

April 01, 2014

IOWA UTILITIES BOARD

STATE OF IOWA

BEFORE THE IOWA UTILITIES BOARD

<b>IN RE:</b>  <b>INTERSTATE POWER AND LIGHT COMPANY</b>	<b>DOCKET NO. EPB-2014-0150</b>
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**DIRECT TESTIMONY OF STEPHEN R. JACKSON**

1 **Q. Please state your name and business address.**

2 A. My name is Stephen R. Jackson. My business address is 4902 North  
3 Biltmore Lane, Madison, Wisconsin 53718-2148.

4 **Q. By whom are you presently employed and in what capacity?**

5 A. I am employed by Alliant Energy Corporate Services, Inc. (AECS), a  
6 service company subsidiary of Alliant Energy Corporation (Alliant Energy).  
7 My job title is Manager, Environmental Services – Planning. In this  
8 position, most of my time is spent working for Alliant Energy’s wholly-  
9 owned utility subsidiaries, Interstate Power and Light Company (IPL), and  
10 Wisconsin Power and Light Company (WPL). I am testifying on behalf of  
11 IPL in this proceeding.

12 **Q. What is your educational background?**

13 A. I received a B.S. Degree in Geology from the University of Wyoming in  
14 May 1983.

15 **Q. Please describe your professional experience.**

1 A. I began my career as an environmental consultant analyzing emerging  
2 environmental issues and their relationship to public and private sectors  
3 for clients including the U.S. Department of Energy and the U.S.  
4 Environmental Protection Agency (EPA). Continuing in the environmental  
5 consulting vein, I was employed by several firms over the course of nine  
6 years performing field investigation, remediation, permitting, training and  
7 similar services across various industries. I managed multi-media  
8 environmental programs for two years at a large manufacturer of  
9 detonators, fuses, and energy reserve cells used in land mines. I began  
10 my career with WPL in July 1996 working in the corporate environmental  
11 services department supporting Generation and Engineering business  
12 units. At the merger of what is now Alliant Energy, I assumed the role of  
13 Environmental Specialist responsible for environmental compliance  
14 programs at several WPL generating stations, eventually coming back to  
15 the corporate environmental services department where I have assumed  
16 increasing levels of responsibility while always supporting the Generation  
17 business unit. I assumed my current role of Manager, Environmental  
18 Services – Planning in April 2013, with responsibility for evaluation and  
19 analysis of emerging environmental rules and supporting the development  
20 of strategic compliance plans for IPL and WPL.

21 **Q. What is the purpose of your testimony in this proceeding?**

22 A. The purpose of my testimony in this proceeding is to provide the rationale  
23 for key aspects of IPL's air, water and waste emissions plans as

1 presented in its filing. IPL takes its duties as a responsible environmental  
2 steward very seriously. In order to provide environmentally responsible,  
3 safe, reliable energy at a reasonable cost to its customers, IPL does not  
4 just comply with existing and anticipated environmental regulations. IPL  
5 carefully and purposefully undertakes an active monitoring of ongoing  
6 environmental regulation and legislation in order to anticipate future needs  
7 for long-term emissions planning. Accordingly, the key aspects of IPL's  
8 proposed EPB I will address include:

- 9 • the rationale for IPL's environmental planning approach and how  
10 proposed environmental control projects are selected;
- 11 • a review of IPL's sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>),  
12 mercury (Hg) and other hazardous air pollutant (HAP), and  
13 greenhouse gas (GHG) emissions compliance requirements;
- 14 • a review of IPL's water and waste management requirements;
- 15 • how IPL plans to comply with both new and emerging  
16 environmental requirements;
- 17 • updates on IPL's in-process or planned emissions reduction  
18 projects;
- 19 • how IPL's plans differ from those contained in its previous filing;  
20 and
- 21 • what may cause IPL to change or add to its environmental  
22 compliance plans.

23 My testimony is divided into the following subsections:

- 24 1. Selection of Emissions Control Projects;
- 25 2. Compliance with SO<sub>2</sub> Emissions Requirements;

- 1 3. Compliance with NO<sub>x</sub> Emissions Requirements;
- 2 4. Compliance with Mercury and other HAP Emissions Requirements;
- 3 5. Greenhouse Gas Emissions Management; and
- 4 6. Water and Waste Management.

5 **Q. How does your testimony intersect with testimony from other**  
6 **witnesses from IPL?**

7 A. My testimony intersects with the testimony of Terry L. Kouba in that it  
8 describes the environmental requirements and rationale upon which IPL  
9 has based its emission compliance plans whereas Mr. Kouba's testimony  
10 describes the emission control projects to meet these requirements. Both  
11 sets of testimony provide information on emissions performance and  
12 reductions and discuss IPL's generation fleet tier strategy.

