

FILE

BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO

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

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

DIRECT TESTIMONY OF

ROY J. SHANKER

ON BEHALF OF

FIRSTENERGY SOLUTIONS CORP.

PUCO

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1 **Q. What is your name, business address, and position?**

2 A. My name is Roy J. Shanker. My business address is P.O. Box 60450, Potomac,
3 Maryland 20859. I am currently self-employed as an independent consultant.

4 **Q. What are your educational and professional qualifications?**

5 A. I have extensive experience spanning 38 years in the electric utility industry and
6 have been an active participant in the development of formal organized wholesale
7 energy markets since 1995. I have participated actively in the stakeholder process
8 in all of these markets, including in PJM Interconnection LLC (“PJM”). Much of
9 this work has focused on capacity markets. I have testified numerous times
10 before the Federal Energy Regulatory Commission (“FERC”) and state
11 commissions about PJM’s Reliability Pricing Model (“RPM”), related elements of
12 the Reliability Assurance Agreement (“RAA”), and the PJM tariff that governs
13 capacity obligations. I have also participated in technical sessions and in
14 settlement discussions about these issues. I have a bachelor’s degree from
15 Swarthmore College and a masters degree and doctorate from Carnegie-Mellon
16 University. A summary of my experience is attached as Exhibit RJS-1 to this
17 testimony.

18 **Q. Have you previously submitted testimony related to AEP Ohio’s rates?**

19 A. Yes. I have submitted testimony before FERC addressing AEP Ohio’s filing for
20 cost-based capacity compensation in Docket Number ER11-2183-000.

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

22 A. The purpose of my testimony is to discuss the Electric Security Plan (“ESP”)
23 proposed by the Ohio Power Company (“OPCo”) and Columbus Southern Power

1 Company ("CSP") (collectively OPCo and CSP are referred to as "AEP Ohio").
2 Specifically, my testimony will focus on AEP Ohio's proposed capacity charges
3 related to Competitive Retail Electric Service ("CRES").

4 **Q. What are your conclusions regarding AEP Ohio's proposed capacity charges**
5 **related to CRES?**

6 A. In this testimony I conclude that AEP Ohio's proposed capacity charges are
7 inappropriate for four reasons. First, FERC and the Public Utilities Commission
8 of Ohio ("PUCO") have both already ruled that AEP Ohio should be charging
9 RPM prices – market-based prices – for capacity provided for shopping
10 customers. AEP Ohio has not established or proffered any legitimate reasons why
11 the pricing should be changed and the appropriate capacity charge should not be
12 changed in this ESP. Second, the time for CRES providers to make a Fixed
13 Resource Requirement ("FRR") election to self supply for capacity for the term of
14 the proposed ESP elapsed years ago. Such an election is required to be made
15 three years in advance of the planning year, and thus such an option to self supply
16 is not available until the 15/16 planning year, which begins June 1, 2015 and runs
17 through May 31, 2016. If the capacity charge rules are changed at this late date,
18 CRES providers would be locked-in to paying above-market-rate capacity fees to
19 AEP Ohio for the next three years without the ability to make their own FRR
20 election or make alternative arrangements for capacity. AEP Ohio's proposed
21 capacity charge would have a significant chilling effect on competition in Ohio.
22 Third, AEP Ohio's proposal would create perverse economic incentives for
23 parties to withdraw capacity from PJM, raising prices for all PJM customers,

1 including the non-AEP Ohio portion of Ohio. Fourth, AEP Ohio's proposal is
2 based on what it claims to be its costs, which is inappropriate for the reasons
3 discussed herein. However, even if the Commission were to consider AEP Ohio's
4 costs, which it should not, AEP Ohio has failed to show that its full embedded
5 costs are appropriate and has failed to include appropriate offsets for revenue that
6 AEP Ohio will receive as a result of these costs, such as off-system energy sales.
7 Each of these issues is discussed in detail below.

8 **I. CAPACITY CHARGES**

9 **A. BACKGROUND**

10 **Q. What are the capacity charges that AEP Ohio refers to in this case?**

11 A. Under the PJM Tariff and RAA, AEP Ohio is obligated to procure its share of a
12 regional capacity requirement within PJM. AEP Ohio has opted to meet its
13 capacity obligation through the RAA's FRR alternative. The capacity charges at
14 issue relate to the costs that AEP Ohio incurs as an FRR entity. In this
15 proceeding, AEP Ohio uses these capacity charges for two purposes. First, AEP
16 Ohio uses this charge as a component in its calculation of the "Competitive
17 Benchmark Price" expected to result from a MRO, compared to which the
18 proposed ESP must be more favorable in the aggregate. Second, AEP Ohio also
19 seeks to assess these capacity charges against CRES providers in AEP Ohio's
20 service territories. This is further discussed in the testimony of FirstEnergy
21 Solutions ("FES") witnesses Michael Schnitzer and Dr. Jonathan Lesser.

1 **Q. What is the capacity charge proposed by AEP Ohio?**

2 A. AEP Ohio has proposed a capacity charge of \$347.97/MW-day for the entire term
3 of the ESP both as a component of the Competitive Benchmark Price and to
4 charge CRES providers who supply shopping customers for their capacity. I
5 believe this charge is inappropriate, and that RPM market-based pricing should be
6 used instead for both purposes, as has been previously approved by the FERC and
7 the Commission.

8 While the only appropriate capacity charge is the RPM-based charge
9 currently in place, the chart below compares AEP Ohio's proposed full embedded
10 cost-based capacity charge to several other relevant figures. Included in the chart
11 below are: (1) the market rates for the relevant period; (2) AEP Ohio's proposed
12 full embedded cost-based charge; (3) the results of the recent FirstEnergy capacity
13 auction; (4) Mr. Schnitzer's calculation of the maximum above-market capacity
14 charge for the test year 2010 (accepting AEP Ohio's incorrectly calculated cost
15 data and subtracting out energy and ancillary service revenues only); and (5) Dr.
16 Lesser's corrected cost-based capacity charge (revising AEP Ohio's cost data to
17 include only appropriate costs and including an offset for revenue).

18

| Term | Market (RPM) ¹ | AEP Ohio's Proposed Charge to CRES Providers And For Calculation Of The Competitive Benchmark Price ² | FE Interim Capacity Auction ³ | Maximum Above-Market Capacity Charge Based On 2010 Test Year ⁴ | Cost-Based Capacity Charge Corrected For Double Counting & Pre-Transition Generating Resources ⁵ |
|-------------------|---------------------------|--|--|---|---|
| 1/1/12 to 5/31/12 | \$110.04/MW-day | \$347.97/MW-day | \$108.89/MW-day | \$162/MW-day | \$34.41/MW-day |
| 6/1/12 to 5/31/13 | \$16.46/MW-day | \$347.97/MW-day | \$20.46/MW-day | \$162/MW-day | \$34.41/MW-day |
| 6/1/13 to 5/31/14 | \$27.73/MW-day | \$347.97/MW-day | N/A | \$162/MW-day | \$34.41/MW-day |

2 As discussed below, the only appropriate capacity charge is the market-
3 based charge that has already been approved by FERC and the Commission.
4 However, this chart illustrates that AEP Ohio's proposed capacity charge is
5 dramatically higher than any other measure of an appropriate capacity charge,
6 including the current market-based system and the results of the recent
7 FirstEnergy Ohio utilities auction. Moreover, the problems in AEP Ohio's
8 calculation of its full embedded cost-based capacity charge are shown through the
9 analyses from Mr. Schnitzer and Dr. Lesser. Mr. Schnitzer's maximum above-
10 market capacity charge is particularly interesting, because even accepting that

¹ As discussed in detail below, a market-based capacity charge is the most appropriate charge under the terms of the RAA and as a matter of policy. A market based charge is also the charge in effect today and is the charge that has been approved by the PUCO. *See* Case 10-2929, December 8, 2010 Order ¶ 4.

² AEP has proposed a cost-based capacity charge for the entire term of the ESP. *See* AEP Witness Thomas Exhibit LJT-1; Columbus Southern Power Company's and Ohio Power Company's Response to Industrial Energy Users-Ohio Discovery Request, Case No. 11-346-EL-SSO and 11-348-EL-SSO, Second Set, INT-092, Attachment 1 (attached hereto as Exhibit RJS-2).

³ The capacity charge from the recent FirstEnergy capacity auctions conducted in March of 2010 as part of integration into PJM. *See* FES Witness Schnitzer testimony at Section VI(B).

