking process, and EPA normally takes this action only after air quality standards have been exceeded for several consecutive years. Nonattainment areas are given a classification based on the severity of the violation and the type of air quality standard exceeded.

Nonattainment status can be a significant economic development detriment. IPL's emission reductions occur across IPL's service territory, resulting in benefits associated with improved air quality and can support continued achievement of the NAAQS in the State of Iowa and potentially to downwind areas due to less emissions transport.

Reducing emissions also helps maintain the ability to continue to operate the affected generating units. Continued operation of these units preserves the generation tax revenues for the communities in which the units are located. The installation of air pollution controls will result in the creation of jobs as a result of

these environmental projects. This includes jobs and associated services necessary to support the initial installation of the air pollution control equipment during the construction period. In addition, larger installations of environmental emissions controls will require operations and maintenance staff to assure proper performance of air pollution control equipment after initial start-up.

IPL recognizes that there is a customer rate impact from the costs to design, construct, install and operate environmental compliance projects. This rate impact from environmental compliance can also have an effect on economic development. IPL strives to manage its environmental compliance plan to keep its costs competitive for customers and ensure compliance with current and emerging regulations.

2. Generation and Transmission System Reliability

When planning unit outages to support environmental emission control installations, IPL will adhere to the same requirements and guidelines it follows when scheduling outages to support other generating unit operations and maintenance needs. Planned power plant outages are reviewed and coordinated with the Midcontinent Independent System Operator, Inc. (MISO), which considers overall impacts for both IPL and non-IPL operated generation. This process assures generation and transmission system reliability is adequately maintained during the outage.

To the extent possible, IPL's unit outages for emission control installations will be staggered, both in location and timing, to minimize impacts on generation and transmission system reliability. IPL will strive to reduce the number and

duration of additional unit outages required to implement emission control installations, in order to reduce the overall incremental fuel and purchased power costs associated with IPL unit outages.

Emission control installations requiring long periods of time to tie-in with a boiler or other existing equipment will have emission control construction schedules coordinated as much as possible with pre-planned major generating unit outages. Unit outages to implement environmental controls will also span across a number of years to reduce unavailable generation in any single year. Outages will typically be scheduled during low-load periods of the year (spring/fall), as well as to coincide with necessary planned outages for generation unit and power plant maintenance work. IPL works with MISO to ensure that its requested timeframes for outages for projects with longer tie-in periods will be scheduled appropriately. Those units with such projects include Ottumwa Generating Station and Lansing Unit 4. Projects at IPL's other impacted units are currently anticipated to be completed within normal maintenance outages.

F. Emerging Environmental Regulation

The potential emerging federal and state environmental rules that may affect IPL's EPB are discussed in this section, including: Clean Air Visibility Rule (CAVR), Industrial Boiler and Process Heater MACT Standard, revisions to NAAQS, and regulatory actions intended to reduce GHG emissions. In addition to air emissions, IPL anticipates potential environmental regulation for cooling water, wastewater, and CCRs.

1. Clean Air Visibility Rule (CAVR)

The EPA issued CAVR, also referred to as the Regional Haze Rule, in 1999 to address regional haze. CAVR requires states to develop and implement SIPs to address visibility impairment in designated national parks and wilderness areas (also known as Federal Class I areas) across the country, with a national goal of no visibility impairment by 2064. Since haze-forming pollutants can be transported considerable distances, the CAVR compliance strategy must be addressed at a regional level. Iowa does not have any Federal Class I areas within the state, but must consider whether emissions in the state could contribute to the visibility impairment in other states' Federal Class I areas. The closest Federal Class I areas to Iowa are located in Michigan and Minnesota.

In 2005, the EPA finalized amendments to the 1999 CAVR. These amendments require emissions controls referred to as best available retrofit technology (BART) for industrial facilities emitting air pollutants that can reduce visibility by causing or contributing to regional haze. The BART requirements of CAVR apply to facilities built between 1962 and 1977 that have the potential to emit more than 250 tons a year of visibility-impairing pollution. The BART-eligible IPL units are Burlington Unit 1, Lansing Unit 4, M.L. Kapp Unit 2 and Prairie Creek Unit 4.

