

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF INDIANAPOLIS POWER & LIGHT COMPANY)
("IPL") FOR AUTHORITY TO INCREASE RATES AND)
CHARGES FOR ELECTRIC UTILITY SERVICE AND FOR)
APPROVAL OF: (1) ACCOUNTING RELIEF, INCLUDING)
IMPLEMENTATION OF MAJOR STORM DAMAGE)
RESTORATION RESERVE ACCOUNT; (2) REVISED)
DEPRECIATION RATES; (3) THE INCLUSION IN BASIC RATES)
AND CHARGES OF THE COSTS OF CERTAIN PREVIOUSLY)
APPROVED QUALIFIED POLLUTION CONTROL PROPERTY;)
(4) IMPLEMENTATION OF NEW OR MODIFIED RATE)
ADJUSTMENT MECHANISMS TO TIMELY RECOGNIZE FOR)
RATEMAKING PURPOSES LOST REVENUES FROM DEMAND-)
SIDE MANAGEMENT PROGRAMS AND CHANGES IN (A))
CAPACITY PURCHASE COSTS; (B) REGIONAL)
TRANSMISSION ORGANIZATION COSTS; AND (C) OFF)
SYSTEM SALES MARGINS; AND (5) NEW SCHEDULES OF)
RATES, RULES AND REGULATIONS FOR SERVICE.)

CAUSE NO. 44576

IN THE MATTER OF THE INDIANA UTILITY REGULATORY)
COMMISSION'S INVESTIGATION INTO INDIANAPOLIS)
POWER & LIGHT COMPANY'S ONGOING INVESTMENT IN,)
AND OPERATION AND MAINTENANCE OF, ITS NETWORK)
FACILITIES)

CAUSE NO. 44602

TESTIMONY OF

CYNTHIA M. ARMSTRONG-- PUBLIC'S EXHIBIT NO. 11

ON BEHALF OF THE

INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR

JULY 27, 2015

TESTIMONY OF OUCC WITNESS CYNTHIA M. ARMSTRONG
CAUSE NOS. 44576/44602
INDIANAPOLIS POWER AND LIGHT COMPANY

I. INTRODUCTION

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

2 A: My name is Cynthia M. Armstrong, and my business address is 115 W.
3 Washington St., Suite 1500 South, Indianapolis, IN 46204.

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

5 A: I am employed as a Senior Utility Analyst in the Electric Division for the Indiana
6 Office of Utility Consumer Counselor ("OUCC" or "Agency"). A summary of my
7 educational and professional background, work experience and preparations for
8 this case are attached to my testimony as Appendix A.

9 **Q: What is the purpose of your testimony?**

10 A: My testimony and analysis review some of the environmental capital and
11 operating expense estimates in IPL's Witness John Reed's model. On page 2 of
12 his direct testimony Mr. Reed states he was asked by IPL to provide an
13 assessment of the current value of its generating facilities. Mr. Reed then
14 explains that in order to conduct his analysis he relied on an income approach,
15 specifically the discounted cash flow model ("DCF"). Mr. Reed further asserted
16 that the DCF model is most commonly relied on by market participants valuing
17 generation assets. His analysis includes estimates of future environmental
18 compliance costs that IPL's generating plants will incur under his model. In my
19 review, I explain that some of the environmental costs assumed in Mr. Reed's
20 analysis may be understated. OUCC witness Edward Kaufman further reviews

1 Mr. Reed's analysis and explains that, to the extent Mr. Reed's analysis has
2 understated forecasted costs, his models overstate the fair value of Petitioner's
3 generating plants.

4 **Q: What environmental costs do you believe may be understated in Mr. Reed's**
5 **DCF analysis?**

6 A: Based on my review of Mr. Reed's Workpapers 14-18 for JJR Attachment 2, I
7 believe the following environmental costs may be understated:

- 8 • CO₂ costs;
- 9 • Clean Water Act ("CWA") 316(b) retrofit costs;
- 10 • NPDES permit retrofit costs; and
- 11 • Retrofits due to revisions in the 8-hour Ozone National Ambient Air
12 Quality Standards ("NAAQS") for Petersburg Unit 4.

13 I base my concerns primarily on Workpapers 17 and 18 for JJR Attachment 2,
14 containing Excel files of the valuation analysis for the Petersburg and Harding
15 Street facilities and the assumptions for future environmental costs provided by
16 IPL in Cause No. 44540.