### 13 **SELECTION OF EMISSIONS CONTROL PROJECTS**

14 **Q. What different categories of air emissions control projects does IPL**  
15 **propose in this plan?**

16 A. IPL's proposed air emissions control projects generally fall into two basic  
17 categories.

18 The larger, more capital-intensive air emission control projects that  
19 more significantly reduce emissions comprise one of the basic categories.  
20 These air emission control projects may include installation of scrubbers,  
21 baghouses and selective catalytic reduction (SCR) systems at generating  
22 units to facilitate reducing SO<sub>2</sub>, NO<sub>x</sub>, particulate matter, mercury and other  
23 HAP emissions.

1           The second basic category includes air emission control projects  
2 that generally are less capital intensive, are able to be installed in a  
3 shorter amount of time and produce smaller emissions reductions. These  
4 air emission control projects include modification or improvements to  
5 performance of existing installed equipment such as electrostatic  
6 precipitators (ESPs) as well as installation of additional auxiliary systems  
7 such as activated carbon injection systems that operate in conjunction  
8 with existing installed equipment.

9 **Q. What is the fundamental objective of the air emission control**  
10 **projects in each of these different categories?**

11 A. The fundamental objective of the air emission control projects is to meet  
12 environmental requirements in the most cost-effective manner,  
13 maintaining flexibility in the plan where needed, and ensuring energy  
14 reliability to customers. IPL's implementation of this objective is described  
15 in more detail by Mr. Kouba. .

16 **Q. Is IPL proposing any additional air emission control projects that fall**  
17 **into the larger, more capital-intensive, more significantly emission-**  
18 **reducing category in this plan that it has not proposed in its prior**  
19 **plan?**

20 A. No, IPL is not proposing this type of installation at any additional  
21 generating plants. However, please note that in its previous plan, IPL  
22 proposed installing a scrubber and baghouse at Ottumwa, and a scrubber

1 at Lansing 4. Both of these projects continue as a part of IPL's current  
2 proposed plan, based on approval under Docket No. EPB-2012-0150.

3 **Q. Is IPL proposing any additional air emission control projects that fall**  
4 **into the less capital intensive, shorter duration, smaller emissions-**  
5 **reducing category in this plan that it has not proposed in its prior**  
6 **plan?**

7 A. No, IPL is not proposing any new projects under this category at this time.  
8 In its previous plan, IPL indicated that some of the projects ultimately  
9 needed at its Tier II facilities could not be confirmed at that time without  
10 further evaluation of the options available to IPL. Since the 2012 EPB, IPL  
11 has completed its evaluation of options (i.e., low cost controls and fuel  
12 switching) to comply with environmental rules and regulations, specifically  
13 the Utility Mercury and Air Toxic Standards (MATS) Rule and began  
14 completing these emission control projects at the Tier II facilities as  
15 described within this EPB and included in Mr. Kouba's testimony.

16 **Q. Will IPL need to propose further emissions control or other**  
17 **environmental compliance projects at its coal-fired units in the**  
18 **future?**

19 A. Yes. Although IPL has gained a greater understanding of emerging  
20 environmental rules and regulations and their impact on IPL's coal-fired  
21 generating units, a significant number of environmental rules and  
22 regulations continue to emerge and evolve. Specific emerging federal or  
23 state rules and regulations that impact air, water and waste, in addition to

1 those specifically addressed in this testimony, will likely affect IPL's coal-  
2 fired generating units in the future and may result in the need for additional  
3 emissions control or other environmental compliance projects.

4 **COMPLIANCE WITH SO<sub>2</sub> EMISSIONS REQUIREMENTS**

5 **Q. What are the current and anticipated SO<sub>2</sub> emissions requirements**  
6 **with which IPL must comply?**

7 A. Current SO<sub>2</sub> emissions requirements with which IPL must comply include  
8 the Acid Rain Program (ARP) and the EPA's Clean Air Interstate Rule  
9 (CAIR). In addition, it is possible that there could be SO<sub>2</sub> emissions  
10 reduction requirements with which IPL must comply under the EPA's  
11 Cross-State Air Pollution Rule (CSAPR), which is currently on appeal with  
12 the U.S. Supreme Court, or any successor rule to CAIR and CSAPR.  
13 However, IPL anticipates that there will be opportunity to provide public  
14 comment and also time to adjust emissions plans, if necessary, should  
15 new or revised requirements be put in-place for interstate transport.

16 **Q. How are CAIR and CSAPR related to each other?**

17 A. In December 2008, the U. S. Court of Appeals for the District of Columbia  
18 Circuit (Court) issued an order that remanded CAIR for revision by the  
19 EPA to address flaws identified in the Court's July 2008 opinion regarding  
20 challenges to the rule. While EPA worked to revise the rule, CAIR  
21 emission compliance requirements became effective for NO<sub>x</sub> and SO<sub>2</sub> in  
22 2009 and 2010, respectively. CAIR emission compliance requirements  
23 remain in place until a final CAIR replacement rule becomes effective. In

1 August 2011, the EPA issued the final CAIR replacement rule, referred to  
2 as CSAPR.

3 **Q. What is the current status of CSAPR?**

4 A. CSAPR was never implemented because it was stayed by the D.C. Circuit  
5 Court in December 2011, and subsequently vacated by the same court in  
6 August 2012 in response to several legal challenges. In October 2012,  
7 the EPA asked for a rehearing of the CSAPR case from the full D.C.  
8 Circuit Court (“en banc rehearing”). This request was denied in January  
9 2013. In response, the EPA successfully petitioned the U.S. Supreme  
10 Court to review the D.C. Circuit Court CSAPR decision. The U.S.  
11 Supreme Court heard oral arguments on the CSAPR decision in  
12 December 2013. A decision from the U.S. Supreme Court on the CSAPR  
13 is expected in the first half of 2014.