⁴ Mr. Schnitzer's calculation of the maximum possible above-market capacity charge. This calculation starts with AEP's identified costs and subtracts out revenue received by AEP using a 2010 test year. *See* FES Witness Schnitzer testimony at Section VI(B).

⁵ Dr. Lesser's corrected cost-based capacity charge, which adjusts AEP's identified capacity costs to account for stale data, the contribution to embedded capacity costs from energy-related sales for resale, and the inclusion of only generating plant investment that was in-service prior to the January 1, 2001 transition date. *See* Testimony of FES Witness Lesser at Section II.

1 AEP Ohio is entitled to recovery of its full embedded costs (which is
2 inappropriate, as discussed below), AEP Ohio has failed to include an offset to
3 reflect the revenue which it will receive as a result of these costs. By taking the
4 simple step of including the appropriate offset for revenue received, even AEP
5 Ohio's full embedded cost-based calculation becomes much closer to market
6 rates. Finally, Dr. Lesser's calculation shows that even if a cost-based approach
7 were appropriate, when only appropriate costs are taken into account and adjusted
8 for revenues AEP Ohio's actual cost-based capacity cost is dramatically lower
9 than the charge proposed by AEP Ohio.

10 **Q. How does the FRR alternative work?**

11 A. The FRR election allows eligible Load Serving Entities ("LSE") (such as AEP
12 Ohio) the option to submit a FRR capacity plan and meet a fixed capacity
13 requirement as an alternative to participating in the RPM capacity auction. See
14 PJM Reliability Assurance Agreement, Schedule 8.1, Sec. D ("FRR Capacity
15 Plans"). AEP Ohio has voluntarily made the FRR election since the inception of
16 RPM and has continued this election through the 2014/15 Delivery Year period.
17 The Base Residual Auction ("BRA") in which capacity is obtained by PJM and
18 LSEs for the term of AEP Ohio's ESP has already occurred, and similarly LSEs in
19 AEP Ohio no longer have any opportunity for self-supply. By making the FRR
20 election, AEP Ohio avoids paying auction rates for capacity. Any eligible LSE
21 may elect this option, so long as they comply with the FRR requirements,
22 including both the identification of adequate reliability resources and notice.

1 **Q. Does the FRR alternative accommodate retail switching?**

2 A. Yes. The PJM RAA has provisions for FRR suppliers to charge for capacity to
3 load that departs from service by the FRR entity (in this case AEP Ohio) to
4 another LSE (such as a CRES provider). In accordance with the PJM RAA, these
5 capacity charges have been established by the PUCO at a level equal to the
6 current respective delivery year (i.e., June 1, 2011-May 31, 2012) clearing price
7 for the Regional Transmission Organization (“RTO”) as established in PJM’s
8 RPM. *See* Case No. 10-2929-EL-UNC (December 8, 2010 Order ¶ 4).

9 The RAA also allows any eligible LSE within an FRR designated area that
10 has retail access to establish its own FRR plan. *See* RAA Schedule 8.D.9.
11 However, such an election can only occur after the existing FRR plan for the
12 region (e.g. AEP Ohio’s FRR plan) ends. This means that once AEP Ohio has
13 submitted an FRR plan, which must include all load within its zone, independent
14 FRR plans can not be implemented by LSEs (such as CRES providers) to meet the
15 requirements of load they may obtain until the expiration of the existing FRR
16 plan. Effectively LSEs such as FES and other suppliers are “locked in” during the
17 term of AEP Ohio’s FRR.⁶

18

⁶ “Notwithstanding the foregoing, in lieu of providing the compensation described above, such alternative retail LSE may, **for any Delivery Year subsequent to those addressed in the FRR Entity’s then-current FRR Capacity Plan**, provide to the FRR Entity Capacity Resources sufficient to meet the capacity obligation described in paragraph D.2 for the switched load.” RAA Schedule 8.D.9 (emphasis added).

1 **Q. How are capacity rates normally set in PJM under the RPM?**

2 A. Capacity rates in PJM normally would be set via the RPM auction process that
3 constitutes PJM’s capacity market.⁷ The RPM auction process acquires all the
4 necessary capacity needed for the LSEs participating in RPM. Eligible resources
5 can be generation, demand response, energy efficiency or qualified transmission
6 enhancements. LSEs can also offer their own eligible self-supply into the auction.
7 LSEs are then assigned a cost responsibility for their share of the procured
8 capacity in all of the PJM auctions for any given delivery year. LSEs may hedge
9 their cost exposure in the auctions by obtaining or arranging for capacity under
10 bilateral agreements.

11 **Q. How do capacity suppliers participate in the auctions?**

12 A. Suppliers are subject to a must-offer obligation in the RPM markets. The
13 independent market monitor (“IMM”) has determined that the capacity markets
14 are structurally concentrated, meaning that each supplier theoretically has
15 sufficient market power to affect price. As a result, all supply offers are subject to
16 price caps.

17 **Q. How are the price caps for supplier offers set?**

18 A. Offers must be based on a resource’s short run marginal costs, or “avoidable”
19 costs. Specifically, suppliers’ caps are established at the avoided cost rate (the

⁷ In detail, LSE charges for capacity are made up of a weighted average of capacity clearing prices in the BRA, and three incremental auctions. These are clearing auctions, and each sets a corresponding capacity price for the locational delivery areas (“LDAs”) within PJM. Load prices would further be modified by adjustments between forecast quantities and actual load allocation shares and peak load responsibility. Generators are paid the price they clear at in any specific auction in which they are sold. For the sake of simplicity and clarity, the RTO price discussed in this testimony reflects BRA prices and not the final charge to load for any specific delivery year.

1 “ACR”), as specified in section 6.8 of Attachment DD of the PJM tariff. I discuss
2 this further below. Suppliers cannot make offers at their full embedded costs.⁸

3 **Q. What is the logic underlying the establishment of offer caps at the ACR**
4 **values?**

5 A. The intent of offer caps in general, for buyers or sellers, is to replicate the offer
6 and bid behavior that would be expected in a competitive environment. In the
7 absence of market power, individual suppliers would be expected to offer supplies
8 at their short-term “to go” costs. This would represent the costs that could be
9 avoided by either retiring or “mothballing” an existing unit for a year. The ACR
10 values used in the PJM auction process reflect an attempt to administratively set
11 the determination of such “to go” costs, allowing not only for typical marginal
12 short-term costs, but also allowing for the types of incremental investment that
13 would be expected with maintaining large, capital intensive projects.

14 **Q. Does RPM or the RAA provide for AEP Ohio to recover its full embedded**
15 **costs of capacity?**

16 A. No. RPM does not guarantee full recovery of all costs related to capacity for any
17 supplier of capacity, and neither does the FRR alternative. Nothing in the RAA
18 provides for AEP Ohio or any supplier participating under the FRR alternative to
19 recover its full embedded costs. The RAA does address default pricing options in
20 FRR regions for LSEs operating under retail access programs to receive some
21 capacity payments from migrating load. These alternatives may be related in
22 some fashion to costs⁹ or reflect other compensation established by a state

⁸ Under certain circumstances floor rates may apply to the offers for new competitive supply.

⁹ See discussion in Section I (D) below.

1 regulatory authority. In the absence of a specific state designation, this capacity
2 payment for migrating load defaults to the PJM RPM auction results for the
3 unconstrained RTO area. However, the RAA and tariff do not authorize full
4 embedded cost-based payments. This is discussed further below.

5 **Q. How does the FRR alternative account for capacity costs associated with**
6 **retail choice?**

7 A. Under the FRR alternative, a CRES provider such as FES can get its capacity
8 from AEP Ohio to serve retail customers. Under the current structure in Ohio,
9 because AEP Ohio has elected the FRR option for all load in its region, the Ohio
10 CRES provider sells retail customers energy at a negotiated rate that includes the
11 PUCO-approved AEP Ohio capacity charge for the departing load. Effectively,
12 the CRES provider is buying the capacity from AEP Ohio at the PUCO-approved
13 rate and providing it to the departing load it now serves. Alternatively, in the
14 long-term, once the current AEP Ohio elections expire after the 2014/15 Delivery
15 Year period, CRES providers will also have the option to supply their own
16 capacity by making their own FRR election if they want to avoid AEP Ohio's
17 capacity charge. This latter choice, however, in accordance with PJM
18 requirements must be made three years in advance—before the applicable Base
19 Residual Auction for a specific delivery year. After that point, if no election is
20 made, the CRES provider effectively is locked-in to obtaining capacity from AEP
21 Ohio for the delivery year. Moreover, it is very difficult for a CRES provider to
22 determine whether to make its own FRR election, as I describe later in my
23 testimony.