States subject to CAVR, including Iowa, were required to submit a SIP to the EPA by December 2007 that included BART air pollution controls and other additional measures needed for reducing state contributions to regional haze. Emissions of primary concern for visibility impairment from EGUs include NO_x,

PM and SO₂. Under CAVR, states participating in CAIR's cap-and-trade program can determine that CAIR has precedence over BART. Therefore, BART requirements could be deemed to be met through compliance with CAIR requirements for NO_x and SO₂. This is commonly referred to as the EPA's "CAIR equals BART" determination. Similarly, in May 2012, the EPA issued a rule that allowed states to establish that "CSAPR equals BART."

In March 2008, the IDNR submitted a CAVR SIP to the EPA that recommended no additional BART or regional haze controls for EGUs beyond the applicable CAIR requirements. In August 2011, a legal challenge was filed by several groups citing the EPA's failure to issue timely approval of CAVR SIP submissions. In December 2011, the EPA published a proposed consent decree to respond to the legal challenge. This agreement included a schedule for the EPA action to finalize CAVR plans for Iowa by June 2012.

In December 2008, CAIR was remanded to the EPA without vacature by the D.C. Circuit Court. Due to this remand, the EPA issued a disapproval in 2012 for the portion of Iowa's CAVR plan that relied on CAIR to satisfy the CAVR BART requirements. In June 2012, the EPA issued a Federal Implementation Plan (FIP) specifying that the state's compliance with CSAPR would satisfy the CAVR BART requirements. In August 2012, the D.C. Circuit Court vacated CSAPR. The EPA appealed this decision to the U.S. Supreme Court and a decision is expected in the first half of 2014. As a result of the CSAPR vacature, it is unknown whether the EPA will allow BART to be fulfilled by CAIR, a modified CSAPR or another future transport rule. In addition, groups have legally

challenged the EPA's reliance on CSAPR to satisfy the CAVR BART requirements. IPL is currently unable to predict with certainty the future impact of CAVR until the outstanding legal issues related to CAIR and CSAPR are resolved.

2. Industrial Boiler and Process Heater Maximum Achievable Control Technology (MACT) Rule

In January 2013, the EPA published a reconsideration rule revising the Industrial Boiler and Process Heater MACT regulation with a compliance deadline of January 31, 2016 (78 Fed. Reg. 7138). Generating units that are subject to the Utility MATS are not subject to the Industrial Boiler and Process Heater MACT rule. All of IPL's electric generation coal fleet (i.e., Burlington Unit 1, M.L. Kapp Unit 2, Lansing Unit 4, Ottumwa Unit 1 and Prairie Creek Units 3 & 4) are subject to the Utility MATS rule. However, there are certain auxiliary boilers and process heaters at these facilities, which will be subject to work practice requirements to conduct periodic combustion tune-ups under the Industrial Boiler and Process Heater MACT rule.

In August 2013, the EPA granted several petitions for another reconsideration on limited aspects of the Industrial Boiler and Process Heater MACT regulation and expects to issue another proposed reconsideration rule by the end of 2014. IPL currently does not expect significant financial investments at its coal-fired EGUs or for its auxiliary equipment related to the Industrial Boiler and Process Heater MACT rule at this time. However, this assessment will be updated in future EPB submissions due to the ongoing reconsideration of certain issues for this rule.

3. National Ambient Air Quality Standards (NAAQS) Revisions

The CAA requires the EPA to review the NAAQS every five years to ensure the standards protect human health and the environment. IPL may be subject to additional emissions reduction requirements depending on the future stringency of the NAAQS and determination of areas not meeting the NAAQS standards (i.e., “nonattainment areas”).

- **Nitrogen Oxides (NO_x) NAAQS –**

In February 2010, the EPA issued a final rule to strengthen the primary NAAQS for NO_x, as measured by nitrogen dioxide (NO₂) (75 Fed. Reg. 6474). The final rule establishes a new one-hour NAAQS for NO₂ of 100 ppb and associated ambient air monitoring requirements, while maintaining the current annual standard of 53 ppb. In February 2012, the EPA issued a final rule to not designate any nonattainment areas, based on currently available information. The EPA is expected to re-evaluate NO₂ NAAQS designations in 2016 based on expanded ambient monitoring data. A near-roadway NO₂ monitor was added in Des Moines, Iowa and began operation on January 1, 2013. Given that the EPA has not yet re-evaluated designations, IPL is currently unable to predict with certainty the impact of the 2010 NO₂ NAAQS at this time.