17 **Q: Please explain why you believe these categories of costs may be understated.**

18 A: In his testimony in Cause No. 44540, IPL Witness James Ayers provided a range
19 of capital costs for compliance with each of the regulations, addressing the
20 environmental costs I've mentioned above.¹ Mr. Reed used the most likely costs
21 for each regulation based on those scenarios with the highest probability
22 presented by IPL in Cause No. 44540. These cost estimates tend to be at the

¹ See Cause No. 44540, Confidential Exhibit JMA-1 (OUCC Attachment CMA-1) and Confidential Workpapers JMA-8 (OUCC Attachment CMA-2).

1 lower end of the range for environmental capital costs² considered by IPL in
2 multiple scenarios of future costs in Cause No. 44540. IPL's cost estimates put
3 forward in Cause No. 44540 were for the purpose of determining an
4 environmental compliance strategy and *not* for the purpose of determining the fair
5 value of IPL's generating plants. Understating these costs would result in Mr.
6 Reed's DCF analysis predicting a higher cash flow for the Petersburg and Harding
7 Street Generating facilities. As explained further by OUCC witness Ed Kaufman,
8 understating these environmental compliance costs may well result in overstating
9 the fair value of IPL's generating plants.

10 **Q: Did Mr. Reed present a sensitivity analysis to determine how his fair value**
11 **estimates would vary with changes in the forecasted cost of environmental**
12 **compliance?**

13 A: No, he did not. There is a significant amount of uncertainty about future
14 environmental compliance costs. Had Mr. Reed performed a sensitivity analysis,
15 and considered a range of environmental compliance cost estimates, the result
16 would have provided an estimated range for the estimated cash flow from the
17 Petersburg and Harding Street units. The lack of any sensitivity analysis being
18 performed by IPL should be considered by the Commission when determining
19 how much weight to give to Mr. Reed's results.

20 **Q: In Cause No. 44540, did the OUCC conclude that IPL's estimated**
21 **compliance cost estimates were "reasonable" for purposes of evaluating**
22 **environmental compliance strategies?**

23 A: Yes, but again, that was only for the purposes of assessing the reasonableness of
24 projected environmental retrofits on IPL's Harding Street and Petersburg units.

² Workpaper 23, JJR Attachment 2, "Pete 1 Retrofit Capital", "Pete 2 Retrofit Capital", "Pete 3 Retrofit Capital," and "Pete 4 Retrofit Capital."

1 IPL put forth a range of costs estimates in Cause No. 44540, but , as stated before,
2 those estimates were not used in Cause No. 44540 to determine the fair value of
3 IPL's generating plants.³

4 The OUCC's acceptance of IPL's estimated cost ranges for environmental
5 compliance purposes in Cause No. 44540 should not be taken as an endorsement
6 of Mr. Reed's use of this same information to estimate fair value. The lack of any
7 sensitivity analysis appearing in Mr. Reed's study is a point of significant
8 concern. Furthermore, I have additional concerns about specific estimates used
9 by Mr. Reed as explained below.

II. CO₂ COSTS

10 **Q: Do you believe the CO₂ prices in Mr. Reed's analysis may be understated?**

11 A: Yes. The prices Mr. Reed used are consistent with the "Clean Power Plan
12 Indiana-ICF Mass Cap" Scenario that Mr. Ayers presented in Cause No. 44540,
13 which offers lower prices³ than other scenarios presented in Cause No. 44540.⁴ In
14 contrast, the prices presented in the "EPA Clean Power Plan Indiana Shadow
15 Price" or the "Federal Legislation" CO₂ cases in Cause No. 44540 state higher
16 CO₂ price scenarios⁵ that are more consistent with the Mid-Continent Independent
17 System Operator's ("MISO") Regional and Sub-Regional carbon costs, which
18 will be in MISO's forthcoming analysis of how the Clean Power Plan will impact
19 the MISO region.⁶ The difference between the prices Mr. Reed assumed in his

³ See, Cause No. 44540, Testimony of Susann Brown, p. 22 (lines 17-18) and p.23 (lines 1-2).

⁴ OUCC Attachment CMA-2, Cause No. 44540, Confidential Exhibit JMA-1.

⁵ *Id.*

⁶ MISO. MTEP16 Futures Development Workshop Presentation. (January 15, 2015) p. 20.