14 **Q. What are the likely outcomes for CSAPR?**

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

- 17 1. The CAIR continues to be implemented (Phase II begins in  
18 2015);
- 19 2. The CSAPR is reinstated, assuming a U.S. Supreme Court  
20 decision in the EPA’s favor, which would likely require the EPA  
21 to re-evaluate and update the CSAPR budgets and adjust the  
22 compliance timeframes; or
- 23 3. The EPA issues a new rule to address interstate transport of air  
24 pollutants.

1 IPL's plans will meet the emissions reduction requirements under CAIR,  
2 including Phase II. In addition, in the event that either CSAPR is  
3 reinstated or a new rule is issued for interstate transport, IPL expects that  
4 there will be opportunity to provide input through public comment and also  
5 adjust plans, if needed, in order to support implementation of these future  
6 regulatory requirements.

7 **Q. What are the CAIR Phase II SO<sub>2</sub> emission requirements?**

8 A. The CAIR Phase II SO<sub>2</sub> emission requirements, and how those  
9 requirements differ from CAIR Phase I SO<sub>2</sub> emission requirements (i.e., an  
10 additional 30% reduction from Phase I), are shown in Table 1 below.

11 **Table 1: CAIR SO<sub>2</sub> emission requirements**

CAIR	Timing	Allowance Allocation (tons, in thousands)
Phase I	2010	20.8
Phase II	2015	14.6

12

13 **Q. With which SO<sub>2</sub> emissions requirements is IPL planning to comply,**  
14 **given the uncertainty that remains about the final CAIR replacement**  
15 **rule?**

16 A. Since the final SO<sub>2</sub> emissions requirements are still uncertain, IPL has  
17 established its SO<sub>2</sub> emission compliance plan assuming that emission  
18 reduction levels under CAIR remain in-place including the Phase II  
19 requirements. IPL believes that current plans will support compliance with  
20 a future interstate transport rule (either a version of CSAPR reinstated or  
21 similar rule). There is uncertainty regarding when such a rule will be

1 effective and its revised requirements will be in place. However, IPL  
2 expects that there will be opportunity to plan for future rule requirements  
3 when EPA determines what approach to implement in response to the  
4 legal challenges. IPL recognizes that the final requirements may be more  
5 or less stringent than either those of CAIR or CSAPR; however, IPL  
6 believes that the plans in-place should address future requirements. IPL  
7 will continue to monitor future rule revisions and evaluate the robustness  
8 of its SO<sub>2</sub> emission compliance plan.

9 **Q. How does IPL comply with CAIR SO<sub>2</sub> emission requirements?**

10 A. To comply with CAIR SO<sub>2</sub> emission requirements, IPL must annually  
11 surrender to the EPA an amount of SO<sub>2</sub> emission allowances equal to  
12 IPL's actual annual SO<sub>2</sub> emissions. Installing SO<sub>2</sub> emissions controls,  
13 such as scrubbers, will reduce IPL's SO<sub>2</sub> emissions and its need for SO<sub>2</sub>  
14 emission allowances. However, IPL can also act to change the amount of  
15 SO<sub>2</sub> emission allowances available to it for use in any given year.  
16 Fundamentally, complying with CAIR SO<sub>2</sub> emission requirements is not  
17 based upon the amount of SO<sub>2</sub> emissions from any particular generating  
18 unit during any particular time period. Rather, CAIR SO<sub>2</sub> compliance is  
19 based upon the ability of IPL to surrender sufficient SO<sub>2</sub> emissions  
20 allowances to the EPA valid for the calendar year in question to match the  
21 total SO<sub>2</sub> emissions from all CAIR-applicable IPL generating units during  
22 that same period of time.

1 **Q. What are the sources of SO<sub>2</sub> emissions allowances available to IPL to**  
2 **comply with CAIR?**

3 A. IPL has three basic sources of SO<sub>2</sub> emissions allowances to comply with  
4 CAIR.

5 First, IPL receives an annual allocation of SO<sub>2</sub> emissions  
6 allowances from the EPA under the rules established as part of its existing  
7 ARP. This allowance allocation will continue under CAIR; however, the  
8 value of these allowances will diminish as a result of CAIR. Prior to 2010,  
9 each SO<sub>2</sub> allowance was exchangeable for one ton of SO<sub>2</sub> emissions.  
10 Currently each SO<sub>2</sub> allowance is exchangeable for one-half ton of SO<sub>2</sub>  
11 emissions. Beginning in 2015 (“Phase II”), the value of the allowances will  
12 drop further, with each allowance exchangeable for only approximately  
13 0.35 tons of SO<sub>2</sub> emissions.

