

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of **Columbus** :
Southern Power Company and Ohio Power : Case Nos. 11-346-EL-SSO
Company for Authority to Establish a : 11-348-EL-SSO
Standard Service Offer Pursuant to Section :
4928.143, Ohio Revised Code, in the Form of :
an Electric Security Plan. :

In the Matter of the Application of **Columbus** : Case Nos. 11-349-EL-AAM
Southern Power Company and Ohio Power : 11-350-EL-AAM
Company for Approval of Certain :
Accounting Authority :

**PREFILED TESTIMONY
OF
HISHAM M. CHOUEIKI, PH.D., P.E
MARKET ANALYSIS & PLANNING DIVISION
ENERGY & ENVIRONMENT DEPARTMENT
PUBLIC UTILITIES COMMISSION OF OHIO**

PUCO

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1 **I. INTRODUCTION AND PURPOSE**

2 **EMPLOYER**

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

4 A. My name is Hisham M. Choueiki. I am employed by the Public Utilities
5 Commission of Ohio (PUCO or Commission) as a Senior Energy
6 Specialist. My business address is 180 East Broad Street, Columbus, Ohio
7 43215.
8

9 **ACADEMIC BACKGROUND AND PROFESSIONAL EXPERIENCE**

10 2. Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND
11 PROFESSIONAL EXPERIENCE.

12 A. I am a Registered Professional Engineer in Ohio. I hold a Bachelor of
13 Science, a Master of Science, and a Philosophy Doctorate in Industrial and
14 Systems Engineering, all from The Ohio State University (OSU).
15

16 I currently serve as a Senior Energy Specialist in the Planning and Market
17 Analysis Division in the Energy and Environment Department at the Public
18 Utilities Commission of Ohio.
19

20 I started my career in government regulation as a Graduate Researcher at
21 the National Regulatory Research Institute while attending graduate school
22 at OSU. My tenure at the PUCO commenced when I joined the Forecasting

1 Division as a Senior Utility Rate Analyst. I was later promoted to a Utility
2 Rate Analyst Manager, an Energy Specialist, and finally to my current
3 position. Between 1996 and 1998, I was on sabbatical from the PUCO, and
4 was a Visiting Assistant Professor in the College of Engineering and
5 Petroleum at Kuwait University where I taught operations research, design
6 of experiments, and forecast modeling, and was also an energy consultant
7 for the Kuwaiti government.

8
9 At the PUCO, I have contributed to numerous rule-making proceedings in
10 gas, electric, and telephone, co-authored several energy forecasting and
11 telecommunications reports, lectured at the PUCO and at national and
12 international technical conferences in the areas of forecast modeling, design
13 of experiments, and artificial neural networks, and have published in peer-
14 reviewed engineering journals.

15
16 3. Q. PLEASE DESCRIBE SOME OF YOUR PRESENT RESPONSIBILITIES
17 AT THE PUCO.

18 A. I am a technical/policy advisor to PUCO Commissioners and Senior Staff.
19 I have several other major responsibilities; including a) the development of
20 empirically valid, and logically consistent, short-term and long-term
21 analytical forecasting models for assessing and characterizing the behavior
22 of energy and economic systems in utility service areas in Ohio, and in the

1 United States, and b) the review of the long-term forecast reports of
2 electric distribution utilities in Ohio. I currently serve as a member of the
3 Staff Steering Committee in the Organization of PJM States, Inc. (OPSI),
4 and the co-chair of the Staff Modeling Work Group in the Eastern
5 Interconnect States Planning Council (EISPC). I also serve as a reviewer
6 for several engineering journals; including IEEE Transactions on Power
7 Systems and IEEE Transactions on Neural Networks.

8
9 4. Q. HAVE YOU TESTIFIED IN PREVIOUS CASES AT THE PUCO?

10 A. Yes, I have testified in long-term forecast hearings, telecommunications
11 alternative regulation hearings, telecommunications merger hearings, and,
12 more recently, in 10-388-EL-SSO.

