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BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Commission Review of the Capacity Charges of Ohio power company and Columbus southern Power Company.	:	Case No. 10-2929-EL-UNC

DIRECT TESTIMONY OF RYAN T. HARTER
ON BEHALF OF THE STAFF OF THE PUBLIC UTILITIES COMMISSION OF OHIO

April 16, 2012

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I. INTRODUCTION

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

A. Ryan T. Harter, 1901 N. Moore St., Arlington, VA 22203.

2. Q. What is your occupation?

A. I am an energy analyst focusing in the electricity markets with the consulting firm Energy Ventures Analysis, Inc. ("EVA").

3. Q. Please describe Energy Ventures Analysis.

A. EVA is a consulting firm that engages in a variety of projects for private and public sector clients related to energy and environmental issues. In the energy area, much of our work is related to analysis of the electric utility industry and fuel markets, particularly oil, natural gas, and coal. Our clients in these areas include coal, oil and natural gas producers, electric utility and industrial energy consumers, and gas pipelines and railroads. We also work for a number of public agencies, such as state regulatory commissions, the U.S. Environmental Protection Agency, and the U.S. Department of Energy, as well as interveners in utility rate proceedings, such as consumer counsels and municipalities. Another group of clients include trade and industry associations, such as the Electric Power Research Institute, the Gas Research Institute, and the Center for Energy and Economic Development. EVA has provided testimony to numerous state public utility commissions. Furthermore, the firm has filed testimony in a number of cases in both state and federal courts, as well as before the Federal Energy Regulatory Commission.

4. Q. Please summarize your education and professional background.

A. I graduated from James Madison University in Harrisonburg, Virginia earning a Bachelor of Science in Quantitative Finance, Economics, and Mathematics with a minor in Computer Science.

Prior to joining EVA, I worked as a Power Analyst with the energy consulting firm Pace Global Energy Services. While with Pace Global, I designed and implemented several models including a custom hourly bid-dispatch power market model, Monte-Carlo simulation generators, and several energy and ancillary market models relying on quantitative financial methods. Additionally, I provided analysis to support asset valuations, risk integrated resource planning, power market forecasts, and risk mitigation recommendations.

Since joining EVA I have designed and implemented several models to assist in leveraging EVA's expert opinions in the energy markets. I managed the implementation of EVA's 8760 dispatch model. I have provided analysis to support investment valuations and major policy decisions for federal agencies in addition to writing articles for the electricity section of EVA's quarterly FUELCAST publication.

5. Q. On whose behalf are you appearing?

A. I am testifying on behalf of the Staff ("Staff") of the Public Utilities Commission of Ohio ("Commission" or "PUCO").

6. Q. What is the purpose of your testimony?

A. Energy Ventures Analysis and Larkin & Associates, PLLC ("Larkin") were contracted by the PUCO on March 21, 2012 to compute a capacity rate for Columbus Southern Power Company ("CSP") and Ohio Power Company ("OPCo"), collectively referred to as AEP Ohio or the Companies. The purpose of my testimony is to describe the analysis and development of the Energy Credit to be deducted from the capacity charge.

7. Q. Are you sponsoring any exhibits in this proceeding?

A. Yes. I am sponsoring Exhibit RTH-1: Energy and Ancillary Service Credits for CSP, OPCo and AEP Ohio.

8. Q. Please describe the tasks you performed related to your testimony in this case.

A. I began my analysis by participating in discovery, reviewing previous testimony, and conducting complementary research. The review of previous testimony focused on AEP witness Kelly Pearce's testimony concerning the development of an Energy Credit. To estimate a reasonable Energy Credit, I used EVA's proprietary power market simulations to forecast the expected energy margins for AEP Ohio's generating assets. Finally, I used the resulting expected energy margin and ancillary services ("AS") profits to calculate $/MWDay Energy and AS Credits using a method similar to that described in Witness Pearce's testimony.

9. Q. What issues are you addressing in your testimony?

A. I am responding to Witness Pearce's testimony regarding the argument against an Energy Credit, the proposed formula rate should the commission choose to implement an Energy Credit, and the related sample calculation provided in KDP-5.

10. Q. How is the remainder of your testimony organized?

A. My testimony is organized into the following sections:

II. Summary of Conclusions and Recommendations

III. Development of Energy Credits

II. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

11. Q. Please summarize your conclusions and recommendations.

A. My conclusions and recommendations, based on my independent analysis, review of the Company's testimony, publically available information, and the discovery conducted, are summarized below:

Witness Pearce's argument against the inclusion of an energy credit is without merit, and results in a capacity payment that overcompensates the Companies.