14 The second source of SO<sub>2</sub> emissions allowances is accumulated,  
15 or banked, allowances. IPL has accumulated excess SO<sub>2</sub> emissions  
16 allowances since the inception of the ARP. IPL’s annual emissions, on  
17 average, have been less than the amount of emissions allowances  
18 allocated to IPL on an annual basis. IPL can use these banked SO<sub>2</sub>  
19 allowances when desirable or needed.

20 The third source of SO<sub>2</sub> emissions allowances is to purchase  
21 allowances. IPL can purchase additional SO<sub>2</sub> allowances from sellers of  
22 SO<sub>2</sub> allowances using established bilateral or over-the-counter markets.

1 IPL can purchase specific quantities and vintages of SO<sub>2</sub> allowances at  
2 prevailing market prices at the time of purchase.

3 **Q. How does IPL achieve compliance with CAIR SO<sub>2</sub> emissions**  
4 **requirements under its proposed plan?**

5 A. Under the CAIR Phase I requirements, IPL's current plan achieves the  
6 required SO<sub>2</sub> emissions reductions. Under the Phase 2 CAIR SO<sub>2</sub>  
7 emission reduction period, IPL's SO<sub>2</sub> emissions are projected to be under  
8 the allocation by approximately 5,000 tons.

9 IPL will reduce its IPL fleet total SO<sub>2</sub> emissions primarily through  
10 the operation of scrubbers at four larger IPL generating units, including  
11 Ottumwa Unit 1, Lansing Unit 4, and the George Neal Units 3 & 4,  
12 operated by MidAmerican Energy Company but partially owned by IPL.

13 **Q. Has IPL's proposed plan regarding compliance with SO<sub>2</sub> emissions**  
14 **requirements changed since its last filing?**

15 A. Not significantly. IPL proposes a fuel switch from coal to natural gas at  
16 the M.L. Kapp facility. This project is planned to comply with the Utility  
17 MATS requirements, but has the additional benefit of reducing SO<sub>2</sub>  
18 emissions by over 90%. Additional information regarding the fuel switch  
19 project may be found in Section II of the 2014 EPB, and is discussed in  
20 Mr. Kouba's testimony.

## 21 **COMPLIANCE WITH NO<sub>x</sub> EMISSIONS REQUIREMENTS**

22 **Q. What are the CAIR NO<sub>x</sub> emissions requirements applicable to IPL and**  
23 **how does IPL intend to comply?**

1 A. The mechanism for complying with CAIR NO<sub>x</sub> emissions requirements is  
2 essentially identical to that described for compliance with CAIR SO<sub>2</sub>  
3 emission requirements. To comply with CAIR NO<sub>x</sub> emission requirements,  
4 IPL must annually surrender to the EPA an amount of NO<sub>x</sub> emission  
5 allowances equal to IPL's actual NO<sub>x</sub> emissions.

6 There are, however, two significant differences specific to NO<sub>x</sub>  
7 emissions versus SO<sub>2</sub> emissions. First, CAIR NO<sub>x</sub> emission requirements  
8 began in 2009, in contrast to CAIR SO<sub>2</sub> emission requirements that began  
9 in 2010. Second, CAIR NO<sub>x</sub> emissions requirements include not only a  
10 surrender of annual NO<sub>x</sub> emission allowances that match IPL's actual  
11 quantity of annual NO<sub>x</sub> emissions, but also a surrender of ozone season  
12 NO<sub>x</sub> emission allowances that match IPL's actual quantity of ozone  
13 season NO<sub>x</sub> emissions. The ozone season begins May 1 and ends  
14 September 30 of each year. IPL must meet each of these two separate  
15 and distinct NO<sub>x</sub> emissions compliance requirements on an annual basis.

16 **Q. Is IPL also subject to anticipated CAIR Phase II NO<sub>x</sub> emissions**  
17 **requirements?**

18 A. Yes, similar to the anticipated Phase II SO<sub>2</sub> emission requirements  
19 described elsewhere in my testimony, IPL is also subject to CAIR Phase II  
20 NO<sub>x</sub> emissions requirements for the annual period and ozone season.

21 **Q. What are the CAIR Phase II NO<sub>x</sub> emission requirements?**

1 A. The CAIR Phase II NO<sub>x</sub> emission requirements are shown in Table 2  
2 below, and are an additional 17% reduction from Phase I for both the  
3 annual and ozone season.