1 **Q. Does the RAA discuss compensation to AEP Ohio if a customer switches**
2 **from AEP Ohio to a CRES provider?**

3 **A. Yes, under Schedule 8.1, Section D.8 the RAA provides:**

4 “In the case of load reflected in the FRR Capacity Plan that switches to an
5 alternative retail LSE, where the state regulatory jurisdiction requires
6 switching customers or the LSE to compensate the FRR Entity for its FRR
7 capacity obligations, such state compensation mechanism will prevail. In
8 the absence of a state compensation mechanism, the applicable alternative
9 retail LSE shall compensate the FRR Entity at [rest-of-pool or “RTO”
10 RPM clearing prices], provided that the FRR Entity may, at any time,
11 make a filing with FERC under Sections 205 of the Federal Power Act
12 proposing to change the basis for compensation to a method based on the
13 FRR Entity’s costs or such other basis shown to be just and reasonable.”

14 Thus the default compensation is the RTO capacity clearing price, which itself is
15 based on mitigated avoided cost or “to go” offers. There is no mention in the
16 RAA of full embedded costs. The alternatives to this default rate are to be based
17 on some cost-related basis or other just and reasonable compensation. As I
18 discuss I believe the most appropriate cost-basis would be linked to marginal or
19 “to go” cost concepts and clearing prices similar to the RPM default provision.

20

**B. FERC/PUCO LITIGATION REGARDING CAPACITY
CHARGES**

Q. What is the appropriate capacity charge for migrating retail load?

A. The appropriate capacity charge is the charge established by the three-year capacity auction conducted by PJM.¹⁰

Q. Has Schedule 8.1, Section D.8's application to establish capacity charges to migrating retail load in AEP Ohio been litigated recently at FERC?

A. Yes. On November 24, 2010, in FERC Case No. ER11-2183-000, AEP Ohio filed new "capacity compensation formulae." AEP Ohio proposed that the same capacity charges they use in this proceeding would be charged to CRES providers for load that migrated from AEP Ohio to the CRES provider. AEP Ohio argued that the RPM RTO clearing prices that it was charging (and had been charging since the inception of CRES alternatives) to LSEs for capacity did not permit AEP Ohio to fully recover its costs. AEP Ohio, therefore proposed to change the basis of compensation for its FRR capacity obligations to cost-based recovery. AEP Ohio omitted any explanation of the PUCO retail paradigm in its FERC filing. AEP Ohio also omitted any discussion of whether capacity charges under the RAA were intended to provide full compensation (by themselves) for all embedded costs.

¹⁰ See Case No. 10-2929, December 8, 2010 Entry.

1 **Q. What was AEP Ohio's capacity charge to CRES providers as of November**
2 **24, 2010?**

3 A. As of November 24, 2010 (and effective through May 31, 2011), AEP Ohio
4 charged CRES providers approximately \$174/MW-day,¹¹ which was the PJM
5 RPM RTO clearing price for the 2010/2011 delivery year.

6 **Q. What are the RTO clearing prices for the term of the ESP?**

7 A. AEP Ohio's proposed new ESP covers portions of 3 planning years, and the RTO
8 prices vary from planning year to planning year. PJM's RPM auctions for the
9 ESP period have cleared at \$110.04/MW-day (for 2011-2012), \$16.46/MW-day
10 (for 2012-2013) and \$27.73/MW-day (for 2013-2014). These results are
11 indicative of the current large surplus of capacity in the RTO region, lower
12 demand, and increased participation by demand response. Together they
13 represent the best estimate currently available for the market value of such
14 capacity for the designated periods.

15 **Q. What was AEP Ohio's proposed capacity charge for OPCo and CSP in its**
16 **filing in FERC Case No. ER11-2183-000?**

17 A. For 2011, the rate proposed by CSP was \$310.04/MW-day.¹² The rate proposed
18 by OPCo was \$401.01/MW-day.¹³ AEP Ohio's combined rate was \$388/MW-
19 day using 2009 numbers.¹⁴ In its filing in this PUCO proceeding, AEP Ohio used

¹¹ The PJM RTO clearing price is subsequently adjusted and is then multiplied by a scaling factor and pool requirement and loss factor to determine the total price paid by CRES providers. See Case No. 10-2929, AEP February 7, 2011 Reply Comments at Attachment 2, page 72 of 156; AEP November 24, 2010 FERC Filing in Case No. ER11-2183-000, Attachment B, page 59 of 63.

¹² AEP November 24, 2010 FERC Filing in Case No. ER11-2183-000, Attachment B, page 59 of 63.

¹³ AEP November 24, 2010 FERC Filing in Case No. ER11-2183-000, Attachment B, page 59 of 63.

¹⁴ AEP November 24, 2010 FERC Filing in Case No. ER11-2183-000, Attachment A, page 11 of 63.

1 the value of \$347.97/MW-day (combined CSP-OPCo) and seeks to apply this
2 same price for the entire term of the ESP.¹⁵

3 **Q. Did FERC approve AEP Ohio's proposed capacity cost increase?**

4 A. No. In its Order dated January 20, 2011, FERC held that the PUCO had adopted,
5 as provided for by the RAA, the use of the RPM auction price as the state
6 compensation mechanism for capacity compensation related to load migrating to
7 CRES providers. Accordingly, FERC rejected AEP Ohio's proposal. See
8 American Electric Power Serv. Corp., 134 FERC ¶ 61,039 (2011). In so ruling,
9 FERC relied upon the PUCO's order dated December 8, 2010, in Case No. 10-
10 2929-EL-UNC.

11 **Q. You mentioned a PUCO Entry dated December 8, 2010. What was the**
12 **PUCO's decision in that Entry?**

13 A. The December 8, 2010 PUCO Entry formally adopted "the current capacity
14 charges established by the three-year capacity auction conducted by PJM, Inc." as
15 the state capacity compensation mechanism "during the pendency of this review."
16 While I can't offer a legal opinion, as the PUCO's review is ongoing, and the
17 FERC has confirmed the applicability of the RAA, it would appear that AEP Ohio
18 has no choice under the terms of the RAA but to use the applicable RPM capacity
19 charges for the RTO.
20

¹⁵ See Testimony of AEP Witness Laura J. Thomas, Exhibit LJT-1; Columbus Southern Power Company's and Ohio Power Company's Response to Industrial Energy Users-Ohio Discovery Request, Case No. 11-346-EL-SSO and 11-348-EL-SSO, Second Set, INT-092, Attachment 1; Columbus Southern Power Company's and Ohio Power Company's Response to OCC RPD-036, Attachment 1.

1 **Q. Has AEP Ohio challenged the FERC and PUCO decisions?**

2 A. Yes, AEP Ohio has filed applications for rehearing in both cases. Also, AEP
3 Ohio has filed a Complaint pursuant to Section 206 of the Federal Power Act to
4 amend Schedule 8.1, Section D.8, of the RAA, to permit it to file for new
5 wholesale capacity charges.

6 **Q. Would AEP Ohio be providing an anti-competitive subsidy to CRES**
7 **providers if AEP Ohio is required to provide capacity to CRES providers**
8 **under the terms specified by FERC and the PUCO?**

9 A. No. As discussed above, FERC and the PUCO have already determined that the
10 appropriate capacity charges to CRES providers are the applicable RPM charges
11 for the RTO. However, even leaving these determinations aside, the use of PJM
12 RPM capacity charges is not anti-competitive for three reasons. First, AEP Ohio
13 currently charges CRES providers RPM pricing, and is seeking to change the
14 current system now as part of this ESP application¹⁶, when CRES providers no
15 longer have the ability to make their own FRR election until planning year
16 2015/2016, beyond the term of the ESP. If anything, under these locked in
17 conditions, it is the pricing as proposed by AEP Ohio that is anti-competitive as it
18 forces potential competitive suppliers to pay above market rates and discriminates
19 against shopping customers. Second, if the objective is to “show” a market-based
20 rate to customers, which is my understanding of the underlying intent of retail
21 competition in Ohio, these RPM capacity prices are the best indicators of market
22 for the associated service. Third, as explained further below, use of the wholesale

¹⁶ See Testimony Of AEP Witness Laura J. Thomas at 7:12-16.

1 market capacity price is the right transfer price between parties that prevents the
2 introduction of perverse market behavior that would hurt consumers in the rest of
3 Ohio and all of PJM.