- **Ozone NAAQS –**

In March 2008, the EPA issued a final rule to strengthen the primary and secondary NAAQS for ozone (73 Fed. Reg. 16436). The final rule revised the ozone NAAQS from 84 ppb to 75 ppb. In April 2012, the EPA finalized

nonattainment areas for the 2008 ozone NAAQS, which included no areas in Iowa.

The EPA had previously stated that it intended to propose a revision of the 2008 ozone NAAQS in December 2013, with a final rule to be issued in September 2014. As of this filing, the EPA has not issued a proposed rule to revise the ozone NAAQS. Furthermore, a February 3, 2014, memorandum from the EPA's Office of Air Quality Planning and Standards group to the Clean Air Scientific Advisory Committee indicates that the agency intends to finish the policy assessment related to the ozone NAAQS review process during the summer of 2014 and potentially propose a revised ozone standard thereafter.

- **Particulate Matter (PM) NAAQS –**

In December 2012, the EPA issued a final rule to strengthen the primary NAAQS for PM (78 Fed. Reg. 3086). The final rule revised the PM_{2.5} standard from 15 micrograms per cubic meter to 12 micrograms per cubic meter. In December 2013, the IDNR recommended to the EPA that all Iowa counties, with the exception of a portion of Muscatine County, be designated as meeting the standard (i.e., "unclassifiable/attainment"). There are no IPL generating facilities located in the portion of Muscatine County being proposed for the Iowa PM_{2.5} nonattainment area. The EPA is expected to designate final nonattainment areas for the revised annual PM_{2.5} NAAQS by December 2014 with an effective date in early 2015. Once areas are designated as being in nonattainment, five years are generally allowed to achieve compliance.

- **Sulfur Dioxide (SO₂) NAAQS –**

In June 2010, the EPA issued a final rule that established a new one-hour NAAQS for SO₂ at a level of 75 ppb (75 Fed. Reg. 35520). The final rule also rescinded both the prior 24-hour and annual standards. In July 2013, the EPA finalized nonattainment designations for limited areas in the country currently exceeding the SO₂ NAAQS based on available monitoring data, including one area in Iowa (part of Muscatine County). There are no IPL generating facilities located in this Iowa SO₂ nonattainment area.

The EPA plans to re-evaluate SO₂ nonattainment designations in the future based on modeling or monitoring data. States must make a decision in 2015 regarding whether to use modeling or monitoring to evaluate potential additional SO₂ nonattainment areas. If states chose modeling, the EPA anticipates finalizing additional nonattainment areas by December 2017. If states chose monitoring, the EPA anticipates finalizing additional nonattainment areas by December 2020. Once areas are designated nonattainment, there is five years to achieve compliance with the SO₂ NAAQS.

4. Greenhouse Gas (GHG) Emissions

In 2009, the EPA issued a finding that GHG emissions contribute to climate change, and therefore, threaten public health and welfare, also called the “Endangerment and Cause or Contribute Findings for GHGs”. Taking effect in January 2010, this finding enabled the EPA to issue rules to report and regulate GHG emissions under the CAA.

In December 2010, under authority from the GHG Endangerment and Cause or Contribute Findings, the EPA announced the future issuance of GHG standards for electric utilities under the CAA. The GHG emission limits are to be established as New Source Performance Standards (NSPS) for new and existing fossil-fueled EGUs using authorities under CAA Section 111(b) and 111(d), respectively. Section 111 provides that NSPS are to “reflect the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.” This level of control is commonly referred to as best system of emission reduction (BSER).

Under Section 111(b), the new source requirements are generally established as numerical emission limitations, expressed as a performance level (i.e., a rate-based standard), based on emissions reductions achievable by current technologies applied on a unit or facility-specific basis. Whereas, states will have a more significant role in development and implementation of the existing source standards under Section 111(d), because the EPA’s role is to issue the “emissions guidelines” that are used to develop state-specific plans to achieve the required reductions.