4 **Table 2: CAIR NO<sub>x</sub> emission requirements**

CAIR	Timing	Annual Allowance Allocation (tons, in thousands)	Ozone Season Allocation (tons, in thousands)
Phase I	2009	10.8	4.8
Phase II	2015	9.0	4.0

5  
6 In January 2014, the EPA announced that a new rule will be  
7 proposed to replace the CSAPR in October 2014. The EPA stated that  
8 this new rule would only address the ozone season NO<sub>x</sub> National Ambient  
9 Air Quality Standards (NAAQS). The EPA has stated that the purpose of  
10 this rule would be to help states meet the 2008 ozone NAAQS of 75 parts  
11 per billion (ppb) by reducing emissions transported across state  
12 boundaries. If the EPA moves forward with this plan, a final rule would be  
13 anticipated sometime in late 2015, with compliance required outside of the  
14 timeframe of the EPB filing. IPL expects that there will be opportunity to  
15 provide input through public comment on the and also adjust plans, if  
16 needed, in order to support implementation of these future regulatory  
17 requirements.

18 **Q. In IPL's proposed plan, how does IPL achieve compliance with CAIR  
19 NO<sub>x</sub> emissions requirements?**

20 A. IPL has previously completed numerous NO<sub>x</sub> emission control projects to  
21 reduce IPL's annual and ozone season NO<sub>x</sub> emissions. As a result of

1 these projects, IPL's annual NO<sub>x</sub> emissions have dropped significantly,  
2 from approximately 20,000 tons in 2007 to roughly 7,700 tons in 2012.  
3 Current IPL NO<sub>x</sub> emissions are less than the Phase II CAIR allowance  
4 allocation amounts. IPL expects NO<sub>x</sub> emissions to drop slightly as a result  
5 of fuel change at ML Kapp. Thus, in its proposed plan, IPL does not need,  
6 and is not proposing, any additional NO<sub>x</sub> emission control projects. IPL  
7 also does not anticipate the need to purchase additional NO<sub>x</sub> emission  
8 allowances to meet CAIR NO<sub>x</sub> emission compliance requirements.

9 **COMPLIANCE WITH MERCURY AND OTHER HAP EMISSIONS**  
10 **REQUIREMENTS**

11  
12 **Q. What are the current IPL Hg and other HAP emissions compliance**  
13 **requirements?**

14 A. On December 23, 2011, the EPA issued the final Utility MATS, under the  
15 Maximum Achievable Control Technology (MACT) standards program.  
16 Compliance is required beginning April 16, 2015, although a one-year  
17 extension may be requested. IPL does not plan to request such an  
18 extension. This rule establishes emissions compliance requirements by  
19 imposing MACT standards for HAP emissions including metals, acid  
20 gases and organic compounds emitted from IPL's coal-fired generating  
21 units.

22 **Q. What are MACT standards?**

23 A. MACT standards are based on emissions levels currently achieved by  
24 best-performing similar facilities. MACT standards are designed to reduce  
25 HAPs emissions to a maximum achievable degree, taking into

1 consideration the cost of reductions, non-air quality health effects,  
2 environmental impacts and energy requirements. At a minimum, a MACT  
3 standard for existing facilities must achieve, throughout the industry, a  
4 level of emissions control that is at least equivalent to the average current  
5 emissions limitations achieved by the best-performing 12 percent of  
6 sources in the source category. Wherever feasible, the EPA writes the  
7 final MACT standard as an emissions limit, a percent reduction in  
8 emissions, or a concentration limit that regulated sources must achieve.  
9 The EPA's evaluation of MACT standards requires review of potential  
10 emissions controls for 187 federally-listed HAPs.

11 **Q. How does the structure of the Utility MATS Rule differ from that of**  
12 **CAIR?**

13 A. The structure of the Utility MATS Rule is fundamentally different than that  
14 of CAIR. CAIR is a cap-and-trade rule that places a cap on the total  
15 quantity or mass of SO<sub>2</sub> and NO<sub>x</sub> emissions within a region or state; the  
16 Utility MATS Rule, however, establishes emission rate limits, in pounds  
17 per million or trillion BTU of fuel combusted, for HAP emissions. These  
18 emission rate limits are generating unit-specific and must be achieved on  
19 a 30 operating day rolling basis. Although emissions rate averaging at a  
20 facility with multiple units is allowed, fleet-wide emissions averaging is not  
21 permissible. Additionally, no emissions allowances or emissions trading  
22 options exist. Therefore, to comply with the Utility MATS Rule, IPL must

1 manage the emissions regulated by the MATS Rule on a unit-by-unit  
2 basis.

3 **Q. What are the emissions compliance requirements included in the**  
4 **final Utility MATS Rule?**

5 A. The final Utility MATS Rule requires compliance with emission rate limits  
6 for mercury, filterable particulate matter (PM) as a proxy for non-mercury  
7 metal HAPs, and hydrogen chloride (HCl) as a proxy for acid gas HAPs.  
8 The EPA also provided alternative standards that electric generating units  
9 or facilities can meet to demonstrate compliance with the Utility MATS  
10 Rule instead of using the standards identified as a proxy for other HAPs.  
11 Instead of using filterable PM as a proxy for non-mercury metal HAPs,  
12 total or individual non-mercury metal HAP emissions standards can be  
13 used. If a scrubber is installed, SO<sub>2</sub> emissions can be used as a proxy  
14 instead of HCl, for acid gas HAP emissions. In addition, the EPA  
15 identified work practice standards for organic HAP emissions to ensure  
16 proper combustion.