4 **Q. Would you expand on why AEP Ohio's behavior might be considered anti-**
5 **competitive?**

6 A. Yes. Setting aside whether there are any specific legal issues relating to AEP
7 Ohio's status as a regulated utility, the behavior in this situation is a classic
8 example of the exercise or attempt to exercise market power by a monopolist.
9 Market power is typically defined as the ability to unilaterally impact prices, as
10 contrasted to normal market competitive conditions where no individual party has
11 this ability, and prices are set by the atomistic independent behavior of supply and
12 demand. The exercise of market power, which then constitutes the anti-
13 competitive behavior, is when the ability is used to actually "move" prices.

14 The market of interest here is not the traditional retail supply of power by
15 a vertically integrated monopoly subject to state regulation, but the competitive
16 supply of retail electric service by CRES providers. It is within this context,
17 where my understanding is that there is an explicit legislative mandate to promote
18 competition¹⁷, that AEP Ohio may be attempting to exercise market power with
19 respect to the supply of mandatory capacity resources. AEP Ohio's conduct
20 amounts to a classic "bait and switch" which has resulted from having a
21 monopoly over the capacity resources necessary to support retail competition in
22 their service territory by other potential suppliers. The "bait" has been the historic

¹⁷ See O.R.C. § 4928.02.

1 use of the market-based RPM RTO value for capacity as the transfer price for
2 capacity supplied for CRES providers. This removed any need or motivation for
3 CRES providers to obtain their own capacity. The “switch” is the unilateral
4 attempt to change that pricing from market-based to embedded costs under
5 circumstances where CRES suppliers now have no opportunity to seek alternative
6 capacity supplies other than from AEP Ohio. In this context AEP Ohio has a
7 monopoly and potentially absolute market power over the supply of capacity for
8 at least a three-year horizon. Granting their pricing request would be the
9 equivalent of allowing the exercise of market power and frustrating retail
10 competition.

11 **Q. Would you explain further why the transfer price for capacity should be set**
12 **at the value of the RPM auction results for the unconstrained RTO region,**
13 **and failure to do so creates perverse economic incentives?**

14 A. Yes. If the charge to the CRES provider is higher than the unconstrained RTO
15 price (as proposed by AEP Ohio and discussed in Sections I (A) and (D)), it
16 creates an incentive for CRES providers to make their own FRR election and self-
17 supply some portion or all of their own needs in the future, at the end of the
18 current AEP Ohio FRR plan. Under the PJM tariff this has a number of perverse
19 and uneconomic results.

20 If the Commission approves cost-based recovery, other LSEs (CRES
21 providers) will have an incentive to make their own FRR elections as soon as
22 allowed in order to avoid the above-market “cost-based” charges. Once a CRES
23 provider makes its own FRR election, the CRES provider will withdraw its

1 capacity from PJM auctions. The CRES provider's withdrawal of capacity from
2 PJM auctions will cause PJM prices for all other customers to rise due to the
3 decreased supply of capacity.

4 After the CRES provider makes its FRR election and withdraws from PJM
5 auctions, the CRES provider will elect to self-supply its capacity into the AEP
6 Ohio FRR plan to serve the estimated or anticipated load of the shopping
7 customers it intends to acquire. The CRES provider will do this to avoid paying
8 AEP Ohio's above market cost-based rates. The CRES provider benefits because
9 avoiding the rates charged by AEP Ohio garners the CRES provider more revenue
10 than the market rates the CRES provider would otherwise receive if it sold the
11 capacity into PJM. The CRES provider's election to self-supply its capacity into
12 the AEP Ohio FRR plan will have several effects. First, AEP Ohio will
13 incorporate the CRES provider's self-supplied capacity into its FRR plan, thereby
14 decreasing AEP Ohio's capacity obligation and leaving AEP Ohio with an excess
15 of capacity. Second, AEP Ohio will be unable to sell this new excess capacity
16 into PJM because the level of these types of sales are limited (even if AEP Ohio
17 could sell the excess capacity into PJM AEP Ohio would receive the market price,
18 not the higher cost-based price it now seeks). Third, if the CRES provider
19 providing AEP Ohio with capacity overestimates the amount of load it anticipates
20 it will capture and provides AEP Ohio with more capacity than the CRES
21 provider's load obligation for the new FRR plan, AEP Ohio will have to serve
22 larger amounts of load than its own FRR supply and will therefore be short

1 capacity for its default customers.¹⁸ AEP Ohio would then be obligated to pay the
2 CRES provider to cover AEP Ohio's short position out of the capacity committed
3 in their FRR plans. Using AEP Ohio's current logic, any such transfer would
4 have to be at the embedded cost of the CRES provider's capacity. Because of the
5 skewed result, rational CRES suppliers should attempt to maximize the amount of
6 capacity they shift out of PJM and into the AEP Ohio FRR.

7 As shown by this hypothetical discussion, a cost-based transfer price for
8 capacity would create a perverse incentive for CRES providers to transfer
9 capacity out of PJM and into AEP Ohio's future FRR plans. The CRES providers
10 would either avoid paying AEP Ohio's embedded cost (instead of being
11 compensated for the same capacity at the lower PJM market price), or would wind
12 up being compensated for any excess at their embedded costs. A cost-based
13 transfer price for capacity would negatively impact customers by leading to
14 higher capacity prices throughout PJM, and would incentivize CRES suppliers to
15 avoid offering their capacity into the RPM auction. This cannot be the right
16 result. The only way to remove this type of perverse behavior is to set the transfer
17 price to the CRES providers at the PJM unconstrained RTO price.

¹⁸ To illustrate this hypothetical, suppose that AEP Ohio's FRR obligation is 100X. If the CRES provider elects in advance to provide capacity for 5X as the CRES provider's estimate of the amount of load it will capture, AEP Ohio's FRR obligation will be 95X. If we suppose the CRES provider only captures 3X in load, as opposed to the estimated 5X, then AEP Ohio will be responsible for serving 97X in load when it has only made arrangements to serve 95X.

1 **C. AEP OHIO's ESP APPLICATION**

2 **Q. Have you reviewed AEP Ohio's ESP Application in this case, as well as the**
3 **supporting testimony provided by AEP Ohio?**

4 A. Yes.

5 **Q. What were the capacity charges proposed by AEP Ohio in calculating the**
6 **Competitive Benchmark Prices for their MRO?**

7 A. As shown at Exhibit LJT-1 of AEP Ohio Witness Thomas's testimony, AEP Ohio
8 used capacity pricing for 2012 that ranged from \$16.28 to \$28.49 per MWh and
9 for 2013-2014 that ranged from \$16.40 to \$28.31 per MWh. In discovery
10 responses, Ms. Thomas stated that she assumed a capacity price, including reserve
11 margin, of \$347.97/MW-day for the entire term of the ESP.¹⁹ These prices are far
12 in excess of the RPM RTO capacity prices (which should apply) for the same
13 delivery years in determining both the capacity component of the MRO rate, and
14 the transfer price of capacity for CRES providers.

15 **Q. What are the RPM BRA clearing prices in the unconstrained portions of the**
16 **PJM region for each year of the proposed ESP?**

17 A. As noted above, the unconstrained clearing BRA prices were:
18 January 1, 2012 through May 31, 2012- \$110.04/MW-day
19 June 1, 2012 through May 31, 2013- \$16.46/MW-day
20 June 1, 2013 through May 31, 2014- \$27.73/MW-day

21

¹⁹ See AEP Ohio's Response to IEU-Ohio Discovery Requests, Second Set, INT-92; Columbus Southern Power Company's and Ohio Power Company's Response to OCC RPD-036, Attachment 1.

1 **Q. Why are these RPM capacity values of importance?**

2 A. These values play two critical roles. First, as discussed below, they are indicative
3 of the “best” estimate of what a market-based offer for capacity would be.
4 Second, as directed by the PUCO and discussed above, they currently are the
5 basis for the appropriate capacity charge by AEP Ohio to a departing customer
6 served by a CRES provider.

7 **Q. Has AEP Ohio used RPM capacity charges to calculate its Competitive**
8 **Benchmark Price for the term of the MRO?**

9 A. No. AEP Ohio has not used the RPM clearing prices for each year of the
10 proposed ESP to develop its MRO values. It further appears that AEP Ohio does
11 not intend to base capacity charges for departing customers on these values.