In June 2013, President Obama announced a Climate Action Plan that more broadly, reinforced the Administration’s previously stated goal of reducing

GHG emissions “in the range of 17% below 2005 levels by 2020”. This plan includes various executive actions related to climate change initiatives, including:

- Cutting GHG emissions in the U.S. from various industrial sources, including power plants;
- Preparing the U.S. for the impacts of climate change through natural resource planning and infrastructure improvements; and
- Leading international efforts to combat global climate change and prepare for its impacts.

As part of this announcement, a Presidential Memorandum was issued that directs the EPA to work expeditiously to complete the GHG reduction standards for CO₂ emissions from EGUs at power plants. More specifically, the Presidential Memorandum provided a revised schedule for these rulemakings as follows:

- New EGUs – Due to extensive public comments received on EPA’s original proposal that was issued in March 2012, the EPA should re-propose this standard by September 20, 2013 and finalize the reconsidered rule “in a timely fashion.”
- Existing EGUs – EPA is to propose a rule by no later than June 1, 2014, and issue a final rule by no later than June 1, 2015 that will provide the guidelines that states must follow to achieve required GHG reductions for CO₂ emissions. State implementation plans (SIPs) that provide details of how these guidelines are to be met will be required from state agencies by no later than June 30, 2016.

In September 2013, the EPA formally re-proposed the NSPS for CO₂ emissions from new fossil-fueled power plants and this was published for public comment in January 2014 (79 Fed. Reg. 1430). The proposed rule would apply only to new fossil fuel-fired EGUs greater than 25 MW, which EPA would define

to include utility boilers, integrated gasification combined cycle (IGCC) units and certain natural gas-fired stationary combustion turbines that generate electricity for sale and are constructed for the purpose of supplying more 219,000 MWh to the grid. The proposed rule would not affect units that sell less than one-third of their potential electric output to the grid. In addition, EGUs at which 10% or less of the heat input over a three-year period is derived from a fossil fuel would not be subject to the proposed standards.

EPA is proposing to set separate standards for natural gas-fired stationary combustion turbines and for fossil fuel-fired utility boilers and IGCC units. The proposed emissions limits for natural gas turbines are based on the performance of modern natural gas combined cycle (NGCC) units. The EPA proposes a standard of 1,000 lb CO₂/MWh gross for "large" facilities greater than 850 MMBtu/hr heat input rating (this is approximately 100 MWe), and a standard of 1,100 lb CO₂/MWh gross for "small" facilities less than or equal to 850 MMBtu/hr heat input rating. The proposed standards would apply on a rolling 12-month average. The proposed limits for fossil fuel-fired utility boilers and IGCC units, including any new coal-fired EGUs, are based on the performance of a new efficient unit implementing partial carbon capture and storage (CCS). The EPA proposes a standard of 1,100 lb CO₂/MWh gross over a 12-operating month period. The EPA also is proposing an alternative seven-year compliance option (an 84-month rolling standard) with a standard between 1,000 and 1,050 lb CO₂/MWh.

The re-proposed rule was published in the Federal Register on January 8, 2014, for public comment; there is no established date for the EPA to issue the final rulemaking. IPL's proposed plans for the Marshalltown Generating Station (MGS), a nominal 600 MW natural gas-fired combined cycle electric generating facility, includes the latest combustion turbine technology and will be designed to comply with the EPA's NSPS CO₂ emissions limit for new electric generating units. Pending all regulatory approvals, the IPL expects to begin construction for MGS in 2014 and begin operations in 2017.

At this time, IPL does not have plans to build any new coal-fired EGUs that would be subject to this NSPS rule. In addition, the EPA has chosen not to propose standards as part of this rulemaking under CAA Section 111(b) to regulate CO₂ emissions from modified or reconstructed fossil-fueled EGUs at this time.

- For purposes of NSPS, "modified" means a physical or operational change that increases the source's maximum achievable hourly rate of emissions, excluding pollution control projects.
- The regulations define "reconstructed" as existing sources that replace components to such an extent that the capital costs of the new components exceed 50% of the capital costs of an entirely new facility, and for which compliance with the NSPS is technologically and economically feasible.