13
14 **SCOPE OF TESTIMONY**

15 5. Q. WHAT IS THE PURPOSE OF FILING THIS TESTIMONY?

16 A. Two issues will be addressed in my testimony:

- 17 1. I will be deriving Reliability Pricing Model-based (RPM-based)
18 capacity component charges that staff witness Johnson will use in
19 developing his retail Market Rate Offer (MRO) for the PJM delivery
20 years 2012/2013, 2013/2014, and 2014/2015.

1 2. If the Commission finds in Case No. 10-2929-EL-UNC that the
2 prevailing RPM capacity rates during the June 1, 2012 – May 31,
3 2015 period are non-compensatory, I will derive alternate capacity
4 component charges that the Commission may wish to consider when
5 evaluating the MRO price test results.

6 6. Q. WHAT SUMMARY TABLES WILL YOU BE SPONSORING IN YOUR
7 TESTIMONY?

8 A. HMC-1 and HMC-2.

9 **II. RPM-BASED CAPACITY COMPONENT CHARGES**

10 7. Q. HOW DID AEP-OHIO PROPOSE TO ESTIMATE THE CAPACITY
11 COMPONENT CHARGE IN ITS MRO?

12 A. In her retail MRO development, AEP-Ohio witness Thomas states that the
13 capacity component charge would be established based on the rate
14 supported by AEP-Ohio in Case No. 10-2929-EL-UNC; namely a fully
15 embedded cost of \$343.98/MW-day¹ (or \$355.72/MW-day after losses have
16 been included).

17
18 8. Q. IN YOUR OPINION, IS THE CAPACITY CHARGE PROPOSED IN
19 CASE NO. 10-2929-EL-UNC A MARKET-BASED RATE?

¹ Direct Testimony of Laura J. Thomas Testimony, page 15.

1 A. No, it is not. The capacity charge derived in the development of Ms.
2 Thomas's Competitive Benchmark Prices is cost-based.

3
4 9. Q. IN YOUR OPINION, IS IT REASONABLE TO USE A COST-BASED
5 CAPACITY COMPONENT CHARGE IN A RETAIL MRO
6 DEVELOPMENT?

7 A. In general, it is not². To the extent there is a transparent forward capacity
8 price available in the market, that price should be used in the derivation of a
9 capacity component charge that would then be included in a proposed retail
10 MRO. This logic is no different than the use of the Simple Swap proposed
11 by Ms. Thomas in the determination of an energy component charge in
12 AEP-Ohio's proposed retail MRO³.

13
14 10. Q. FOR THE PERIOD OF INTEREST IN THIS CASE (JUNE 1, 2012 –
15 MAY 31, 2015), ARE THERE TRANSPARENT FORWARD CAPACITY
16 PRICES AVAILABLE IN THE PJM FOOTPRINT?

17 A. Yes, there are⁴. AEP-Ohio belongs to a region that is often referred to in
18 the PJM footprint as the "unconstrained" region or "RTO" region. The

² Two exceptions to this response are: a Commission Finding that RPM-based capacity charges are not compensatory for AEP-Ohio or a Federal Energy Regulatory Commission Order in Docket No. ER-11-2183 (the 205 filing) or Docket No. EL-11-32 (the 206 filing) approving a cost-based capacity charge for AEP-Ohio.

³ Direct Testimony of Laura J. Thomas Testimony, page 12.

⁴ <http://www.pjm.com/markets-and-operations/rpm/rpm-auction-user-info.aspx#Item08>.

1 capacity clearing prices in the RTO region for the 2012/2013, 2013/2014,
2 and 2014/2015 delivery years⁵ are \$16.73/MW-Day, \$27.86/MW-Day⁶,
3 and \$125.99/MW-day⁷, respectively.

4
5 11. Q. HAVE YOU DERIVED A CAPACITY COMPONENT CHARGE FOR
6 EVERY DELIVERY YEAR TO BE USED IN THE DEVELOPMENT OF
7 THE RETAIL MRO IN STAFF WITNESS JOHNSON'S TESTIMONY?

