44893

VERIFIED DIRECT TESTIMONY

OF

BRADLEY D. SCOTT

ON BEHALF OF

INDIANAPOLIS POWER & LIGHT COMPANY

INCLUDING IPL WITNESS BDS ATTACHMENT 1

VERIFIED DIRECT TESTIMONY OF BRADLEY D. SCOTT
ON BEHALF OF
INDIANAPOLIS POWER & LIGHT COMPANY

Q1. Please state your name, employer and business address.

A1. My name is Bradley D. Scott. I am employed by Indianapolis Power and Light Company, One Monument Circle, Indianapolis, Indiana 46204.

Q2. What is your position with IPL?

A2. I serve as Senior Vice President, Power Supply for Indianapolis Power & Light Company ("IPL" or "Company").

Q3. Please describe your duties as Senior Vice President, Power Supply.

A3. In this position, my principal responsibilities include: (1) directing the operation of IPL's generating plant facilities and processes; (2) evaluating the feasibility of new systems and procedures and directing the implementation of appropriate changes; and (3) implementing and overseeing personnel-related matters. My responsibilities also include oversight for project planning and execution of such plans, including measuring project performance and progress.

Q4. Please summarize your education and professional qualifications.

A4. I graduated from the State University of New York, Morrisville with an Associate Degree in Physics. I also earned a Bachelor of Technology in Mechanical Engineering from Rochester Institute of Technology.

Q5. Please summarize your prior work experience.

A5. I have been employed by AES since September of 2003 and in addition to my current role, I have held the following positions at AES:

- Regional Director PJM and Vice President, Generation at Dayton Power & Light ("DPL"), July 2013 through November 2014 - Responsible for the AES assets operating in the PJM Regional Transmission Organization. These assets are located in in Maryland, Ohio, Pennsylvania, and West Virginia and include: 3,700 Mega Watts ("MW") of DPL generation, two wind farms (~100 MW each), and two coal plants (250 MW and 175 MW).

- Plant Manager at IPL's Petersburg Station, 1,715 MW, coal fired generation, January of 2011 through June of 2013.

- Plant Manager at AES Deepwater – 175 MW petroleum coke fired, September 2007 through December of 2009.

- Plant Manager AES Redondo Beach – 1,300 MW natural gas, April of 2005 through September of 2007.

- Project Manager at AES Corporation - Acted as internal consultant for operation and maintenance performance improvements at AES generating plants throughout the world. Assisted in the development of the Maintenance and Reliability Improvement Program, conducted on-site assessments of various AES generating businesses and provided due diligence assistance to Business Development on possible acquisitions. September 2003 through April 2005.

Q6. Have you testified previously before the Indiana Utility Regulatory Commission ("IURC" or "Commission")?

A6. Yes. I provided testimony in the following Causes:

- Cause No. 44540, which concerns the refueling of Harding Street Station Unit 7 ("HS-7") and water control measures at IPL's Petersburg and Harding Street Stations to comply with the National Pollutant Discharge Elimination System ("NPDES") permit requirements.

- Cause No. 42170, ECR-26 and ECR-27, semi-annual Environmental Compliance Cost Recovery Adjustment ("ECCRA") proceedings.

- Cause No. 44576, IPL's 2014 Basic Rates Case.
- Cause No. 44794 which concerns the new National Ambient Air Quality Standards ("NAAQS") and certain provisions of the Coal Combustion Residual ("CCR") regulations and their impact to Petersburg Generating Station.

Q7. What is the purpose of your testimony in this proceeding?

A7. My testimony supports IPL's used and useful generation plant in service, including the commissioning of the new Combined Cycle Gas Turbine ("CCGT") plant at our Eagle Valley site, the completion of three projects at Petersburg Generating Station (MATS, 8A Coal Conveyor Replacement and the Unit 3 Controls Modernization) and the Gas Conversions at Harding Street Station. I also support the following adjustments:

- IPL Financial Exhibit IPL-RB, Schedule RB4 – Adjustment to test year end rate base to include the Eagle Valley CCGT (scheduled to be placed in service approximately April 30, 2017).
- IPL Financial Exhibit IPL-RB, Schedule RB7 – Electric Materials and Supplies Inventory. IPL Witness Forestal sponsors the framework of this Schedule, while I support the reasonableness of the pro forma adjustments to power supply related inventory values.
- IPL Financial Exhibit IPL-OPER, Schedule OM5 – Adjustment to Total Electric Generating Unit Limestone Costs.
- IPL Financial Exhibit IPL-OPER, Schedule OM6 – Adjustment to Total Electric Coal Combustion Product ("CCP") Disposal Costs.
- IPL Financial Exhibit IPL-OPER, Schedule OM7 – Adjustment to Total Electric Outage Maintenance Costs, Excluding Base Labor and Benefits.