17 **Q. What specific emission rate limits established in the final Utility**  
18 **MATS Rule do IPL's coal-fired units need to meet?**

19 A. Table 3 identifies the primary and selected alternative emission rate limits  
20 established in the final Utility MATS Rule that IPL will be required to  
21 comply with at its coal-fired units. Section I of the filing contains a  
22 complete listing of all primary and alternative emission rate limits.

1

**Table 3: Utility MATS Rule emission rate limits**

<b>Emission</b>	<b>Limit Type</b>	<b>Limit</b>	<b>Units</b>
Mercury	Primary	1.2	lb /TBTU
PM (filterable)	Primary	0.03	lb /MMBTU
HCl	Primary	0.002	lb /MMBTU
SO <sub>2</sub>	Alternative to HCl	0.20	lb /MMBTU

2

3 **Q. Has IPL’s proposed plan regarding compliance with Utility MATS**  
 4 **emissions requirements changed since its last filing?**

5 A. Not significantly. In its previous plan, IPL indicated that it would:

- 6 • install PAC at its Ottumwa facility as part of the scrubber/baghouse
- 7 project;
- 8 • modify or upgrade existing PM control equipment, primarily the
- 9 ESP and its ancillary systems, at Tier 2, coal-fired units;
- 10 • install mercury control systems at Tier 2, coal-fired units; or
- 11 • convert to primary operation on natural gas at Tier 2, coal-fired
- 12 units.

13 The proposed plan confirms the continuation of these activities, including  
 14 IPL’s decision to fuel switch from coal to natural gas at the ML Kapp  
 15 facility.

16 **Q. How does IPL plan to meet the HCl emission rate limit included in the**  
 17 **final Utility MATS Rule?**

18 A. HCl is formed when chlorine from the coal chemically combines with  
 19 hydrogen during the combustion process. The Western sub-bituminous  
 20 coals in use at IPL’s coal-fired units are naturally low in chlorine. This  
 21 results in HCl emissions from IPL’s coal-fired units, based upon IPL  
 22 testing, below the HCl emission rate limit included in the final Utility MATS

1 Rule. If it becomes necessary to reduce HCl emissions in the future, the  
2 same technologies used to reduce SO<sub>2</sub> emissions will also reduce HCl  
3 emissions.

4 **GREENHOUSE GAS EMISSIONS MANAGEMENT**

5 **Q. What are the current GHG emissions compliance requirements**  
6 **applicable to IPL?**

7 A. Current GHG emissions compliance requirements applicable to IPL  
8 primarily focus on GHG emissions reporting and air permit requirements to  
9 prevent or reduce GHG emissions increases when making modifications  
10 or changes to existing IPL generating units. These modifications or  
11 changes may include installation of air emission controls or other projects  
12 that increase the efficiency or output of a generating unit. Actions required  
13 to prevent GHG emission increases or to reduce GHG emissions are  
14 established as a part of the air permitting process that the Iowa  
15 Department of Natural Resources (IDNR) administers.

16 **Q. What future GHG emissions compliance requirements may be**  
17 **applicable to IPL?**

18 A. In 2010, the EPA announced the future issuance of GHG emission  
19 standards for new and existing power plants based upon its authority and  
20 requirement to establish such standards under the Clean Air Act. In June  
21 2013, President Obama issued a Presidential Memorandum directing the  
22 EPA to work expeditiously to complete the carbon reduction standards for  
23 CO<sub>2</sub> emissions from new and existing electric generating units (EGUs) at

1 power plants. More specifically, the Presidential Memorandum provided a  
2 schedule for these rulemakings as follows:

- 3 • New EGUs – By September 20, 2013, re-propose NSPS and  
4 subsequently, “in a timely fashion,” finalize the reconsidered  
5 rule; and
- 6 • Existing EGUs – Propose a rule by no later than June 1,  
7 2014, and issue a final rule by no later than June 1, 2015,  
8 that will provide the guidelines that states must follow to  
9 achieve required GHG reductions for CO<sub>2</sub> emissions. State  
10 implementation plans (SIPs) that provide details of how  
11 these guidelines are to be met will be required from state  
12 agencies by no later than June 30, 2016.

13 **Q. How would the re-proposed GHG NSPS impact IPL’s proposed plan?**

14 A. The re-proposed GHG NSPS does not impact the proposed plan. The re-  
15 proposed GHG NSPS would impact any new gas or coal-fired facility that  
16 IPL constructs in the future. New units would be required to meet specific  
17 emission limits. For new coal-fired units, the proposed limit is 1,100 lbs  
18 CO<sub>2</sub>/GMWh and assumes that a portion of the exhaust gas is treated to  
19 reduce CO<sub>2</sub> using carbon capture and sequestration (CCS). For new gas  
20 units greater than 850 mmBtu/hr (approximately 100 MWe), the proposed  
21 limit is 1,000 lbs CO<sub>2</sub>/GMWh. For new gas units equal to or less than 850  
22 mmBtu/hr, the proposed limit is 1,100 lb CO<sub>2</sub>/GMWh. While IPL does not  
23 have plans to construct new coal-fired resources, any planned natural  
24 gas-fired resources will meet these limits.