8 A. Yes, I have. The derivations of all capacity component charges are
9 summarized in HMC-1. A capacity component charge for the 2012/2013
10 delivery year that would be billed with every MW-hour of energy, for
11 example, is computed by dividing the RPM capacity clearing price
12 (\$16.73/MW-day) by the product of 24 (24 hours in a day) and an estimate
13 of AEP-Ohio's load factor⁸. The net result is a capacity component charge
14 of \$1.08/MW-hour⁹. Using the same arithmetic, the capacity component
15 charges for the 2013/2014 and 2014/2015 delivery years are \$1.80/MW-
16 hour and \$8.13/MW-hour, respectively.

⁵ A delivery year commences on June 1st and concludes on May 31st of the following year. For example, the 2012/2013 delivery year commences on June 1, 2012 and concludes on May 31, 2013.

⁶ This is preliminary as only the first incremental auction has occurred for the 2013/2014 delivery year.

⁷ This is preliminary as none of the three incremental auctions have occurred yet for the 2014/2015 delivery year.

⁸ AEP-Ohio's load factor is estimated at 64.54% (See HMC-2 for derivation).

⁹ $\$1.08/\text{MW-hour} = (\$16.73/\text{MW-day}) / (24 \text{ hours/day} \times 0.6454)$.

1
2 12 Q. ARE THERE RPM-BASED CAPACITY PRICES FOR THE DELIVERY
3 YEAR IMMEDIATELY FOLLOWING THE CONCLUSION OF THE
4 PROPOSED ESP (i.e. THE 2015/2016 DELIVERY YEAR)?

5 A. Not at this time, but prices will be available on May 18, 2012. The PJM-
6 administered Base Residual Auction (BRA) for the 2015/2016 delivery
7 year commenced on May 7, 2012. The auction will conclude on May 11.
8 The PJM Independent Market Monitor (IMM) will review all results during
9 the week of May 14. The results will be disclosed publicly by PJM on May
10 18 (after market closing).
11

12 **III. CAPACITY CHARGES UNDER THE FRR CONSTRUCT**

13 **BACKGROUND ON THE FRR CONSTRUCT**

14 13. Q. HOW DOES AEP-OHIO MEET PJM'S RESERVE MARGIN
15 REQUIREMENT?

16 A. For the purpose of satisfying PJM's reserve margin requirement, AEP-Ohio
17 operates under the Fixed Resource Requirement (FRR) construct¹⁰. The
18 FRR construct is an alternative (to RPM) available for Load Serving
19 Entities (LSEs) in the PJM footprint for procuring capacity.

20 14. Q. IS A COMPETITIVE RETAIL ELECTRIC SERVICE (CRES)
21 PROVIDER IN THE AEP-OHIO SERVICE AREA ABLE TO PROCURE

¹⁰ PJM Reliability Assurance Agreement (RAA), Schedule 8.1.

1 ITS CAPACITY OBLIGATION FROM THE RPM MARKET DURING
2 THE PERIOD JUNE 1, 2012 TO MAY 31, 2015?

3 A. Unless a CRES provider opted out of FRR in March of 2009, 2010, or
4 2011, it will have to procure its capacity obligation during the upcoming
5 ESP period from AEP-Ohio. However, it should also be stated that AEP-
6 Ohio has committed generation resources to all its standard service offer
7 customers and to all CRES providers in its service area that had not opted
8 out of the FRR for the entire upcoming ESP period. Therefore, regardless
9 what decisions were made in the past three years by either AEP-Ohio or
10 CRES providers in AEP-Ohio's service area, the latter are "captive buyers"
11 of capacity and the former is a "captive seller¹¹" of capacity.

12
13 **CAPACITY CHARGES UNDER THE FRR CONSTRUCT**

14 15. Q. UNDER THE FRR CONSTRUCT, WHAT CAN AN FRR ENTITY
15 CHARGE ITS RETAIL COMPETITORS FOR CAPACITY?