- IPL Financial Exhibit IPL-OPER, Schedule OM8 – Adjustment to Total Electric Non-Outage Maintenance Costs, Excluding Base Labor and Benefits, For the IPL Eagle Valley CCGT.
- IPL Financial Exhibit IPL-OPER, Schedule OM9 – Adjustment to Total Electric Non Outage Operating and Maintenance Costs for the IPL MATS Equipment.
- IPL Financial Exhibit IPL-OPER, Schedule OM10 – Adjustment to total Electric Non-Outage Operating and Maintenance Costs, Excluding Base Labor and Benefits, for IPL's Petersburg Generating Station and Eagle Valley, Excluding the CCGT.
- IPL Financial Exhibit IPL-OPER, Schedule OM11 – Adjustment to Total Electric Miscellaneous Estimated Necessary Power Supply Costs.

Q8. Does your testimony include any attachments?

A8. Yes. My testimony includes IPL Witness BDS Attachment 1, which summarizes IPL's generation fleet.

Q9. Does your testimony include any workpapers?

A9. Yes. I sponsor the workpapers supporting the schedules identified above.

IPL'S PROVISION OF SERVICE TO CUSTOMERS

Q10. How does IPL meet its customers' needs for electricity supply?

A10. IPL's existing portfolio of generating assets provides the bulk of the supply necessary to meet customer demands. IPL also uses (a) purchased power from the wholesale market; (b) load management and distributed generation; and (c) demand-side management and energy efficiency to meet our customers' need for electricity. This portfolio approach

focuses on the deployment of the reasonable least cost combination of resources from a wide variety of options and on the reduction of risk through diversification.

ELECTRIC PLANT IN SERVICE - GENERATION

Q11. Please provide an overview of IPL's existing generating system.

A11. As shown on IPL Witness BDS Attachment 1, IPL electric generating capacity currently totals approximately 2,860 Net MW[1] and will increase to 3,531 MW when the Eagle Valley CCGT unit is completed approximately April 30, 2017. This generation capacity is located at four primary sites: 1. Petersburg Station (Petersburg, Indiana), 2. Harding Street Station (Southwest Indianapolis), 3. Eagle Valley Station (Martinsville, Indiana), and 4. Georgetown (Northwest Indianapolis).

1. IPL's largest generating station is the four unit, coal-fired, 1,729 MW Petersburg Plant in Petersburg, Indiana.[2] The Petersburg Station, located in close proximity to its Indiana fuel supply, provides low cost generation to IPL's customers. This plant has been retrofitted with environmental compliance equipment in accordance with the IURC's order in Cause No. 44242. This project was completed in April 2016 in order to meet the MATS compliance deadline.

2. IPL's 974 MW Harding Street Station in Indianapolis, IN, includes three former coal units which have been retrofitted to utilize 100% natural gas as their fuel and three natural gas fired combustion turbines (two of which can also burn fuel oil as a back-up).[3] In accordance with the IURC's order in Cause No. 44339, IPL refueled Units 5 and 6 to operate using only natural gas. In accordance with the IURC's order in

[1] The capacity ratings reflect nominal summer ratings for planning purposes.
[2] There is also an 8 MW diesel unit making the Petersburg plant total 1,737 MW.
[3] There are also two 16 MW oil units and a 3 MW diesel unit making the Harding Street plant total 957 MW.

Cause No. 44540, IPL also refueled Unit 7 to natural gas eliminating all coal-fired generation at this plant. These three refueling projects were completed on schedule in May 2016 and below the IURC approved cost in Cause Nos. 44339, 44540 and 42170 ECR-26.