As shown in Exhibit RTH-1, the reasonable energy and AS credits to be removed from any capacity payment made to CSP are \$46.75/MW Day and \$6.66/MW Day, the reasonable energy and AS credits to be removed from any capacity payment made to OPCo are \$231.02/MW Day and \$6.66/MW Day, and the reasonable energy and AS credits to be removed from any capacity payment made to AEP Ohio as a merged entity are \$154.24/MW Day and \$6.66/MW Day.

III. DEVELOPMENT OF ENERGY CREDITS

12. Q. Do you agree with Witness Pearce's assertion that an Energy Credit is unwarranted?

A. No, I do not.

13. Q. Please explain the rationale for including an Energy Credit.

A. The economically efficient capacity price is the smallest charge that makes it economic to maintain enough operational capacity to ensure market reliability. If the cost of maintaining a generating asset is less than the avoided opportunity cost of lost capacity payments, energy profits, and ancillary services profits, a rational owner will continue to keep the asset operational. Witness Pearce provides an approximation of the costs incurred to keep AEP Ohio's generating assets operational, but neglects to account for profits earned through generating electricity and providing ancillary services. His calculation thus overstates the required capacity charge.

14. Q. Please explain how you developed the Energy Credits for CSP and OPCo shown on Exhibit RTH-1.

A. I began my analysis by developing a forecasted total energy margin for AEP Ohio's generating assets. To achieve this, I used the 8760 hourly dispatch power market model, AURORAxmp, which is licensed by EVA. EVA generates a complete Electricity market outlook by combining

AURORAxmp's excellent dispatch logic with EVA's high precision inputs it develops as part of its FUELCAST services. The AURORAxmp model is widely used throughout the Electricity industry. At a basic level, this model simulates a power market by sorting all available generation assets by marginal cost and dispatching the most economic assets until the zonal load is met. To feed this model, EVA maintains a proprietary set of high granularity forecasts for its FUELCAST clients. FUELCAST includes delivered fuel prices by generating unit, a complete regulatory outlook, a specialized load forecast, and several other key market insights.

As described in Witness Pearce's testimony, both OPCo and CSP participate in the AEP Interconnect Agreement. As a consequence, a portion of AEP Ohio's profits from off system sales ("OSS") are redistributed to other participants. To estimate AEP Ohio's profits subject to this redistribution, I compared total hourly simulated generation for OPCo and CSP assets with the forecasted hourly demand data provided by AEP. Where the simulated hourly generation exceeded retail demand, I attributed the profit associated with the excess generation to OSS. The portion of OSS revenue retained by AEP Ohio is the Member Load Ratio ("MLR"). I use the average 2010 MLR provided in KDP-5 for the entire forecast period. A summary of my findings are included in the attached exhibit.

Finally, I converted the annual energy margins into a \$/MW Day value using a formula similar to that provided in KDP-5. I used the 2010 5-day coincident peak loads (CP-5) provided in KDP-5 to be consistent with the capacity analysis provided by Staff Witness Ralph Smith. As noted in KDP-5 the MLR and CP-5 used to calculate the Merged AEP Ohio rates are estimates and not actual 2010 data.

To account for profits from participating in the ancillary services market, I used the total ancillary service credit AEP Ohio earned in 2011 as a proxy for future ancillary services profits. The 2011 numbers provided by AEP Ohio are shown in RTH-1. I converted these credits from an annual charge into a \$/MWDay value using a formula identical to that used for the energy credit calculation.

15. Q. Please explain the differences between the calculation of your Energy Credits and the credits proposed in KDP-5.

A. The major differences between my analysis and that of Witness Pearce are as follows:

The Energy Credit I propose includes all retained profits from OSS while the credit proposed by Witness Pearce excludes all profits from OSS. The argument for inclusion is both regulatory and economic. From an economic perspective, because the profits from OSS incentivize AEP Ohio to keep its generating assets operational, the economically efficient capacity price will reflect an offset equal to this benefit. More so, Competitive Retail Electric Service ("CRES") providers are currently captive customers. From a regulatory standpoint, profits from off system sales are generally required to be redistributed to captive customers when a capacity charge is being collected.

- The energy margin calculated in KDP-5 approximates the energy margins AEP Ohio would receive if their entire retail load was displaced by CRES providers. As a result, the MLR ratio is applied to all energy margins, which will likely underestimate the efficient Energy Credit. The Energy Credits proposed here approximate the energy margins AEP Ohio is likely to receive and retain during the period in question.

- Witness Pearce removes a portion of OPCo's retained energy profits to account for its firm wholesale contract with AEP Operating Company Wheeling Power Company. This adjustment addresses the formulaic rate's assumption that all retail load is displaced by CRES providers. However, the analysis proposed here does not rely on this claim and I therefore make no comparable allowance.

- The Energy Credit outlined in KDP-5 includes a cap on the Energy Credit equal to 40% of the capacity charge. The Energy Credits outlined here do not include such a cap. This cap is meant to guard AEP Ohio against extreme market changes that will negatively affect the received capacity payments.