16 A. According to Schedule 8.1, Section D, paragraph 8, of the RAA, a state that
17 has implemented retail choice has the ability to set the capacity rate that an
18 FRR Entity will charge its retail competitors under a "state compensation
19 mechanism". To the extent there is no capacity compensation mechanism

¹¹ All AEP-Ohio power plants that are listed on the PJM website for a specific delivery year have already been committed to FRR during that particular delivery year. For example, the 2012/2013 delivery year committed power plants are listed on the PJM website at: <http://www.pjm.com/markets-and-operations/rpm/~media/markets-ops/rpm/rpm-auction-info/627038-frr-resources-2012-2013.ashx>.

1 available in a particular retail choice state, the default capacity charge is the
2 RPM clearing price in the unconstrained region.

3
4 Additionally, the FRR entity, as an alternative to the RPM clearing price in
5 the unconstrained region, may apply under Section 205 of the Federal
6 Power Act for permission from the Federal Energy Regulatory Commission
7 (FERC) to charge a cost-based capacity rate that is found to be just and
8 reasonable¹².

9
10 16. Q. IS THERE A STATE COMPENSATION MECHANISM FOR
11 CAPACITY IN PLACE FOR THE AEP-OHIO SERVICE AREA?

12 A. Yes, there is. In its March 7, 2012 Order in Case No. 10-2929-EL-UNC,
13 the Commission set an interim two-tier rate¹³ for capacity in the AEP-Ohio
14 service area as follows: The 2011/2012 RPM clearing price of
15 \$116.15/MW-day for tier-one customers and \$255/MW-day for tier-two
16 customers. This interim rate, per the March 7th Order, is in effect until
17 May 31, 2012, at which time the rate for capacity will revert on June 1,
18 2012 to the 2012/2013 RPM clearing price¹⁴ for all customers.

19

¹² FERC will make that Finding.

¹³ For the details, please see the March 7, 2012 PUCO Order in Case No. 10-2929-EL-UNC.

¹⁴ As mentioned earlier in my testimony, the RPM rate effective June 1, 2012 is \$16.73/MW-day.

1 17. Q. WHAT WOULD THE \$116.15/MW-DAY AND \$255/MW-DAY
2 INTERIM CAPACITY RATES TRANSLATE TO IN TERMS OF \$/MW-
3 HOUR CHARGES FOR THE PURPOSE OF AN MRO PRICE TEST?

4 A. Using the same methodology and load factor assumption described earlier
5 in my testimony, the \$116.15/MW-day and \$255/MW-day capacity rates
6 translate to capacity component charges of \$7.50/MW-hour and
7 \$16.46/MW-hour, respectively.
8

9 18. Q. DOES THE STAFF HAVE A POSITION ON WHAT AEP-OHIO
10 SHOULD BE CHARGING CRES PROVIDERS FOR CAPACITY
11 DURING THE JUNE 1, 2012 - MAY 31, 2015 PERIOD?

12 A. In general, Staff's position is to charge CRES providers the prevailing RPM
13 rate in the unconstrained region of PJM15. If the Commission finds in
14 Case No. 10-2929-EL-UNC that the prevailing RPM rates during the
15 proposed ESP period are not compensatory, Staff's recommendation would
16 then be for AEP-Ohio to charge CRES providers the capacity rate
17 developed by Staff witness Medine¹⁶ - i.e. \$146.41/MW-day.
18

¹⁵ Two exceptions to this response are: a Commission Finding that RPM-based capacity charges are not compensatory for AEP-Ohio or a Federal Energy Regulatory Commission Order in Docket No.ER-11-2183 (the 205 filing) or Docket No.EL-11-32 (the 206 filing) approving a cost-based capacity charge for AEP-Ohio.

¹⁶ Exhibit ESM-4, Testimony of Emily S. Medine, on behalf of Staff of the Public Utilities Commission of Ohio, filed on May 7, 2012.

1 19. Q. IF THE COMMISSION FINDS THAT THE PREVAILING RPM RATES
2 ARE NON-COMPENSATORY DURING THE PROPOSED ESP PERIOD
3 AND AGREES WITH STAFF'S CAPACITY RATE ESTIMATION IN
4 CASE NO. 10-2929-EL-UNC, HOW WOULD YOU DERIVE A
5 CAPACITY COMPONENT CHARGE FOR THE PURPOSE OF THE
6 MRO PRICE TEST?