Consequently, the EPA has stated that retrofit air pollution control system projects for regulations such as the Utility MATS are exempted under the proposed NSPS rule. The EPA has not provided any specific details on potential NSPS regulations for CO₂ from modified and reconstructed EGUs, but could

issue a proposed rule in 2014, possibly coordinating this GHG action with the forthcoming NSPS for existing EGUs.

For existing EGUs, the NSPS proposed rule that is to be issued by the EPA in June 2014 under CAA Section 111(d) is expected to include emission guidelines that states must use to develop plans for EGU GHG reductions including CO₂ emissions. Essentially, this emission guideline will reflect what is determined to be BSER for existing power plants and establishes the floor for states to develop their plans. The state plans explaining how the emission guidelines will be achieved are then submitted to the EPA for approval or disapproval.

The level of discretion allowed in providing for flexible standards and ability to broadly interpret application of the CAA under Section 111(d) for existing EGUs by both EPA and state agencies remains to be determined for this rulemaking. Consequently, this will have important implications in establishing the stringency of the standard, as well as, options and timeframe for achieving compliance. In particular, the rulemaking will impact:

- whether the EPA's determination of BSER must be strictly applied to the regulated emission unit (in this case, an existing EGU) and if so, what level of sub-categorization would be considered in assessing the level of emissions reduction required for the standard (for example - differentiation by fuel types, boiler or turbine types, potential heat rate improvements or other factors);
- whether BSER can be extended beyond the regulated EGU (i.e., beyond the power plant fenceline) by allowing for alternative compliance

mechanisms, such as fleetwide emissions averaging or through a market-based emissions cap-and-trade program;

- whether offsite emissions reductions can be considered, such as renewable energy resources or demand-side management programs for customer energy efficiency and conservation; and
- what baseline will be used from which to measure CO₂ and possibly other GHG emissions reductions, as well as, the related monitoring, recordkeeping and reporting methodologies to verify these reductions.

The extent to which these factors could be applied for existing EGUs in the NSPS regulations remains unknown until the EPA's rule proposal is issued for public comment in 2014.

Lastly, under the CAA, both the EPA and state agencies have the ability to set less stringent standards or longer compliance schedules for existing sources when warranted, considering cost of control, useful life of the facilities, location or process design at a particular facility, physical impossibility of installing necessary control equipment, or other factors making less stringent limits or longer compliance schedules appropriate.

IPL is continuing to monitor the EPA's actions to issue this standard and expects continued participation in related rulemaking discussions with IDNR, the Board, and other agencies. IPL's guiding principles regarding how to approach development of the requirements is provided below:

- Provide credit for early action and MATS investments (i.e., don't strand assets that our customers have invested in for other EPA rules).
- Federal guidelines established for existing power plants must be attainable and should recognize the lack of proven control technologies for reducing CO₂ emissions.

- Allow as much flexibility as possible with compliance options by including reductions outside the power plant fenceline (such as renewables and demand-side management).
- Standards should not be one-size fits all and need to acknowledge energy supply variability and potential constraints at the state and regional level.
- The compliance timeframe must be sufficient to allow for a transition that provides customers with cost-effective and reliable power.

The implications of the EPA's NSPS rule for GHG emissions from existing EGUs are highly uncertain, including the format of emission limitations, level of controls considered to be BSER, and compliance timeline to implement the mandated reductions of GHGs including CO₂ emissions. Furthermore, it is anticipated that legal challenges and litigation of the EPA's GHG rules will add to this uncertainty. IPL will provide updates to its EPB filing as part of its periodic reporting as this issue further develops and details of the EPA's proposed rule become known.

5. Section 316(b) of Federal Clean Water Act

Section 316(b) of the CWA requires the EPA to regulate cooling water intake structures in order to assure that these structures reflect the "best technology available" for minimizing adverse environmental impacts to fish and other aquatic life. More specifically, this rule will require existing power plants to demonstrate how these sites currently meet or will meet national performance standards to reduce the mortality of fish and shellfish caused by entrainment (taking in of organisms with the cooling water) and impingement (blocking of

larger entrained organisms that enter the cooling water intake by some type of physical barrier – sometimes referred to as entrapment).