Presentation can be accessed at: <https://www.misoenergy.org/Events/Pages/MTEP20150115.aspx>

1 analysis in this case and the other price scenarios set forth by IPL in Cause No.
2 44540⁷ equates to hundreds of millions of dollars in additional future costs for the
3 Petersburg and Harding Street generating units.

III. CWA 316(B) RETROFIT COSTS

4 **Q: Does Mr. Reed's analysis consider 316(b) retrofit costs?**

5 A: No. Mr. Reed's analysis does not project any 316(b) costs for Petersburg. Even if
6 the compliance costs for the Petersburg facility are relatively low, there will be
7 some cost associated with the modified traveling screens and fish handling and
8 return systems that would be required on the lower range of 316(b) compliance.⁸
9 The compliance costs of 316(b) could be higher if IDEM determines that a new
10 cooling water tower on Petersburg Unit 1 and modifications to the cooling tower
11 on Petersburg Unit 2 are the best technology available to comply with the rule.⁹
12 Cooling water tower modifications could add tens of millions of dollars to the
13 capital expenditures shown in Mr. Reed's projections for Petersburg.¹⁰

IV. NPDES PERMIT RETROFIT COSTS

14 **Q: Does Mr. Reed's analysis consider the NPDES retrofit costs?**

15 A: Yes, but a significant portion of the NPDES costs were excluded from Mr. Reed's
16 analysis. Mr. Reed's originally-filed DCF analysis included only the unit-specific
17 costs of the NPDES costs for both the Harding Street and Petersburg facilities.¹¹
18 His original analysis did not include \$257.5 million in incremental capital costs

⁷ OUCC Attachment CMA-2, Cause No. 44540, Confidential Exhibit JMA-1.

⁸ Cause No. 44540, Witness Angelique Oligier's testimony p. 15, lines 16-22, through p. 16, lines 1-2.

⁹ *Id.*

¹⁰ Confidential WP 18, Attachment JJR-2, and OUCC Attachment CMA-2., "Enviro Capital Pete."

¹¹ OUCC Attachment CMA-3, IPL's Response to OUCC Data Request 52-1.

1 for the period from 2014 through 2018.¹² After the OUCC inquired about the
2 inclusion of NPDES costs in Mr. Reed's analysis, Mr. Reed found costs included
3 separately in his analysis that were also included in the operations and
4 maintenance expense assumptions provided by Ventyx for his analysis. Therefore,
5 Mr. Reed concluded that the overall impact of these corrections to production
6 plant assets in his analysis would equate to a \$26.1 million decrease in the
7 production plant value.¹³

**V. RETROFITS DUE TO REVISIONS IN THE 8-HOUR OZONE NAAQS FOR
PETERSBURG UNIT 4**

8 **Q: How are costs for the revisions to the 8-hour ozone NAAQS understated by**
9 **Mr. Reed?**

10 A: Mr. Reed assumes that Selective Non-Catalytic Reduction ("SNCR") will be
11 installed for Petersburg Unit 1 to comply with the ozone NAAQS.¹⁴ On
12 November 25, 2014, the EPA proposed more stringent revisions to the 8-hour
13 ozone NAAQS from the current 75 ppb to a level between 65 and 70 ppb.¹⁵ Once
14 the EPA issues a final standard, each state must develop a State Implementation
15 Plan ("SIP") to determine how the state will comply with the new standard. While
16 IDEM's SIP is not yet known, it is possible that IDEM could require Petersburg
17 Unit 4 to install a Selective Catalytic Reduction ("SCR") unit to comply with
18 these revised standards. Furthermore, the EPA reviews the adequacy of NAAQS
19 every five years, so even if this ozone NAAQS revision does not impact
20 Petersburg Unit 4, it is possible that a more stringent ozone NAAQS revision in

¹² *Id.*

¹³ *Id.*

¹⁴ Confidential WP 18, Attachment JJR-2, and 23, Attachment JJR-2 "Pete 1 Retrofit Capital", and OUCC Attachment CMA-2, "Enviro Capital Pete".

¹⁵ 79 *Federal Register* 75234.

1 the future could eventually require installation of an SCR on Petersburg Unit 4.
2 While Mr. Ayers accounted for this possibility in Cause No. 44540,¹⁶ Mr. Reed's
3 analysis does not contain any costs for the ozone NAAQS on Petersburg Unit 4.¹⁷
4 The cost of an SCR would add more than \$100 million in capital expenditures to
5 continue to operate Petersburg Unit 4 in the future.