However, the Energy Credits proposed here nullify the need for a cap. The formulaic Energy Credits proposed in KDP-5 would expose AEP Ohio to a decrease in capacity revenues given a strong wholesale market. Since the Energy Credits proposed here are fixed, AEP Ohio's capacity revenues will be unmarred by a strong Wholesale market, nullifying the need for a cap.

Finally, Witness Pearce notes that the largest Gross-to-Net adjustment ever applied to calculate the Net Cost of New Entry ("CONE") was less than 20% of the gross CONE. This comparison is faulty. The cost of new entry is based on the economics around a combustion turbine whereas AEP Ohio's assets are primarily coal generators. Generally, coal generators have high capital costs but generate consistently, yielding a high expected energy profit. Alternatively, combustion turbines have low capital costs but run far less, yielding a lower expected energy adjustment. The resulting Gross-to-Net adjustment is thus likely to be larger for AEP's assets than for the CONE.

- Witness Pearce suggests that the energy margins used to calculate the Energy Credits be shared evenly between the CRES providers and AEP Ohio. His argument states that year-to-year capacity customers should not receive the full offset received by long-term full requirement wholesale customers. Because, the analysis found here does not rely on a comparison to wholesale customers, this argument no longer applies.

- The Energy Credit provided by Witness Pearce attempts to accommodate for future capacity costs and energy margins using data from 2010. While capacity costs are likely to be fairly consistent over the time period in question the wholesale market is more volatile. I use a forward looking methodology to predict future energy margins to accommodate for future changes in AEP Ohio's assets profitably.

- The energy credit proposed here includes an adjustment for AEP Ohio's receipts from participating in PJM's ancillary services market. These receipts incentivize the asset owner to maintain the plant, and must be removed from the required capacity charge.

16. Q. Does this conclude your testimony?

A. Yes. However, I reserve the right to submit supplemental testimony as described herein, as new information subsequently becomes available or in response to positions taken by other parties.

IV. PROOF OF SERVICE

I hereby certify that a true copy of the foregoing **Direct Testimony of Ryan T. Harter** submitted on behalf of the Staff of the Public Utilities Commission of Ohio, was served by electronic mail, upon the following Parties of Record, this 16th day of April, 2012.

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Energy and Ancillary Service Credits for CSP, OPCo and AEP Ohio

Credits Provided by Year and as a Fixed Rate for the 5/1/2012-6/1/2015 Period

Energy Credits

	CSP	Year	Total Generation (MWh)	Off System Sales (MWh)	Gross Margin (2012 $)	MLR	Retained Margin (2012 $)	Energy Credit ($/MWd) (Note 1)
(1)	May-Dec	2012	7,056,020	0	33,531,150	19%	33,531,150	$33.17
(2)		2013	12,305,245	0	72,590,447	19%	72,590,447	$48.20
(3)		2014	11,111,823	0	73,758,714	19%	73,758,714	$48.98
(4)	Jan-June	2015	4,982,905	0	43,102,350	19%	43,102,350	$57.72
(5)		Total						$46.75

	OPCo	Year	Total Generation (MWh)	Off System Sales (MWh)	Gross Margin (2012 $)	MLR	Retained Margin (2012 $)	Energy Credit ($/MWd) (Note 1)
(6)	May-Dec	2012	28,835,144	7,434,439	272,113,778	22%	216,041,392	$178.68
(7)		2013	32,800,561	1,556,118	444,903,927	22%	433,433,803	$240.63
(8)		2014	32,479,099	1,407,188	447,961,893	22%	437,134,697	$242.68
(9)	Jan-June	2015	16,109,890	601,817	236,506,513	22%	231,328,627	$258.98
(10)		Total						$231.02

	Merged	Year	Total Generation (MWh)	Off System Sales (MWh)	Gross Margin (2012 $)	MLR	Retained Margin (2012 $)	Energy Credit ($/MWd) (Note 1)
(11)	May-Dec	2012	35,891,164	1,554,941	305,644,928	40%	296,976,172	$133.78
(12)		2013	45,105,806	19,173	517,494,375	40%	517,379,057	$156.44
(13)		2014	43,590,923	16,772	521,720,607	40%	521,615,865	$157.72
(14)	Jan-June	2015	21,092,794	2,174	279,608,864	40%	279,593,682	$170.48
(15)		Total						$154.24

AS Payments

		CSP	OPCO	Merged
(16)	2011 AS Credits	$10,037,014	$12,004,155	$22,041,169
(17)	CP-5 (MW)	4126	4935	9061
(18)	AS Credit $/MWDay	$6.66	$6.66	$6.66

Note 1: This calculation uses the 5 CP Demand numbers presented in KDP-5 and reprinted below.

		CSP	OPCO	Merged
(19)	CP-5 (MW)	4126	4935	9061