3. The 256 MW of coal generation at Eagle Valley Plant in Mooresville, IN was retired in April 2016 as part of IPL's plan to comply with the EPA's environmental mandates, including the MATS Rule.[4] Pursuant to the Order in Cause No. 44339, IPL is adding a 671 MW CCGT, also natural gas fired, at the Eagle Valley station. The project is on schedule and remains below the Commission approved cost estimate.

4. The 149 MW natural gas fired Georgetown Plant located in Indianapolis, IN, includes two gas turbines and continues to be used to meet IPL's customer's need for electricity.

IPL's used and useful net utility plant in service is shown on IPL Financial Exhibit IPL-RB, Schedule RB3, supported by IPL Witness Tornquist.

Q12. You stated above that the Commission approved projects were or are projected to be completed at a cost less than the Commission approved cost estimate. Please explain.

A12. The Harding Street refueling and Eagle Valley CCGT projects have been subject to ongoing review. The construction work and costs (including AFUDC) have been reviewed and approved by the Commission, most recently in Cause No. 42170 ECR-27.

[4] There is also a 3 MW diesel unit making the Eagle Valley plant total 259 MW.

As summarized in Table 1 below, the total projected costs for each project remain less than the Commission approved cost estimates.

Table 1

	Project	IURC Docket	IURC Approved Cost (excluding AFUDC)[5]	Project Cost (excluding AFUDC and M&S[6] Inventory) in Rate Base[7]	Estimated Project Total (excluding AFUDC and M&S Inventory)
1	671 MW Eagle Valley CCGT	Cause No. 44339	$612.7 million	$588.4 million	$588.4 million
2	MATS Compliance	Cause Nos. 44242 and 42170 ECR-26	$452.3 million	$414.6 million	$431.2 million
3	HS Units 5,6 & 7 Refueling	Cause Nos. 44339 and 44540	$106.4 million	$93.6 million	$105.5 million

Q13. Do you sponsor any adjustments to IPL's test year end electric plant in service?

A13. Yes. I sponsor IPL Financial Exhibit IPL-RB, Schedule RB4, which is an adjustment to utility plant in service to include the Eagle Valley CCGT. This schedule sets forth the Eagle Valley CCGT net addition to plant in service as of June 30, 2016. The schedules do not include: construction work in progress, property held for future use, and non-utility property.

Q14. Please describe the overall condition of IPL's generation plants.

A14. The generating plants are well maintained, in good condition and are necessary for IPL's provision of electric service.

[5] Line 1 - See IPL's May 2014 Semi-Annual Update in Cause No. 44339, pages 3, 6. Line 2 – See IURC Order dated June 22, 2016 in Cause No. 42170 ECR-26, page 15. Line 3 – See IURC Order dated June 22, 2016 in Cause No. 42170 ECR-26, page 15.

[6] Materials and Supplies ("M&S")

[7] I have presented the project costs excluding Allowance for Funds Used During Construction ("AFUDC") for ease of reference and consistency with the relevant IURC Orders, which approved cost estimates and recognized that AFUDC would be accrued and included in the total project cost. Line 1 is the projected CCGT in-service cost excluding AFUDC, while lines 2 and 3 are the project costs excluding AFUDC in rate base as of June 2016.

Q15. Please describe the significant investments to production plant made by IPL since the rate base cutoff date in IPL's last rate case (Cause No. 44576).

A15. Generally, I define "significant" as being a project in excess of $4 million. I discuss the Eagle Valley CCGT above. Since the last rate case, IPL has also invested in the MATS compliance project authorized by the Commission in Cause No. 44242. This project has been subject to on-going review in Cause No. 42170. Two other significant investments are the 8A Coal Conveyor Replacement and the Unit 3 Controls Modernization. These projects are reflected in IPL Financial Exhibit IPL-RB, Schedule RB3.

The 8A Coal Conveyor Replacement was necessary due to the condition of the conveyor and its support structure which had deteriorated over time due to use. This conveyor was part of the original construction of the plant and had been is service over 40 years. There are only 2 conveyors that bring coal from the coal pile to the boiler building and they are critical to the operation of all four units.