7 A. The same methodology described earlier in my testimony for deriving the
8 RPM-based capacity component charges may be used to derive a state
9 compensation mechanism-based capacity component charge.

10
11 20. Q. WHAT WOULD A \$146.41/MW-DAY CAPACITY RATE TRANSLATE
12 TO IN TERMS OF A \$/MW-HOUR CAPACITY COMPONENT
13 CHARGE?

14 A. Using the same arithmetic and load factor assumption described earlier in
15 my testimony, the \$146.41/MW-day translates to a capacity component
16 charge of \$9.45/MW-hour¹⁷.

17
18 **IV. SUMMARY AND RECOMMENDATIONS**

19 21. Q. WOULD YOU SUMMARIZE YOUR RECOMMENDATIONS?

¹⁷ \$9.45/MW-hour = (\$146.41/MW-day)/(24 hours/day x 0.6454).

1 A. It is my recommendation that RPM-based capacity component charges be
2 derived and, accordingly, used for the purpose of conducting an MRO price
3 test. I recommend the use of the results derived in HMC-1: \$1.08/MW-
4 hour for the 2012/2013 delivery year, \$1.80/MW-hour for the 2013/2014
5 delivery year, and \$8.13/MW-hour for the 2014/2015 delivery year.


6
7 To the extent the Commission finds in Case No. 10-2929 EL-UNC that the
8 RPM clearing prices in the unconstrained region are non-compensatory to
9 AEP-Ohio during the June 1, 2012 to May 31, 2015 period, Staff
10 recommends the use of a capacity component charge of \$9.45/MW-hour for
11 the entire three-year ESP period based on the analysis results of Staff
12 witnesses Medine in Case No. 10-2929-EL-UNC.

13
14 22. Q. Doe this conclude your testimony?

15 A. Yes, it does. However, I reserve the right to submit supplemental testi-
16 mony as described herein, as new information subsequently becomes avail-
17 able or in response to positions taken by other parties.

PROOF OF SERVICE

I hereby certify that a true copy of the foregoing Prefiled Testimony of Hliahm M. Choueiki submitted on behalf of the Staff of the Public Utilities Commission of Ohio, was served via electronic mail, upon the following parties of record, this 9th day of May, 2012.


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HMC-1

Staff's Proposed Capacity Component Charges in AEP's MRO

PJM RPM BRA

Planning Period	RTO Clearing Price (\$/MW- day)
June 2012 - May 2013	\$16.73
June 2013 - May 2014	\$27.86
June 2014 - May 2015	\$125.99

Load Factor	64.54%
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Source: HMC-2

Period (delivery year)	Capacity Component Charges (\$/MW-hour)
---------------------------	--

Jun 2012 - May 2013	\$1.08
Jun 2013 - May 2014	\$1.80
Jun 2014 - May 2015	\$8.13

HMC-2
Staff's Estimation of AEP-Ohio's Average Load Factor

Year	COMPANY	Form FE-D1 Net Energy for Load	Form FE-D3 Non-Coincident Summer Peak	Load Factor (L.F.)
2012	CSP	22,649,576	4260	
2012	OPC	29,094,828	4875	
2012	AEP-Ohio	51,744,404	9,135	64.49%
2013	CSP	22,768,878	4289	
2013	OPC	29,189,425	4895	
2013	AEP-Ohio	51,958,303	9,184	64.58%
2014	CSP	22,728,485	4294	
2014	OPC	29,186,021	4894	
2014	AEP-Ohio	51,914,506	9,188	64.50%
2015	CSP	22,616,751	4260	
2015	OPC	29,148,699	4891	
2015	AEP-Ohio	51,765,450	9,151	64.58%

Avg L.F. (over all four years) = 64.54%

Source: 2011 CSP/OP Long Term Forecast Report to the PUCO