12 **Q. What is AEP Ohio’s approach to calculating its Competitive Benchmark**
13 **Price for the term of the MRO?**

14 A. AEP Ohio witness Thomas states that the capacity component of the Competitive
15 Benchmark Price reflects the “capacity cost that a CRES (competitive electric
16 retail service) provider would incur to serve a retail customer in AEP Ohio’s
17 service territory.”²⁰ This should be (and currently is) based on RPM clearing
18 prices. Yet as explained by FES witness Dr. Lesser, AEP Ohio has “built up” a
19 capacity component of the MRO that appears to reflect AEP Ohio’s full
20 embedded costs, instead of a market-based value for capacity. Moreover, as also
21 explained by Dr. Lesser, AEP Ohio’s calculation appears to improperly take into
22 account costs which are not appropriate under Ohio law. AEP Ohio’s calculation

²⁰ Direct Testimony of Laura J. Thomas, filed January 27, 2011, at p. 7:12-14.

1 does not reflect the market value of capacity, and does not reflect the capacity
2 cost that a CRES provider would incur to serve a retail customer in AEP Ohio's
3 service territory.

4 **Q. Is AEP Ohio's approach reasonable?**

5 A. No. If the objective of the process is to incorporate realistic values of market-
6 based offers into the Competitive Benchmark Price, these AEP Ohio estimates are
7 unrealistic and inflated. Mr. Schnitzer talks at length regarding both the logical
8 inconsistency of such an approach, as well as the material asymmetric risk
9 structure that AEP Ohio has created between the charges in its own ESP values
10 (coupled with material and open-ended non-bypassable surcharges), versus the
11 estimated values of an MRO (which appears to be overstated by literally hundreds
12 of dollars a megawatt day) based on embedded costs that fail to reflect actual
13 market conditions.

14 **Q. Does AEP Ohio plan to use actual market-based RPM clearing values for any**
15 **purpose?**

16 A. It appears that AEP Ohio has no intention of using these actual market-based
17 values as the basis for capacity charges for departing customers. AEP Ohio has
18 requested rehearing of the recent FERC determination regarding the departing
19 customer capacity charge. AEP Ohio has also filed at the FERC for permission to
20 use its full embedded costs as the basis for this charge.

21

1 **Q. Are the capacity charges proposed by AEP Ohio appropriate to use in**
2 **calculating the Competitive Benchmark Price?**

3 A. No. My understanding of the purpose of the MRO calculation is that it should
4 provide an indication of what prices would be from a competitively-priced
5 supplier in an open market. The capacity component of the Competitive
6 Benchmark Price is what competitive suppliers (those providing competitive
7 generation service to distribution customers of AEP Ohio) would expect to pay
8 for capacity purchases in the market.

9 **Q. What is the best estimate of the market price of capacity?**

10 A. Clearly the best determination would be to actually conduct an open and
11 transparent auction for the product. As that is not possible today because capacity
12 has already been committed three years in advance, the best estimate of the
13 market price of capacity for AEP Ohio is the RPM RTO price. It reflects the best
14 estimate of what AEP Ohio itself could sell power for if it were unconstrained in
15 its participation in the RPM process. The RTO price also is indicative of what
16 competitive suppliers could purchase capacity for, given proper notice and
17 opportunity. Also, as discussed above, any other transfer price leads to
18 significantly perverse incentives for both AEP Ohio and CRES providers.

19 **Q. Are there any other indications that the RTO price is a good proxy for**
20 **competitive prices?**

21 A. Yes. The RPM RTO price is the default value for capacity under the RAA for
22 departing retail customers. My understanding is that this default was chosen
23 because it was consistent with a “good” competitive proxy. The plain terms of

1 the RAA support this understanding. The RAA states that if a state compensation
2 mechanism is in place, then AEP Ohio would be compensated in accordance with
3 that mechanism. If there is no state mechanism, the default is the RPM RTO
4 value. Here, both FERC and the PUCO have held that Ohio has a state
5 compensation mechanism (the use of the RPM RTO capacity price).
6 Accordingly, AEP Ohio is required to use the RPM prices for the term of the
7 current ESP and, without further action by the PUCO, must use RPM prices
8 during the term of the proposed ESP and in its comparison of the ESP to an MRO.
9 Since AEP Ohio has not used the RTO price to develop its MRO values, AEP
10 Ohio's ESP application is inappropriate in several material respects. This is
11 discussed in detail in Mr. Schnitzer's testimony.

12 **Q. Assuming embedded costs were allowed, does AEP Ohio appropriately**
13 **calculate its full embedded costs?**

14 A. No. As discussed below, even assuming *arguendo* that full embedded costs could
15 be recovered, the rate fails to include material credits -- particularly earned energy
16 offsets that should be applied to the determination of a net capacity price.

17 Further, as explained in both Dr. Lesser's and Mr. Schnitzer's testimony,
18 AEP Ohio's full embedded cost capacity charge proposal is not indicative of
19 market conditions and shifts risks from AEP Ohio's shareholders to AEP Ohio's
20 customers, while providing no competitive benefits to AEP Ohio's customers.
21 This proposal will saddle AEP Ohio's customers with above-market costs and
22 harm competitive retail markets, as explained in detail in the testimony of FES
23 witness Banks. Finally, if the intention is to use this as the capacity charge for

1 CRES customers, AEP Ohio's proposal does not conform to the PJM RAA, as
2 discussed in my testimony above.

3 **Q. What is the appropriate capacity value for AEP Ohio to include in its**
4 **Competitive Benchmark Price?**

5 A. Absent an actual solicitation, the RPM results for the RTO are the best indicator
6 of "real" competitive clearing costs for the region. For the 11/12, 12/13, and 13/14
7 planning years, AEP Ohio must continue to fulfill its FRR obligations to PJM.
8 During this period AEP Ohio has effectively locked suppliers in via its election of
9 the FRR alternative. In estimating competitive capacity prices for an MRO, AEP
10 Ohio should use the RPM results, as these best reflect market pricing. A proxy
11 might also reflect prices from recent competitive procurements in the region, but I
12 would consider the RPM values most appropriate.

13 **Q. What do you conclude from AEP Ohio's capacity charge proposal?**

14 A. To eliminate the mismatch between any perception of "cost" and market value for
15 capacity in terms of retail competition, AEP Ohio should consider leaving the
16 FRR alternative, and simply participating in RPM as soon as feasible. This is
17 independent of any restructuring decision, and would allow for more efficient
18 capacity pricing for both AEP Ohio and CRES providers. CRES providers would
19 participate in this same manner, selling their capacity into the RPM market and
20 buying from that same market to cover their retail sales obligations. These types
21 of decisions would promote efficiency in the supply of capacity and energy, and
22 fairly compensate AEP Ohio for the actual value of its capacity, while at the same
23 time putting all competitive suppliers on a level playing field with respect to the

1 costs for capacity. It would make competitive pricing for all participants
2 completely transparent. Absent such a change, the use of the RPM RTO value
3 should be maintained.

4 **D. OTHER PROBLEMS WITH AEP OHIO'S PROPOSED**
5 **CAPACITY CALCULATION.**

6 **Q. You previously testified that in the RPM system, suppliers cannot offer bids**
7 **at their full embedded costs, but must instead bid their short run marginal**
8 **costs, or “avoidable” costs. Can you explain this?**

9 A. Yes, under basic economic theory, a rational competitor would only offer their
10 marginal or “to go” costs into a clearing auction. To the extent that prices clear
11 above this level, the supplier is always better off than offering at some higher
12 embedded cost level, and risking not clearing. If a supplier fails to clear with the
13 higher offer, it would lose the real margins that would have been earned above the
14 “to go” costs if prices settled at any level between their “to go” costs, and their
15 higher embedded cost offer price. There is no rational competitive reason to forgo
16 these potential earnings. This would be the expected behavior by all participants
17 in the absence of market power and is the general rationale behind expected
18 competitive conduct in clearing markets and associated market power mitigation.
19 This same logic is applied in the energy markets where reference prices also
20 reflect estimates of marginal production costs.

21 **Q. Has this economic theory been put into practice in PJM?**

22 A. Yes. In RPM, where the markets have been deemed concentrated and subject to
23 offer caps, the offer caps for capacity supply are designed to reflect just this fact,

1 and to replicate anticipated offers that would occur under competitive conditions.
2 As a result, the RPM system is designed to produce, and the market monitor
3 requires, only offers up to these certain specific “to go” costs less estimated
4 revenues, as discussed below, though obviously suppliers will receive the general
5 clearing price, which may be materially higher. Empirically, many of the base
6 load suppliers in PJM have energy margins in excess of their “to go” costs, and as
7 a result have zero, or very low offer caps in the RPM auctions.²¹

8 **Q. What specific costs are permitted to be included in the RPM system?**

9 A. PJM’s capacity market offers are designed to reflect the short-term marginal costs
10 of existing facilities (again, referred to as the avoidable cost rate or “ACR”).
11 These “to go” costs reflect the incremental costs that would be incurred by a
12 generation provider to stay in operation for an additional year as compared to
13 mothballing or retirement, less the net income or margins including those for
14 profitable off-system sales that the unit could earn from energy markets.