The Unit 3 Controls Modernization project was associated with the PETE-3 major outage that placed the new MATS equipment into service. The old control system had become obsolete and was becoming a challenge to maintain, it also was not scalable to allow integration of the new controls associated with the MATS equipment easily. Therefore, as we had done with the other three units at Petersburg, the control system was replaced with a new modern version. This upgrade also provided better cyber security of the critical plant control systems for Unit 3.

Q16. You stated previously that you support the reasonableness of the pro forma adjustments to power supply related inventory values on IPL Financial Exhibit IPL-

RB, Schedule RB7 – Electric Materials and Supplies Inventory. Please explain how such values were derived and why you believe they are reasonable.

A16. As explained by IPL Witness Forestal, the per book balances were adjusted to remove all materials and supplies inventory related to coal handling at Harding Street and Eagle Valley generating stations. These amounts were replaced with our estimates of necessary materials and supplies inventories for Harding Street Station in its current state (Units 5, 6 and 7 using natural gas as their fuel source) and the Eagle Valley combined cycle gas turbine. Because the three Harding Street gas fired units were all in service for the final three month ends of the test year, IPL used the average of the inventory balances as of April 30, May 31 and June 30, 2016 as a reasonable estimate for the average inventory balance. For the Eagle Valley Combined Cycle Gas Turbine ("CCGT"), we reasonably used our forecasted inventory balance of $3.6 million, which is primarily made up of a contractual obligation under our long term service agreement for gas turbine spare parts. The remaining inventory amounts came from internally generated forecasts included in the workpapers supporting this adjustment, which take into consideration the types of parts we will need on hand when the CCGT goes into service.

OPERATION AND MAINTENANCE ADJUSTMENTS

Q17. Please explain IPL Financial Exhibit IPL-OPER, Schedule OM5.

A17. IPL Financial Exhibit IPL-OPER, Schedule OM5 adjusts test year operating results to reflect a representative level of generating unit limestone expense.

Q18. Why is the IPL Financial Exhibit IPL-OPER, Schedule OM5 adjustment necessary?

A18. The balance of this adjustment reflects limestone expense at the pro forma level of generation and the impact of contractual price changes (transportation, inflation and new

contracts entered into) and reflects the difference between test year actual costs and the pro forma limestone expense. The $713 thousand increase in test year operating results is necessary to reflect a representative level of this ongoing expense.

Q19. Please explain IPL Financial Exhibit IPL-OPER, Schedule OM6.

A19. IPL Financial Exhibit IPL-OPER, Schedule OM6 adjusts test year operating results to reflect a representative level of generating unit CCP disposal expense.

Q20. Why is the IPL Financial Exhibit IPL-OPER, Schedule OM6 adjustment necessary?

A20. The recently enacted Coal Combustion Residual rule has created a requirement to remove the Petersburg ash ponds from service and begin closure activities. These closure activities begin with filling the ponds with material so as to prevent the ponds ability to retain water. In the fall of 2015, IPL began utilizing CCP materials to fill the ponds removed from service rather than procuring this material from external, more costly, sources. This has caused a significant decrease in our CCP disposal costs. However, once the out of service ponds have been filled, external disposal of the CCP will resume. The filling of the first pond at Petersburg has been completed and work on the second pond has begun and is anticipated to be completed early in 2017. Second, the pro forma level of generation changes the level of CCPs produced and thus, changes the disposal expense for the adjustment period.

The adjustment is shown in IPL Financial Exhibit IPL-OPER, Schedule OM6 and reflects the difference between test year actual costs and the pro forma CCP disposal expense. The $4.543 million increase in test year operating results is necessary to reflect a representative level of this ongoing expense.

Q21. Please explain IPL Financial Exhibit IPL-OPER, Schedule OM7.

A21. IPL Financial Exhibit IPL-OPER, Schedule OM7 adjusts test year operating results to reflect a representative level of outage maintenance costs (excluding base labor and benefits).

Q22. Why is the IPL Financial Exhibit IPL-OPER, Schedule OM7 adjustment necessary?