6 **Q: What do you conclude regarding the environmental compliance costs**
7 **included in Witness Reed's analysis?**

8 A: I conclude that Mr. Reed's analysis could significantly understate the future
9 compliance costs for the Petersburg and Harding Street Generating stations. As a
10 consequence, such an analysis would overstate Mr. Reed's estimated cash flow
11 income from these plants. It is uncertain how future environmental regulations
12 will impact IPL's future operating costs and capital expenditures. In Cause No.
13 44540, IPL attempted to account for this uncertainty in its analysis evaluating the
14 installation of NPDES wastewater controls at the Petersburg and Harding Street
15 Generating Stations. However, Mr. Reed only considered the lower range of
16 these costs in his analysis. His analysis was not reflective of the significant
17 amount of uncertainty inherent in future environmental compliance costs. As
18 stated earlier in my testimony, OUCC witness Edward Kaufman explains that any
19 understated costs in Mr. Reed's analysis reduce the estimated fair value of IPL's
20 generating plant.

21 **Q: Does this conclude your testimony?**

22 A: Yes, it does.

¹⁶ OUCC Attachment CMA-2, "Enviro Capital Pete".

¹⁷ Confidential WP-18, Attachment-JJR 2.

APPENDIX A

1 **Q: Summarize your professional background and experience.**

2 A: I graduated from the University of Evansville in 2004 with a Bachelor of Science
3 degree in Environmental Administration. I graduated from Indiana University,
4 Bloomington in May 2007 with a Master of Public Affairs degree and a Master of
5 Science degree in Environmental Science. I have also completed internships with
6 the Environmental Affairs Department at Vectren in the spring of 2004, with the
7 U.S. Environmental Protection Agency in the summer of 2005, and with the U.S.
8 Department of the Interior in the summer of 2006. During my final year at
9 Indiana University, I served as a research and teaching assistant for a Capstone
10 course offered at the School of Public and Environmental Affairs. I also have
11 obtained my OSHA Hazardous Operations and Emergency Response
12 (“HAZWOPER”) Certification. I have been employed by the OUCC since May
13 2007. As part of my continuing education at the OUCC, I have attended the
14 National Association of Regulatory Utility Commissioners’ (“NARUC”) week-
15 long seminar in East Lansing, Michigan, as well as completed two 8-hour OSHA
16 HAZWOPER refresher courses to maintain my certification.

17 **Q: Describe some of your duties at the OUCC.**

18 A: I review and analyze utilities’ requests and file recommendations on behalf of
19 consumers in utility proceedings. Depending on the case at hand, my duties may
20 also include analyzing state and federal regulations, evaluating rate design and
21 tariffs, examining books and records, inspecting facilities, and preparing various

1 studies. Since my expertise lies in environmental science and policy, I assist in
2 many cases where environmental compliance is an issue.

3 **Q: Have you previously provided testimony to the Indiana Utility Regulatory**
4 **Commission (“Commission”)?**

5 A: Yes.

6 **Q: What did you do to prepare for your testimony?**

7 A: I reviewed the Verified Petition, Direct Testimony, Exhibits, Workpapers, Data
8 Responses, and Confidential Documents submitted by the Petitioner in this Cause.
9 I also reviewed documents IPL submitted in Cause No. 44540, which Mr. Reed
10 relies upon in his DCF analysis. In Cause No. 44540, IPL requested approval of
11 National Pollutant Discharge Elimination System (“NPDES”) wastewater
12 treatment equipment at both the Petersburg and Harding Street generating
13 facilities and the conversion of Harding Street Unit 7 to operate on natural gas.

Cause Nos. 44576/44602

Attachment CMA - 1

Page 1 of 1

Confidential

Cause Nos. 44576/44602

Attachment CMA - 2

Pages 1 - 3

Confidential

Data Request OUCC DR 52 - 01

Are the NPDES retrofit capital costs included for Petersburg Units 1-4 under the “Unit Summary-Coal” tab in the Excel file for JJR Attachment 2, Workpaper 23?

Objection:

Response:

Only a portion of the NPDES retrofit capital costs were included for Petersburg Units 1-4.

As shown in IPL Witness Reed JJR, Attachment 2 the total value of production plant at the time of filing was estimated to be \$1,076.6 million. Mr. Reed’s analysis included only the unit-specific NPDES costs, consistent with the analysis that was presented in Cause No. 44540. As shown in OUCC DR 52-1 Attachment 1, the incremental plant level capital expenditures for NPDES include \$257.5 million invested over the period from 2014 through 2018. Reflecting this additional capital investment in Mr. Reed’s valuation of production plant reduces the value of production plant by \$178.1 million.