15 **Q. Are the components of the ACR specified in the PJM tariff?**

16 A. Yes. These components include avoidable operations and maintenance labor;
17 avoidable administrative expenses; avoidable maintenance expenses; avoidable
18 variable expenses; avoidable taxes and insurance; avoidable carrying charges;
19 avoidable corporate level expenses; and avoidable project investment recovery
20 rate/expense for incremental necessary investment.²² The ACR does not include a

²¹ See IMM State of the Market Report 2010, beginning page 378
http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2010/2010-som-pjm-volume2-sec5.pdf. Note that while the principles of “to go” costs are well established, there can be material differences of opinion regarding specific values for any given supplier.

²² See PJM Tariff, Attachment DD, Sections 6.7 & 6.8.

1 return on and of original capital investment, but does allow for the inclusion of
2 necessary incremental investments. As a marginal cost for generation supply, it is
3 the building block for the supply curve of capacity sell offers used to establish a
4 market-based rate in a locational clearing auction, where each supplier then
5 receives the locational capacity clearing price. Long term, infra-marginal rents
6 earned under such a capacity clearing mechanism are intended to be
7 compensatory for capital costs.

8 **Q. How are these costs calculated?**

9 A. Suppliers can accept default values developed by the PJM market monitor based
10 on the type of resource. Alternatively, the market monitor will calculate unit-
11 specific ACRs inclusive of the unit's own locational net energy margins.

12 **Q. What is the intent of the PJM capacity cost design?**

13 A. The ACR is designed to replicate anticipated competitive supply offers while
14 providing adequate compensation that will, along with energy and ancillary
15 services revenues, efficiently retain existing generation and attract new supply.
16 This type of structure is intended to support new entry over time by averaging the
17 long-run marginal net costs of new entry for a peaking unit. Because of the use of
18 the demand curve and the clearing design of the market, the auction process also
19 should act to supply the funds appropriate to provide adequate compensation to all
20 capacity suppliers and market participants. This applies not only to peaking
21 plants, but to cycling and base load facilities as well. These concepts have been
22 fully vetted and approved by FERC.

1 **Q. In light of the AEP Ohio’s FRR election and PJM capacity compensation**
2 **design, should AEP Ohio be able to recover its full embedded costs from**
3 **departing retail customers or use these values as the basis of its MRO**
4 **estimate?**

5 A. No, neither application is appropriate in the context of competitive retail or
6 wholesale capacity markets. Competitive retail and wholesale capacity charges
7 simply are not intended to yield recovery of full embedded costs from departing
8 retail customers. While over time I would expect the net cost of new entry for a
9 peaking unit to be recovered from clearing capacity market designs like RPM, I
10 would never anticipate full embedded costs of all units to be compensated out of
11 payments from RPM alone. The market is not designed this way. In the long run,
12 total “real” capacity costs would be expected to be recovered, but instead through
13 a combination of compensation from the capacity, energy and ancillary services
14 markets.

15 **Q. Is AEP Ohio’s attempt to recover full embedded costs from departing**
16 **customers or in the estimation of an MRO consistent with capacity recovery**
17 **in RPM?**

18 A. No. AEP Ohio is interpreting the term “cost” in the RAA to mean its full
19 embedded costs and then using these costs to establish the charge to CRES
20 providers who will then charge departing customers. Similarly it appears that the
21 same types of values are being used as a market proxy for the MRO. This is
22 highly questionable given both the function of the PJM wholesale capacity market
23 (and capacity markets in general) and my understanding of the objectives of

1 competitive retail supply in Ohio. The term “cost” is not defined in this RAA
2 provision, but cost concepts similar to or derived from the ACR cost components
3 or the continued use of the RPM rates would be much more appropriate default
4 rates. Anything more would be inconsistent with the underlying concept of
5 creating a competitive paradigm or, put more simply, would create an
6 anticompetitive environment highly favoring AEP Ohio. Moreover, even if AEP
7 Ohio’s full embedded costs were an appropriate consideration, such costs would
8 have to be offset for energy sales. Without such an offset AEP Ohio would
9 receive an inappropriate double recovery for the same assets.

10 **Q. Are there any other considerations that make a switch to full embedded cost**
11 **recovery economically harmful as the basis for the capacity charge for CRES**
12 **departing customers?**

13 A. Yes. If rates based on greater costs are applied on what effectively is a retroactive
14 basis, competitive suppliers will continually be trapped without access to
15 alternative capacity supplies. This is caused by the RPM auctions having already
16 been held for the entire ESP period. Because PJM requires three years notice for
17 FRR and holds its competitive auctions three years in advance of delivery, CRES
18 providers are “locked in” to the existing AEP Ohio FRR structure and the non-
19 competitive pricing AEP Ohio is proposing. Because RPM auctions have already
20 occurred for this period, and the notice for FRR has passed, CRES providers now
21 have no ability to find alternative capacity suppliers. Accordingly, as apparently
22 recognized by the PUCO, the CRES providers are, and should be, reliant on the

1 use of the competitive RPM RTO capacity pricing results. This process is already
2 in place and has been recently confirmed by FERC and the PUCO.

3 To create a fair competitive opportunity within the FRR structure, AEP
4 Ohio could have given due notice of its intent to implement such charges much
5 earlier and coordinated such a change with the PJM RPM schedules. This would
6 have allowed CRES providers a reasonable and competitive opportunity to put
7 together their own FRR plans three years forward, on the same notification basis
8 as AEP Ohio itself has for compliance. This would have been both preferable and
9 equitable for two reasons. First, this would present a “real” competitive situation
10 for AEP Ohio and CRES providers to stand on equal ground in providing capacity
11 for electric service in AEP Ohio’s service territory, reflecting what is my
12 understanding of the intent of the Ohio legislation. Second, it should be
13 transparently obvious that the price all such parties would expect to pay for
14 comparable forward supplies, had proper notice been given, would approximate
15 the RPM RTO result. I see no reason that competitive capacity pricing, for
16 charges to departing customers or for the MRO standard, should be set on any
17 different basis now. There are similar adverse results by incorporating what is
18 basically an embedded cost capacity payment into the build up of the MRO
19 estimate. Mr. Schnitzer discusses these problems at length.

20 Additionally, as I discussed earlier, creating an incentive for CRES
21 providers to self-supply capacity has very perverse results. To the extent that
22 AEP Ohio’s charges exceed the PJM RPM RTO values, it would be rational for a
23 CRES provider to withdraw capacity from PJM and self supply through its own

1 FRR plan. But in turn, this would increase PJM prices for the rest of Ohio, and
2 leave AEP Ohio with excess capacity that it could not sell back into PJM under
3 existing rules. Similarly, it also creates the potential for AEP Ohio to then
4 become short of capacity if CRES providers provide greater capacity supplies
5 than their load, raising the question of what AEP Ohio should then pay the CRES
6 provider for any capacity that AEP Ohio needs. It also would lead to higher
7 prices for Ohio customers. All of this nonsensical cycle starts with the use of a
8 transfer capacity charge between the CRES and AEP Ohio that is higher than
9 market, and it all can be prevented simply by setting the price for the CRES
10 capacity as it is today - at the RPM RTO level.

11 **Q. Leaving aside the rulings of FERC and the PUCO that you previously**
12 **testified about, do you have any other objections to the method by which**
13 **AEP Ohio proposes to calculate the capacity charge?**

14 A. Yes. AEP Ohio's proposed capacity charge is deficient in several respects,
15 including without limitation:

16 (1) AEP Ohio is seeking to recover for the full cost of its generation resources,
17 instead of only certain marginal competitive cost categories for certain assets
18 dedicated to capacity;

19 (2) AEP Ohio is seeking to recover the full cost of its generation resources while
20 failing to reflect any reduced costs associated with departing load;

21 (3) AEP Ohio failed to offset its claimed capacity charge by energy or ancillary
22 services revenues from other markets (*i.e.*, from off-system sales);

1 (4) AEP Ohio is seeking capacity charges completely unrelated to competitive
2 prices, market prices, or PJM RPM prices;

3 (5) AEP Ohio is asking CRES customers to subsidize potentially uneconomic
4 investments by AEP Ohio through excessive compensation for generation
5 capacity and other non-bypassable charges; and

6 (6) AEP Ohio is seeking to impose these costs immediately even though other
7 wholesale suppliers that supply CRES providers are locked into prices for three
8 years due to PJM rules.