A22. There are three factors that impact the outage maintenance costs reflected in the test year. The first is that the Harding Street test year outage costs reflect much of the work performed during the natural gas conversion projects. IPL does not anticipate these costs to be ongoing and therefore the test year expense is lowered by $5.117 million. The second factor is the addition of the Eagle Valley CCGT outage costs. IPL did not incur any outage costs during the test year at Eagle Valley as the three remaining units that were in operation were scheduled for retirement in April 2016 and therefore, no maintenance was performed beyond what was required to meet the April 2016 retirement date. The annualized CCGT outage maintenance costs are $1.897 million based on a long term service agreement for the new facility. Lastly, during the test year, the Petersburg units had only two outages with limited scope and duration as the units recently completed the overhauls associated with the MATS project. The outage costs in the test year also did not reflect ongoing maintenance expenses related to the new MATS equipment. As a result, the test year costs are not typical of the expected outage requirements for these units and fall well below the average of the previous five years. IPL proposes to adjust the test year cost upward by $10.621 million to reflect the five-year average as it would represent a full cycle of outages that have occurred across the seven conventional steam units in our generation fleet (i.e. no CCGT or simple cycle gas

turbines). It also reflects the average projected outage costs of the new MATS equipment at Petersburg on an annual basis for the years 2017-2022. If this adjustment were not made the test year expense would be understated.

The overall adjustment is shown in IPL Financial Exhibit IPL-OPER, Schedule OM7 and reflects the difference between test year actual costs and the pro forma outage maintenance costs. The $7.341 million increase in test year operating results is necessary to reflect a representative level of this ongoing expense.

Q23. Please explain IPL Financial Exhibit IPL-OPER, Schedule OM8.

A23. IPL Financial Exhibit IPL-OPER, Schedule OM8 adjusts test year operating results to reflect a representative level of non-outage maintenance costs for the new Eagle Valley CCGT, excluding base labor and benefits.

Q24. Why is the IPL Financial Exhibit IPL-OPER, Schedule OM8 adjustment necessary?

A24. IPL is scheduled to commence with commercial operation of the new CCGT approximately April 30, 2017. During the test year, there were no costs reflected for the operation and maintenance of the new CCGT. Therefore, IPL has developed a forecast of the non-outage O&M costs that will be required to operate and maintain the facility based on its design, OEM recommendations, and the forecasted dispatch of the plant. These costs are also in line with the projected O&M expenses that were developed in Cause No. 44339 and are in fact lower than what was proposed in that case.

The adjustment is shown in IPL Financial Exhibit IPL-OPER, Schedule OM8 and reflects the difference between test year actual costs and the annualized pro forma costs. The

$4.952 million increase in test year operating results is necessary to reflect a representative level of this ongoing expense.

Q25. Please explain IPL Financial Exhibit IPL-OPER, Schedule OM9.

A25. IPL Financial Exhibit IPL-OPER, Schedule OM9 adjusts test year operating results to reflect a representative level of operations and maintenance costs for the IPL MATS equipment at Petersburg Generating Station (excluding base labor and benefits).

Q26. Why is the IPL Financial Exhibit IPL-OPER, Schedule OM9 adjustment necessary?

A26. IPL placed the newly installed MATS compliance equipment into service over a twelve month period beginning in April of 2015 and ending in April of 2016. Petersburg Units 1 and 2 were required to be in compliance with the MATS Rule in April of 2015 and Petersburg Units 3 and 4 in April of 2016. Therefore, the test year only reflects three months of operation of the full scope of the MATS equipment that was installed and their associated costs (primarily activated carbon and a sodium based dry sorbent). The test year also does not reflect any of the ongoing maintenance expense that this equipment will require as described in Cause No. 44242. The adjustment sought is reflective of the full suite of emissions controls that were installed as part of the MATS project being in service on an annual basis. The three months of operation in the test year and the subsequent period between the end of the test year and the preparation of this pre-filed testimony, has allowed IPL to determine a firm understanding of the pro forma annual level of these costs.

The adjustment shown in IPL Financial Exhibit IPL-OPER, Schedule OM9 reflects the difference between test year actual costs and the pro forma MATS expense. The $2.226

million increase in test year operating results is necessary to reflect a representative level of this ongoing expense.

Q27. Please explain IPL Financial Exhibit IPL-OPER, Schedule OM10.