In April 2011, the EPA issued a revised proposed Section 316(b) rule, which applies to existing and new cooling water intake structures at large steam EGUs (76 Fed. Reg. 22174). The proposed rule would require that both impingement and entrainment mortality standards be met for power plants that withdraw greater than two million gallons of cooling water per day. Facilities can install technology to meet the impingement standard or reduce the cooling water intake velocity to below a set standard (0.5 feet/second). State agencies will be tasked with determining the best approach to comply with the entrainment standard. Part of this determination will include consideration of a series of factors, such as cost and social benefits.

IPL has identified seven electric generating facilities that may be impacted by the revised Section 316(b) rule: Burlington; Dubuque; Fox Lake; Lansing; M.L. Kapp; Ottumwa; and Prairie Creek. A final rule is expected to be issued by the EPA in April 2014. The schedule for compliance with this rule has not yet been finalized; however, final compliance is expected to be required within eight years of the effective date of the final rule. Despite this, studies and interim compliance requirements must be initiated within six months after the final rule is promulgated. Therefore, IPL anticipates commencing field studies to prepare for 316(b) starting in 2014.

6. Effluent Limitation Guidelines and Water Quality Standards

The EPA is required to periodically update the national technology-based regulations to reduce industry discharges of pollutants from effluent wastewater into the waters of the United States. For the electric power sector, the EPA last updated the relevant guidelines for wastewater effluent discharges in 1982. In 2010, the EPA completed an Information Collection Request (ICR) to gather information from utilities to support a future Effluent Limitation Guideline (ELG) rulemaking. The purpose of the ICR was to consider various wastewater sources and levels of pollutants in these discharges, such as metals, total dissolved solids (TDS) and total suspended solids (TSS). The proposed rule changes were issued in June 2013 and EPA's final rule was expected in May 2014, however EPA recently announced that they will not be able to meet that deadline forcing the the issuance of the final rule to be delayed to an unspecified date at this time. It is anticipated that the final rule will result in new discharge limits and compliance schedules that will be incorporated into existing NPDES permits when these come due for renewal, which typically occurs on a five-year cycle.

The implications of this rulemaking remain uncertain. However, the EPA indicates the revisions will likely result in more stringent effluent limits for wastewater discharges associated with plant process wastewaters, particularly those that involve ash management and wet scrubbers. In the proposal, the EPA detailed eight compliance options, of which four were identified as preferred options. Based on evaluation of the four preferred options, new limits are likely for seven wastewater discharges. Of the seven wastewater discharges

identified, four would impact IPL, including: wet fly ash transport water; bottom ash transport water; landfill and surface impoundment leachate; and, chemical and non-chemical metal cleaning wastewater. Best Available Technology (BAT) will likely be required to treat wastewater discharges. Information from the EPA suggests that “no discharge” from ash ponds may be BAT, which suggests that closing ash ponds and converting to “dry” or circulating ash management systems may be necessary or desirable to comply with the ELG requirements.

Additionally, it appears that new ELG limits would have to be met before wastewaters are co-mingled. Therefore, some low-volume wastewater streams will likely be affected, with the possibility of total elimination of discharges that come in contact with coal combustion residues (ash). The latter appears consistent with the EPA’s proposed CCR rule changes, which are discussed in the next section.

Beyond the ELG, the IDNR is continuing to adopt more stringent water quality standards. These standards are found in Chapter 61 of the Iowa Administrative Code. IPL anticipates that the measures implemented for compliance with the final ELG and CCR regulations will also address the requirements needed to meet future revisions to water quality standards.

7. Federal Coal Combustion Residuals (CCR) Rule

The Resource Conservation and Recovery Act (RCRA) of 1976 requires that the EPA develop regulations governing the identification and management of hazardous waste. RCRA was amended in 1980, designating CCR to be managed as “non-hazardous waste” until further study could be completed by

EPA. CCR is what remains after the direct combustion of coal in power plants to generate electricity and there are different types of CCR:

- Fly ash – a very fine powder-like particle, ranging in color from tan to black. It is collected by emission controls, such as electrostatic precipitators (ESPs) and baghouses.
- Bottom ash – a coarse, granular sand-like material collected in the bottom of the boilers.
- Boiler slag – a black, shiny and angular material. It is coarser than bottom ash and also collected in the bottom of boilers.