9 **Q. Can you explain why AEP Ohio's proposal should include an offset for**
10 **energy and ancillary services revenue?**

11 A. Yes. As I testified previously, it is inappropriate to consider AEP Ohio's full
12 embedded costs based on the rulings from FERC, the PUCO, the terms of the
13 RAA, and the well-established policy and theory behind the PJM RPM system
14 design. However, even if one were to only consider AEP Ohio's marginal "to go"
15 costs, those costs still should be offset by revenue derived from energy and
16 ancillary services. Quite simply, if AEP Ohio is no longer supplying energy to a
17 departing customer, but retains some capacity obligation for returning customers,
18 it is now free to sell its energy in the market and retain full energy margins/profits
19 on such capacity. If the intent is to keep AEP Ohio whole from the retail access
20 departure, one would expect that such energy margins would be credited against
21 any capacity cost recovery. The failure to include this offset would result in a
22 windfall to AEP Ohio--a double recovery for energy sales.

1 **Q. Has AEP Ohio included such an offset?**

2 A. My understanding is that no such energy and ancillary services margins are
3 reflected in AEP Ohio's proposed capacity estimates used by Ms. Thomas. This
4 should be seen as separate from the general issue of retaining margins on off-
5 system sales, as in essence AEP Ohio is attempting to both charge a 100%
6 reservation fee for holding the capacity in question while also keeping all the
7 associated benefits. Presumably, even assuming that cost-based capacity charges
8 were the right charge basis, the benefits from the reserved assets should accrue to
9 those paying for them. Dr. Lesser and Mr. Schnitzer also discuss the need to net
10 out energy and ancillary services revenue.

11 **Q. Are there any other offsets which should be included if AEP Ohio's costs are**
12 **considered?**

13 A. Yes. AEP Ohio's costs should also be offset by any other retail or wholesale rate
14 adjustments that may be in effect, such as fuel factor provisions, POLR charges,
15 and pooling arrangements or surcharges or riders such as for environmental
16 investments. All of these reflect additional sources of revenues that should be
17 netted off of any "cost-based" capacity charge (or should be eliminated as non-
18 bypassable charges). To some extent it is difficult to detail exactly how offsets
19 should be implemented, because the use of the cost-based concept for a market-
20 based value is basically a non sequitur. There should also be an opportunity cost
21 offset to the recovery of full embedded capacity costs. To the extent that AEP
22 Ohio can sell additional capacity into PJM, sell in-year replacement capacity, sell
23 such excess capacity outside of PJM, or sell to other FRR entities, AEP Ohio's

1 capacity charge should be adjusted as appropriate to reflect each of these
2 factors.²³ The same type of crediting should also apply to POLR charges. While
3 these are not direct capacity revenues per se, they relate to revenues collected by
4 AEP Ohio for the optionality of customers returning to default service. I see this
5 as virtually identical to the sale of an ancillary service and the revenues, if
6 allowed, should be applied in a similar manner. I have not seen any
7 documentation that indicates where and how such revenues are credited and my
8 understanding is they are not, but clearly they should accrue as a credit against
9 any capacity-related charges.

10 **Q. Has AEP Ohio proposed any offset of its proposed full embedded cost-based**
11 **capacity charge for energy and ancillary services revenue?**

12 A. No. It does not appear that AEP Ohio has included any such offset.

13 **E. CONCLUSION**

14 **Q. What impact would the imposition of AEP Ohio's requested full embedded**
15 **cost-based capacity charges have on competitive retail access in Ohio**
16 **markets?**

17 A. If AEP Ohio's proposed capacity charges are allowed, it will deter or even
18 eliminate competitive retail access in AEP Ohio's service territory in Ohio and
19 have an associated anti-competitive impact on developing alternative suppliers in
20 retail markets. AEP Ohio's proposal would retroactively trap competitive
21 suppliers, who do not have the ability to institute their own FRR plan for three
22 years, into paying rates that are well above market, and that are well above the

²³ These specific opportunity credits may be limited depending on the specifics of the AEP FRR plan.

1 capacity charge already incorporated into their competitive offers. A Catch-22
2 situation is created by having the ESP plan shorter than the notification period for
3 individual FRR participation. This misalignment under the AEP Ohio proposal
4 precludes CRES providers from having the opportunity to obtain capacity at
5 competitive parity. It is difficult to see how retail access could develop in a
6 situation where a major cost component is set and controlled by a third party at
7 above-market levels. The entire notion of such charges is antithetical to the
8 concepts of competitive retail access. Similarly, the failure to include appropriate
9 competitive values in the calculation of the expected results of an MRO overstates
10 the MRO values, discourages the development of wholesale competitive supply,
11 and distorts the true impact of AEP Ohio's proposed ESP. Further, to the extent
12 that CRES providers attempt to offset such high charges by self-supply of
13 capacity out of other PJM resources, this would create a number of perverse and
14 potentially anti-competitive incentives leading to higher prices for customers. All
15 of these problems are alleviated by simply using the correct transfer price, which
16 is the RPM RTO value. Finally, to the extent that such values would be used in
17 the MRO as the test for whether AEP Ohio's proposed ESP is better in the
18 aggregate, it would obviously establish a benchmark that was far above market to
19 the detriment of AEP Ohio's customers.

20 Notably, it does not appear that AEP Ohio includes this unreasonably high
21 capacity cost in its own generation service price. Ms. Thomas uses a base
22 generation rate that is roughly equivalent to the capacity charge she includes in

1 her calculation of Competitive Benchmark Prices.²⁴ Thus, either no other costs
2 are included in the base generation rate, or she simply has ignored capacity when
3 setting the base generation rate. Mr. Lesser discusses this at length, and
4 demonstrates that the price to compare appears materially understated. Thus it
5 appears that if AEP Ohio's proposed capacity rates are used to charge departing
6 customers, AEP Ohio further forecloses competitive opportunities by imposing
7 costs on competitive suppliers that it does not include in its own SSO. This also
8 is discussed in detail by Mr. Lesser.

9 **Q. In light of the foregoing, do you believe that AEP Ohio's proposed capacity**
10 **charge to departing retail customers is appropriate?**

11 A. No. FERC and the PUCO have both ruled that AEP Ohio should be charging
12 RPM prices – market-based prices – for capacity for departing customers. AEP
13 Ohio's proposal is an inappropriately calculated full embedded cost-based charge
14 without necessary offsets for energy sales, which is fundamentally inappropriate
15 if the intent is to offer competitive supply. In light of these deficiencies, AEP
16 Ohio's proposed capacity charge should be rejected by the Commission and a
17 market-based charge should be used to calculate the expected results of an MRO.

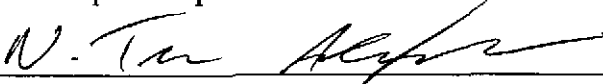
18 **Q. Does this conclude your testimony?**

19 A. Yes it does.

²⁴ See Testimony of AEP Witness Laura J. Thomas at Exhibit LJT-2.

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing *Direct Testimony of Roy J. Shanker* was served this 25th day of July, 2011, via e-mail upon the parties below.


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Exhibit RJS-1

**QUALIFICATIONS
AND
EXPERIENCE OF

DR. ROY J. SHANKER**

EDUCATION:

Swarthmore College, Swarthmore, PA
A.B., Physics, 1970

Carnegie-Mellon University, Pittsburgh, PA
Graduate School of Industrial Administration
MSIA Industrial Administration, 1972
Ph.D., Industrial Administration, 1975

Doctoral research in the development of new non-parametric multivariate techniques for data analysis, with applications in business, marketing and finance.

EXPERIENCE:

1981 - Independent Consultant
Present P.O. Box 60450
 Potomac MD 20854

Providing management and economic consulting services in natural resource-related industries, primarily electric and natural gas utilities.

1979-81 Hagler, Bailly & Company
 2301 M Street, N.W.
 Washington, D.C.

Principal and a founding partner of the firm; director of electric utility practice area. The firm conducted economic, financial, and technical management consulting analyses in the natural resource area.

1976-79 Resource Planning Associates, Inc.
 1901 L Street, N.W.

Washington, D.C.

Principal of the firm; management consultant on resource problems, director of the Washington, D.C. utility practice. Direct supervisor of approximately 20 people.

1973-76 Institute for Defense Analysis
Professional Staff
400 Army-Navy Drive
Arlington, VA

Member of 25 person doctoral level research staff
conducting economic and operations research analyses of military and resource problems.