25 **Q. How would an existing source GHG rule impact IPL’s proposed plan?**

1 A. Given that a proposed rule has not been issued yet, the impact of an  
2 existing source GHG rule on IPL's existing sources is uncertain, including  
3 the nature of required emissions controls and compliance timeline for  
4 reducing GHG emissions from existing units. However, IPL has  
5 developed its environmental compliance and balanced portfolio plans with  
6 future rule impacts in mind, providing flexibility to comply with a range of  
7 rule assumptions.

8 **Q. How has IPL engaged in understanding existing source GHG rule**  
9 **developments?**

10 A. The EPA has been collecting information from state agencies (e.g., the  
11 IDNR, the Iowa Utilities Board, and the Office of Consumer), utilities,  
12 environmental groups and other interested parties on what an existing  
13 source GHG should include. IPL has been actively sharing information  
14 with state agencies and the EPA on its perspective for such a rule. IPL  
15 developed the following principles for inclusion in an existing source GHG  
16 rule:

- 17 • Credit should be given for early action and Utility MATS Rule  
18 investments (i.e., do not strand assets that IPL's customers  
19 have invested in for other EPA rules);
- 20 • Federal guidelines established for existing power plants must be  
21 attainable and should recognize the lack of proven control  
22 technologies for reducing CO2 emissions;
- 23 • As much flexibility as possible should be allowed with  
24 compliance options by including reductions outside the power  
25 plant fence line (such as renewables and demand-side  
26 management);

- 1                   • Standards should not be one-size fits all and need to
- 2                   acknowledge energy supply variability and potential constraints
- 3                   at the state and regional level; and
- 4                   • The compliance timeframe must be sufficient to allow for a
- 5                   transition that provides customers with cost-effective and
- 6                   reliable power.

7 **Q. What GHG emissions control projects is IPL including in its**  
8 **proposed plan?**

9 A. IPL is not proposing any specific emission control projects or other actions  
10 at IPL generating units in the 2015-2016 Budget Update which have, as  
11 their primary intent, GHG emission reductions. However, IPL’s proposed  
12 plan includes making changes to existing generating unit operations that  
13 provide, as an ancillary benefit, reductions in the quantity of GHG  
14 emissions or reduce GHG emission intensity (in lb/MWH). These changes  
15 to existing generating unit operations include changing the primary fuel  
16 burned at selected coal-fired generating units from coal to natural gas,  
17 retirement or planned retirement of selected coal-fired generating units,  
18 and improving plant efficiency at Ottumwa and Lansing Unit 4. Improving  
19 plant efficiency entails completing projects such as changes to the path of  
20 the steam through the turbine, combustion control optimization, improved  
21 recovery of unused heat, and equipment improvements that will reduce  
22 auxiliary electric and steam power consumption.

23 **Q. Why does IPL believe that these are appropriate and reasonable**  
24 **steps to take?**

1 A. Given the current GHG emissions compliance requirements and the  
2 uncertainty associated with both current and future requirements, IPL  
3 believes appropriate and reasonable steps should focus on reducing GHG  
4 emissions when such reductions are reasonable cost. Reductions may be  
5 reasonable cost because they occur as a result of other cost-effective  
6 environmental compliance or operational changes at generating units.  
7 They may also be reasonable cost because they occur as a result of  
8 making generating units more efficient to extent that increasing efficiency  
9 is cost-effective to customers. IPL's lack of currently proposed projects or  
10 other actions which have, as their primary intent, reducing GHG emissions  
11 from IPL's coal-fired units, does not imply that IPL has not seriously  
12 considered this future need. Rather, given the uncertainty associated with  
13 both current and future GHG emissions requirements, it stems from IPL's  
14 desire to have its actions, on a longer-term basis, be prudent and in the  
15 best interest of its customers.

## 16 WATER AND WASTE MANAGEMENT

17 **Q. What are the current Federal Clean Water Act (CWA) compliance**  
18 **requirements applicable to IPL?**

19 A. The CWA requires IPL to minimize adverse environmental impacts to fish  
20 and other aquatic life as a result of the water it takes into and discharges  
21 from its power plants. The CWA regulates the intake of water under  
22 Section 316(b) and the discharge of water, from a temperature or thermal  
23 perspective, under Section 316(a). The CWA also requires the EPA to

1 establish and periodically update effluent limitation guidelines. Effluent  
2 limitation guidelines are regulations to reduce wastewater discharges of  
3 pollutants from industries including power plants to waters outside the  
4 plant.