Following extensive studies, the EPA concluded in Regulatory Determinations issued in 1993 and 2000 that CCR wastes did not warrant regulation as hazardous waste under Subtitle C of RCRA. However, in the 2000 Regulatory Determination, the EPA noted that national regulations for CCRs under the “non-hazardous waste” section of RCRA were appropriate when disposed in landfills or surface impoundments.

Under the non-hazardous waste designation, CCR is currently regulated by each respective state. In December 2008, national attention was turned to CCR management when a breach in a coal ash impoundment pond at the Tennessee Valley Authority's plant near Kingston, Tennessee, released 1.1 billion gallons of coal ash slurry to the immediate surrounding area. Following this accidental release, the EPA declared its intent to move forward with coal ash regulations to address the management of CCRs. In June 2010, the EPA issued a proposed rule and sought public comment regarding two potential regulatory options for management of CCRs (75 Fed. Reg. 35128):

- Option 1 - regulate as a special waste under the federal hazardous waste regulations (Subtitle C) when the CCR is destined for disposal, but continue to allow beneficial use applications of CCRs as a non-hazardous material; or,
- Option 2 - continue to regulate as a non-hazardous waste (Subtitle D) for all applications, but subject to newly developed national standards for CCR management.

Both options include additional requirements with significant impact for CCR management, beneficial use applications and disposal, with the “special waste” designation being the most stringent. As currently proposed, both options would result in all current CCR surface impoundments requiring significant upgrades or being closed with “wet ash collection” systems being converted to “dry ash collection” systems. If it is determined appropriate to manage coal ash as a special hazardous waste, additional costs would be incurred to: (1) develop and implement new on-site large quantity generator hazardous waste management handling programs; and (2) site and construct a number of new hazardous waste landfills. Currently, Iowa does not have any hazardous waste landfills.

Public comments on the proposed rule were extensive, and the EPA issued a Notice of Data Availability in October 2011, presenting additional related CCR data for public comment. IPL has eight current or former coal generating facilities with one or more existing ash surface impoundments, one facility with a concrete ash collection basin, and two active CCR landfills. All of these CCR disposal units will be subject to the final rule, which is anticipated to be issued in December 2014. Under both currently proposed options, most provisions of the

new rule will be effective in Iowa six months after the rule is final, with a five-year period to close or upgrade ash surface impoundments.

Acronyms used in Section I

ARP - Acid Rain Program

BACT - Best Available Control Technology

BAT - Best Available Technology

BTA – Best Technology Available

CAA – Clean Air Act

CAIR – Clean Air Interstate Rule

CAVR – Clean Air Visibility Rule

CCR – Coal Combustion Residuals

CEM - Continuous Emission Monitor

CO₂ – Carbon Dioxide

CSAPR – Cross State Air Pollution Rule

CWA - Clean Water Act

EGU – Electric Generating Unit

EPA – US Environmental Protection Agency

FGD – Flue Gas Desulfurization

GHG – Greenhouse Gas

HAPs – Hazardous Air Pollutants

HCl – Hydrogen Chloride

Hg – Mercury

IEPC - Iowa Environmental Protection Commission

IDNR – Iowa Department of Natural Resources

lb/MMBtu – pound/Million Btus

MACT – Maximum achievable control technology

MISO – Midcontinent Independent System Operator, Inc.

MATS – Mercury and Air Toxics Standards

MMBtu/hr – Million BTUs/hour

MW – MegaWatt

MWh – Megawatt-hour

NO_x - Nitrogen oxides

NAAQS - National Ambient Air Quality Standards

NSR - New Source Review

NPDES - National Pollutant Discharge Elimination System

NSPS - New Source Performance Standards

ppb – parts per billion

PM – Particulate Matter

PM_{2.5} – Fine particulate matter

PSD - Prevention of Significant Deterioration

RCRA - Resource Conservation and Recovery Act

SIPs - State Implementation Plans

SPCC - Spill Prevention Control & Countermeasure

SO₂ – Sulfur dioxide

SWPP - Storm Water Pollution Prevention

tpy – tons/year