In preparing the response to this question, it was also determined that the fixed operations and maintenance expense assumptions provided by Ventyx and used in Mr. Reed’s discounted cash flow analysis as fixed operating costs included capital expenditures for Petersburg units 1-4, some of which were already itemized separately in Mr. Reed’s discounted cash flow analysis. Removing these separately itemized capital expenditures from the discounted cash flow model increases the value of production plant by \$152.0 million.

The net effect of these changes is a decrease in the value of the production plant assets of \$26.1 million to \$1,050.5 million. Please see OUCC DR 52-1 Attachment 1 for the as-filed and as adjusted fixed O&M and Capital Expenditure assumptions. Please see OUCC DR 52-1 Attachment 2 for the as-filed and as adjusted valuation of the production plant assets.

The value of production plant resulting from these two changes is less than a 1 percent decrease in the \$4.1 billion current value for electric utility assets determined by Mr. Kelly. Therefore, Mr. Kelly considers this change de minimis and concludes that the current value of the electric utility assets of IPL’s Electric Plant In Service and Other Rate Base Items is \$4.1 billion.

As Filed

Total Maintenance CapEx + Fixed O&M (in \$M)	2014	2015	2016	2017	2018	2019	2020	2021	2022 Onwards
H7	\$ 10.7	\$ 21.9	\$ 5.9	\$ -	\$ -	\$ -	\$ -	\$ -	escalated at 2.5%
H7 Gas	\$ -	\$ -	\$ 20.1	\$ 9.4	\$ 9.7	\$ 9.9	\$ 10.2	\$ 10.4	escalated at 2.5%
P1	\$ 7.4	\$ 15.3	\$ 16.6	\$ 18.9	\$ 19.6	\$ 20.5	\$ 21.9	\$ 22.5	escalated at 2.5%
P2	\$ 9.4	\$ 19.4	\$ 21.0	\$ 23.9	\$ 24.5	\$ 25.2	\$ 25.8	\$ 26.5	escalated at 2.5%
P3	\$ 10.9	\$ 22.4	\$ 23.7	\$ 26.7	\$ 27.7	\$ 28.4	\$ 29.1	\$ 29.9	escalated at 2.5%
P4	\$ 9.4	\$ 19.4	\$ 20.4	\$ 23.4	\$ 24.6	\$ 25.2	\$ 26.0	\$ 26.7	escalated at 2.5%

Harding Street Capex	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Site Specific	\$ 4,061,000	\$ 15,394,000	\$ 6,230,000	\$ 4,775,000	\$ 11,110,000	\$ 2,970,000	\$ 3,510,000	\$ 3,770,000	\$ 1,120,000	\$ 2,952,969	\$ 3,022,364	\$ 3,093,390	\$ 3,166,084	\$ 3,240,487	\$ 3,316,639	\$ 3,394,580
Units 5 & 6 Refuel	\$ -	\$ 24,300,000	\$ 11,700,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 7 Refuel	\$ -	\$ 31,710,000	\$ 64,390,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
HSS Pond Closure	\$ -	\$ 2,253,333	\$ 12,026,667	\$ 12,120,000	\$ 9,973,333	\$ 7,626,667	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Decommissioning	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Allocated Power Supply	\$ 377,317	\$ 1,373,655	\$ 1,165,152	\$ 1,448,249	\$ 1,387,199	\$ 1,357,805	\$ 1,364,588	\$ 1,357,805	\$ 1,358,935	\$ 1,352,152	\$ 1,356,674	\$ 1,388,556	\$ 1,421,187	\$ 1,454,585	\$ 1,488,767	\$ 1,523,754