A27. IPL Financial Exhibit IPL-OPER, Schedule OM10 adjusts test year operating results to reflect a representative level of Petersburg and Eagle Valley non outage O&M expenses, excluding base labor and benefits and excluding limestone, CCP disposal costs, the CCGT and MATS equipment, which I addressed earlier.

Q28. Why is the IPL Financial Exhibit IPL-OPER, Schedule OM10 adjustment necessary?

A28. This adjustment reflects non outage O&M expense at the pro forma level of generation and the impact of non-fuel commodity price changes and reflects the difference between test year actual costs and the pro forma O&M expense. The mild winter and cool summer weather experienced during the test year lead to many instances of economic reserve shutdown of multiple Petersburg units that was unprecedented in recent history. Based on the forecast capacity factors for the IPL generation fleet, it is not anticipated that this will occur again in the foreseeable future. The $2.204 million increase to test year operating results is necessary to reflect a representative level of these ongoing expenses.

Q29. Please explain IPL Financial Exhibit IPL-OPER, Schedule OM11.

A29. IPL Financial Exhibit IPL-OPER, Schedule OM11 adjusts test year operating results to reflect IPL's enhancement of its Workforce Development programs and the new Cyber Infrastructure Protection ("CIP") standards as mandated by the North American Electric

Reliability Corporation ("NERC") and approved by the Federal Energy Regulatory Commission ("FERC").

Q30. Why is the IPL Financial Exhibit IPL-OPER, Schedule OM11 adjustment necessary?

A30. IPL is facing a significant turnover of its existing workforce over the next one to five years as many of the current employees reach retirement eligibility. The current average age in IPL's Power Supply organization is nearing 50 years old. It is essential that we have adequately trained employees to move into the positions being vacated by the current employees. Frequently, these are senior level positions and not easily replaced. Therefore, IPL embarked a comprehensive training program beginning in 2016, including engagement with local secondary education institutions (IVY Tech and Vincennes University currently), implementation of a Learning Management System to better track position specific training requirements per employee, and additional headcount dedicated solely to the training program. This has resulted in IPL incurring an additional $308 thousand above what is reflected in the test year and will be an ongoing cost that IPL will incur in support of these programs.

The other aspect of this adjustment is driven by the new CIP requirements intended to protect critical infrastructure assets from cyber-attack. These include but are not limited to access control, facility monitoring and hardening of internal computer networks. Ongoing maintenance of these controls will require $72 thousand annually.

The adjustment is shown in IPL Financial Exhibit IPL-OPER, Schedule OM11 and reflects the difference between test year actual costs and the pro forma workforce

development and CIP expense. The $380 thousand increase in test year operating results is necessary to reflect a representative level of this ongoing expense.

Q31. Does that conclude your verified pre-filed direct testimony?

A31. Yes.

VERIFICATION

I, Bradley D. Scott, Senior Vice President, Power Supply for Indianapolis Power & Light Company, affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.

Bradley D. Scott

Dated: December 7, 2016

IPL Present and Future Owned Generating Resources
Installed Capacity Credit

Plant Name	Unit Number	In-Service Year	Unit Type	Fuel	ICAP Value (MW)[1]
Petersburg Station	1	1967	ST	Coal	234
Petersburg Station	2	1969	ST	Coal	417
Petersburg Station	3	1977	ST	Coal	547
Petersburg Station	4	1986	ST	Coal	531
Petersburg Station	DG	1967	IC	Diesel	8
Harding Street Station	5	1958	ST	Gas	100
Harding Street Station	6	1961	ST	Gas	102
Harding Street Station	7	1973	ST	Gas	438
Harding Street Station	CT 1	1973	CT	Oil	37
Harding Street Station	CT 2	1973	CT	Oil	
Harding Street Station	CT 4	1994	CT	Gas/Oil	73
Harding Street Station	CT 5	1995	CT	Gas/Oil	75
Harding Street Station	CT 6	2002	CT	Gas	146
Harding Street Station	DG	1967	IC	Diesel	3
Eagle Valley Station	CCGT	2017	CCGT	Gas	671
Georgetown Station	1	2000	CT	Gas	74
Georgetown Station	4	2001	CT	Gas	75
Total					3,531

[1] Ratings reflect nominal summer ratings used for planning and modeling.