5 **Q. How are these Federal CWA compliance requirements applicable to**  
6 **IPL changing?**

7 A. The EPA recently issued a revised rule to regulate the intake of water  
8 under Section 316(b) of the CWA, and is expected to issue a final rule to  
9 the effluent limitation guidelines in May 2014. In addition, when the IDNR  
10 periodically issues water permits for IPL's generating facilities, the permits  
11 may contain new or revised water discharge thermal limitations under  
12 Section 316(a) and requirements for compliance with water quality  
13 standards of the CWA. IPL expects new or revised thermal limitations,  
14 and changes to discharge requirements for state water quality standards  
15 in newly issued permits.

16 **Q. What changes does IPL expect to have to make at its power plants as**  
17 **a result of these changing Federal CWA compliance requirements?**

18 A. As a result of these changing Federal and state CWA compliance  
19 requirements, IPL anticipates it will need to make operational and  
20 infrastructure changes at its coal-fired power plants. These changes may  
21 include actions such as:

- 22 • relocation of water discharge piping;
- 23 • retrofit or installation of water intake screens or nets;

- 1 • increased water reuse;
- 2 • installation of wastewater treatment systems;
- 3 • use of different coal ash handling systems; and
- 4 • elimination of the use of ash ponds.

5 **Q. What are the current coal ash management compliance requirements**  
6 **applicable to IPL?**

7 A. IPL currently manages coal ash disposal and beneficial re-use subject to  
8 EPA and IDNR regulations that require coal combustion residuals (CCRs)  
9 to be managed to prevent harmful emissions or releases into the  
10 environment. Coal ash that cannot be re-used or recycled is disposed in  
11 landfills. Landfills have been constructed and are operated to manage the  
12 disposal of CCRs in compliance with state and federal regulations. CCR  
13 sampling, ground water sampling, landfill management plans, landfill  
14 permits and monitoring reports are examples of activities required to  
15 comply with these regulations.

16 **Q. How are the coal ash management compliance requirements**  
17 **applicable to IPL changing?**

18 A. In June 2010, the EPA issued a proposed rule seeking public comment  
19 regarding two potential regulatory options for management of CCRs. One  
20 option would regulate CCRs as a special waste under the federal  
21 hazardous waste regulations when the CCR is destined for disposal, but  
22 continue to allow beneficial use applications of CCRs as a non-hazardous  
23 material. A second option would continue to regulate CCRs as a non-

1 hazardous waste for all applications, but subject the CCRs to newly  
2 developed national standards for CCR management. IPL expects the  
3 EPA to issue its final rule regarding management of CCRs no sooner than  
4 the fourth quarter of 2014.

5 **Q. What changes does IPL expect to have to make at its power plants as**  
6 **a result of these changing coal ash management compliance**  
7 **requirements?**

8 A. Both options in the EPA's proposed rule include additional requirements  
9 with significant impact for CCR management, beneficial use applications  
10 and disposal. As a result of these additional requirements, IPL anticipates  
11 it will need to make operational and infrastructure changes at its coal-  
12 fired power plants. These changes may include actions such as:

- 13 • ash pond upgrades;
- 14 • elimination of the use of ash ponds;
- 15 • use of different coal ash handling systems;
- 16 • development and implementation of on-site hazardous waste  
17 management and handling programs; and
- 18 • siting and construction of hazardous waste landfills.

19 Some of the operational and infrastructure changes identified to respond  
20 to changing coal ash management compliance requirements may also be  
21 needed or able to be used to support changing Federal CWA compliance  
22 requirements.

1 **Q. Has IPL included proposed operational and infrastructure changes to**  
2 **respond to changing Federal and state CWA and coal ash**  
3 **management compliance requirements in its filing?**

4 A. Yes, it has. IPL has included proposed operational and infrastructure  
5 changes to respond to changing Federal and state CWA and coal ash  
6 management compliance requirements in this filing based upon  
7 assumptions about final rule outcomes. As these rules become final, IPL  
8 will determine if plan changes are necessary. Plan changes may also be  
9 needed as a result of information gathered from additional research and  
10 analysis of these proposed operational and infrastructure changes.

11 **Q. Does this conclude your prepared direct testimony?**

12 A. Yes.

**STATE OF IOWA**  
**BEFORE THE IOWA UTILITIES BOARD**

<b>IN RE:</b>  <b>INTERSTATE POWER AND LIGHT COMPANY</b>	<b>DOCKET NO. EPB-2014-0150</b>
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AFFIDAVIT OF  
STEPHEN R. JACKSON

STATE OF IOWA                    )  
  ) ss.  
COUNTY OF LINN                )

I, Stephen R. Jackson, being first duly sworn on oath, depose and state that I am the same Stephen R. Jackson identified in the Direct Testimony; that I have caused the Direct Testimony, to be prepared and am familiar with the contents thereof; and that the Direct Testimony, is true and correct to the best of my knowledge and belief as of the date of this Affidavit.

/s/ Stephen R. Jackson  
Stephen R. Jackson

Subscribed and sworn to before me,  
a Notary Public in and for said County  
and State, this 24<sup>th</sup> day of March, 2014.

/s/ Kathleen J. Faine  
Kathleen J. Faine  
Notary Public  
My commission expires on February 20, 2015