Petersburg Capex	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Site Specific	\$ 20,253,338	\$ 51,002,966	\$ 30,165,500	\$ 12,972,500	\$ 13,860,000	\$ 25,732,500	\$ 11,392,500	\$ 11,470,000	\$ 15,097,500	\$ 13,227,470	\$ 13,538,315	\$ 13,856,466	\$ 14,182,093	\$ 14,515,372	\$ 14,856,483	\$ 15,205,610
Unit 1 316b	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 1 CCR	\$ -	\$ -	\$ 28,750,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 1 NAAQS NOx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,390,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 2 316b	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 2 CCR	\$ -	\$ -	\$ 53,100,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 3 CCR	\$ -	\$ -	\$ 99,540,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 4 NAAQS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 4 CCR	\$ -	\$ -	\$ 29,340,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Decommissioning	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Allocated Power Supply	\$ 1,037,931	\$ 3,778,678	\$ 3,773,954	\$ 3,877,571	\$ 3,714,114	\$ 3,635,412	\$ 3,653,574	\$ 3,635,412	\$ 3,638,439	\$ 3,620,277	\$ 3,632,385	\$ 3,717,746	\$ 3,805,113	\$ 3,894,533	\$ 3,986,055	\$ 4,079,727

Adjusted for Response to OUCS 52-1

Total Maintenance CapEx + Fixed O&M (in \$M)	2014	2015	2016	2017	2018	2019	2020	2021	2022 Onwards
H7	\$ 7.8	\$ 16.0	\$ 4.3	\$ -	\$ -	\$ -	\$ -	\$ -	escalated at 2.5%
H7 Gas	\$ -	\$ -	\$ 18.8	\$ 6.3	\$ 6.5	\$ 6.7	\$ 6.8	\$ 7.0	escalated at 2.5%
P1	\$ 4.8	\$ 10.0	\$ 11.1	\$ 13.3	\$ 13.9	\$ 14.6	\$ 15.9	\$ 16.3	escalated at 2.5%
P2	\$ 6.7	\$ 13.9	\$ 15.4	\$ 18.1	\$ 18.6	\$ 19.2	\$ 19.7	\$ 20.1	escalated at 2.5%
P3	\$ 7.5	\$ 15.4	\$ 16.5	\$ 19.4	\$ 20.2	\$ 20.7	\$ 21.2	\$ 21.8	escalated at 2.5%
P4	\$ 6.0	\$ 12.3	\$ 13.2	\$ 16.0	\$ 17.0	\$ 17.4	\$ 18.1	\$ 18.5	escalated at 2.5%

H5 Capex	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Site Specific	\$ 4,061,000	\$ 15,394,000	\$ 6,230,000	\$ 4,775,000	\$ 11,110,000	\$ 2,970,000	\$ 3,510,000	\$ 3,770,000	\$ 1,120,000	\$ 2,952,969	\$ 3,022,364	\$ 3,093,390	\$ 3,166,084	\$ 3,240,487	\$ 3,316,639	\$ 3,394,580
NPDES HS7	\$ 2,134,295	\$ 8,166,404	\$ 15,454,470	\$ 8,019,255	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Units 5 & 6 Refuel	\$ -	\$ 24,300,000	\$ 11,700,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 7 Refuel	\$ -	\$ 31,710,000	\$ 64,390,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
HSS Pond Closure	\$ -	\$ 2,253,333	\$ 12,026,667	\$ 12,120,000	\$ 9,973,333	\$ 7,626,667	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Decommissioning	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Allocated Power Supply	\$ 377,317	\$ 1,373,655	\$ 1,165,152	\$ 1,448,249	\$ 1,387,199	\$ 1,357,805	\$ 1,364,588	\$ 1,357,805	\$ 1,358,935	\$ 1,352,152	\$ 1,356,674	\$ 1,388,556	\$ 1,421,187	\$ 1,454,585	\$ 1,488,767	\$ 1,523,754

Petersburg Capex	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Site Specific	\$ 20,253,338	\$ 51,002,966	\$ 37,240,500	\$ 15,080,000	\$ 16,770,000	\$ 33,626,000	\$ 20,825,000	\$ 15,100,000	\$ 38,090,000	\$ 12,540,000	\$ 15,991,558	\$ 23,515,157	\$ 24,067,764	\$ 24,633,356	\$ 25,212,240	\$ 25,804,728
NPDES PETE	\$ 14,242,277	\$ 73,420,807	\$ 113,678,394	\$ 22,379,710	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 1 316b	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 1 Other Environmental Costs	\$ -	\$ -	\$ 17,378,594	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 1 NAAQS NOx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,392,251	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 2 316b	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 2 Other Environmental Costs	\$ -	\$ -	\$ 53,101,620	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 3 Other Environmental Costs	\$ -	\$ -	\$ 85,631,813	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 4 NAAQS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 4 Other Environmental Costs	\$ -	\$ -	\$ 17,960,063	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Decommissioning	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Allocated Power Supply	\$ 1,037,931	\$ 3,778,678	\$ 3,773,954	\$ 3,877,571	\$ 3,714,114	\$ 3,635,412	\$ 3,653,574	\$ 3,635,412	\$ 3,638,439	\$ 3,620,277	\$ 3,632,385	\$ 3,717,746	\$ 3,805,113	\$ 3,894,533	\$ 3,986,055	\$ 4,079,727

As Filed

Total Maintenance CapEx + Fixed O&M (in \$M)

	2030	2031	2032	2033
H7				
H7 Gas				
P1				
P2				
P3				
P4				
Harding Street Capex	2030	2031	2032	2033
Site Specific	\$ 3,474,352	\$ 2,844,800	\$ 1,479,307	\$ 1,009,381
Units 5 & 6 Refuel	\$ -	\$ -	\$ -	\$ -
Unit 7 Refuel	\$ -	\$ -	\$ -	\$ -
HSS Pond Closure				
Decommissioning	\$ -	\$ -	\$ -	\$ 35,032,518
Allocated Power Supply	\$ 1,559,562	\$ 1,596,211	\$ 1,193,790	\$ 1,337,608

	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Petersburg Capex	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Site Specific	\$ 15,562,942	\$ 15,928,671	\$ 16,302,995	\$ 16,686,116	\$ 17,078,239	\$ 17,479,578	\$ 17,890,348	\$ 18,310,771	\$ 18,741,074	\$ 19,181,489	\$ 15,705,804	\$ 12,056,167	\$ 8,226,325
Unit 1 316b	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 1 CCR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 1 NAAQS NOx	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 2 316b	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 2 CCR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 3 CCR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 4 NAAQS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 4 CCR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Decommissioning	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 220,407,890
Allocated Power Supply	\$ 4,175,601	\$ 4,273,727	\$ 4,718,311	\$ 4,586,086	\$ 5,730,357	\$ 6,770,238	\$ 6,929,339	\$ 7,092,178	\$ 7,258,844	\$ 7,429,427	\$ 7,604,019	\$ 8,905,220	\$ 9,114,493

Adjusted for Response to OUCC 52-1

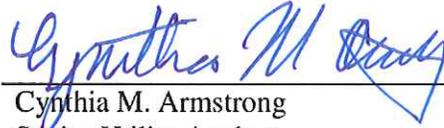
Total Maintenance CapEx + Fixed O&M (in \$M)

	2030	2031	2032	2033
H7				
H7 Gas				
P1				
P2				
P3				
P4				
H6 Capex	2030	2031	2032	2033
Site Specific	\$ 3,474,352	\$ 2,844,800	\$ 1,479,307	\$ 1,009,381
NPDES HS7	\$ -	\$ -	\$ -	\$ -
Units 5 & 6 Refuel	\$ -	\$ -	\$ -	\$ -
Unit 7 Refuel	\$ -	\$ -	\$ -	\$ -
HSS Pond Closure				
Decommissioning	\$ -	\$ -	\$ -	\$ 35,032,518
Allocated Power Supply	\$ 1,559,562	\$ 1,596,211	\$ 1,193,790	\$ 1,337,608

	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Petersburg Capex	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Site Specific	\$ 26,411,139	\$ 27,031,801	\$ 27,667,048	\$ 28,317,223	\$ 28,982,678	\$ 29,663,771	\$ 30,360,870	\$ 31,074,350	\$ 31,804,597	\$ 32,552,005	\$ 26,653,582	\$ 20,459,956	\$ 13,960,510
NPDES PETE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 1 316b	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 1 Other Environmental Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 1 NAAQS NO _x	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 2 316b	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 2 Other Environmental Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 3 Other Environmental Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 4 NAAQS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Unit 4 Other Environmental Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Decommissioning	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 220,407,890
Allocated Power Supply	\$ 4,175,601	\$ 4,273,727	\$ 4,718,311	\$ 4,586,086	\$ 5,730,357	\$ 6,770,238	\$ 6,929,339	\$ 7,092,178	\$ 7,258,844	\$ 7,429,427	\$ 7,604,019	\$ 8,905,220	\$ 9,114,493

AFFIRMATION

I affirm, under the penalties for perjury, that the foregoing representations are true.



Cynthia M. Armstrong
Senior Utility Analyst
Indiana Office of Utility Consumer Counselor

July 27, 2015

Date

Cause No. 44576/44602
IPL