RELEVANT EXPERIENCE:

2011

Federal Energy Regulatory Commission Dockets No. ER11-2875, EL11-20, Staff Technical Conference addressing self supply and the Fixed Resource Requirement elements of PJM's capacity market design.

New Jersey Board of Public Utilities, Docket Number EO11050309 on behalf of PSEG Companies. Affidavit addressing the implications of markets and market design elements, and regulatory actions on the relative risk and trade-offs between capital versus energy intensive generation investments.

Federal Energy Regulatory Commission Docket No. ER11-2875.
Affidavit and supplemental statement on behalf of PJM Power Providers addressing flaws in the PJM tariff's Minimum Offer Price Rule regarding new capacity entry and recommendations for tariff revisions.

Federal Energy Regulatory Commission Docket No. EL11-20. Affidavit on behalf of PJM Power Providers addressing flaws in the PJM tariff's Minimum Offer Price Rule regarding new capacity entry.

Federal Energy Regulatory Commission Docket Nos. ER04-449.
Affidavit and supplemental statement on behalf of New York Suppliers addressing the appropriate criteria for the establishment of a new capacity zone in the NYISO markets.

2010

New Jersey State Assembly and Senate. Statements on behalf of the Competitive Supplier Coalition addressing market power and reliability impacts of proposed legislation, Assembly Bill 3442 and Senate Bill 2381

Federal Energy Regulatory Commission. Docket ER11-2183. Affidavit on behalf of First Energy Services Company addressing default capacity charges for Fixed Resource Requirement participants in the PJM Reliability Pricing Model capacity market design.

Federal Energy Regulatory Commission. Docket ER11-2059 Affidavit on behalf of First Energy Services Company addressing deficiencies and computational problems in the proposed "exit charges" for transmission owners leaving the MISO RTO related to long term transmission rights.

Federal Energy Regulatory Commission Docket RM10-17. Invited panelist addressing metrics for cost effectiveness of demand response and associated cost allocations and implications for monopsony power.

Federal Energy Regulatory Commission Consolidated Dockets ER10-787-000, EL10-50-000, and EL10-57-000. Two affidavits on behalf of the New England Power Generators Association regarding ISO-NE modified proposals for alternative price rule mitigation and zonal definitions/functions of locational capacity markets.

Federal Energy Regulatory Commission Docket No. ER10-2220-000. Affidavit on behalf of the Independent Energy Producers of New York. Addressing rest of state mitigation thresholds and procedures for adjusting thresholds for frequently mitigated units and reliability must run units.

Federal Energy Regulatory Commission Docket PA10-1. Affidavit on behalf of Entergy Services related to development of security constrained unit commitment software and its performance.

Federal Energy Regulatory Commission Docket No. ER09-1063-004. Testimony on behalf of the PJM Power Providers Group (P3) regarding the proposed shortage pricing mechanism to be implemented in the PJM energy market. Reply comments related to a similar proposal by the independent market monitor.

PJM RTO. Statement regarding the impact of the exercise of buyer market power in the PJM RPM/Capacity market. Panel discussant on the issue at the associated Long Term Capacity Market Issues Symposium.

Federal Energy Regulatory Commission Docket No. ER10-787-000.
Affidavit on behalf of New England Power Generators Association
addressing proper design of the alternative price rules (APR) for the ISO-
NE Forward Capacity Auctions. Second affidavit offered in reply.
Supplemental affidavit also submitted

Federal Energy Regulatory Commission Docket No. RM10-17-000.
Affidavit on behalf of New England Power Generators Association
addressing proper pricing for demand response compensation in organized
wholesale regional transmission organizations.

Federal Energy Regulatory Commission Docket No. RM10-17-000,
Affidavit on my on behalf regarding inconsistent representations made
between filings in this docket and contemporaneous materials presented in
the PJM stakeholder process.

2009

Federal Energy Regulatory Commission Docket No. ER09-1682. Two
affidavits on behalf of an un-named party regarding confidential treatment
of market data coupled with specific market participant bidding, and
associated issues.

American Arbitration Association, Case No. 75-198-Y-00042-09 JMLE,
on behalf of Rathdrum Power LLC. Report on the operation of specific
pricing provision of a tolling power purchase agreement.

Federal Energy Regulatory Commission. Docket No. IN06-3-003.
Analyses on behalf of Energy Transfer Partners L.P. regarding trading
activity in physical and financial natural gas markets.

Federal Energy Regulatory Commission. Docket No. ER08-1281-000.
Analyses on behalf of Fortis Energy Trading related to the impacts
of loop flow on trading activities and pricing.

American Arbitration Association. Report on behalf of PEPCO Energy
Services regarding several trading transactions related to the purchase and
sale of Installed Capacity under the PJM Reliability Pricing Model.

Federal Energy Regulatory Commission Docket No. EL-0-47. Analyses
on behalf of HQ Energy services (U.S.) regarding pricing and sale of
energy associated with capacity imports into ISO-NE.

Federal Energy Regulatory Commission Docket No. ER04-449 019,
Affidavit on behalf of HQ Energy Services (U.S.) regarding the

implementation of the consensus deliverability plan for the NYISO, and associated reliability impacts of imports.

Federal Energy Regulatory Commission Docket ER09-412-000, ER05-1410-010, EL05-148-010. Affidavit and Reply Affidavit on behalf of PSEG Companies addressing proposed changes to the PJM Reliability Pricing Model and rebuttal related to other parties' filings.

2008

Pennsylvania Public Service Commission. *En Banc* Public Hearing on "Current and Future Wholesale Electricity Markets", comments regarding the design of PJM wholesale market pricing and state restructuring.

Maine Public Utility Commission. Docket No. 2008-156. Testimony on behalf of a consortium of energy producers and suppliers addressing the potential withdrawal of Maine from ISO New England and associated market and supplier response.

Federal Energy Regulatory Commission. Docket No. EL08-67-000. Affidavit on behalf of Duke Energy Ohio and Reliant Energy regarding criticisms of the PJM reliability pricing model (RPM) transitional auctions.

Federal Energy Regulatory Commission. Docket AD08-4, on behalf of the PJM Power Providers. Statement and participation in technical session regarding the design and operation of capacity markets, the status of the PJM RPM market and comments regarding additional market design proposals.

Federal Energy Regulatory Commission. Docket ER06-456-006, Testimony on behalf of East Coast Power and Long Island Power Authority regarding appropriate cost allocation procedures for merchant transmission facilities within PJM.

2007

FERC Docket No. EL07-39-000. Testimony on behalf of Mirant Companies and Entergy Nuclear Power Marketing regarding the operation of the NYISO In-City Capacity market and the associated rules and proposed rule modifications.

FERC Dockets: RM07-19-000 and AD07-7-000, filing on behalf of the PJM Power Providers addressing conservation and scarcity pricing issues identified in the Commission's ANOPR on Competition.

FERC Docket No. EL07-67-000. Testimony and reply comments on behalf of Hydro Quebec U.S. regarding the operation of the NYISO TCC market and appropriate bidding and competitive practices in the TCC and Energy markets.

FERC Docket Nos. EL06-45-003. Testimony on behalf of El Paso Electric regarding the appropriate interpretation of a bilateral transmission and exchange agreement.

2006

United States Bankruptcy Court for the Southern District of New York. Case No. 01-16034 (AJG). Report on Behalf of EPMI regarding the properties and operation of a power purchase agreement.

FERC Docket No. EL05-148-000. Testimony regarding the proposed Reliability Pricing Model settlement submitted for the PJM RTO.

FERC Docket No. ER06-1474-000, FERC. Testimony on behalf of the PSEG Companies regarding the PJM proposed new policy for including "market efficiency" transmission upgrades in the regional transmission expansion plan.

FERC Docket No. EL05-148-000, FERC. Participation in Commission technical sessions regarding the PJM proposed Reliability Pricing Model.

FERC Docket No. EL05-148-000, FERC. Comments filed on behalf of six PJM market participants concerning the proposed rules for participation in the PJM Reliability Pricing Model Installed Capacity market, and related rules for opting out of the RPM market.

FERC Docket No. ER06-407-000. Testimony on behalf of GSG, regarding interconnection issues for new wind generation facilities within PJM.

2005

FERC Docket No. EL05-121-000, Testimony on behalf of several PJM Transmission Owners (Responsible Pricing Alliance) regarding alternative regional rate designs for transmission service and associated market design issues.

FERC Technical Conference of June 16, 2005. (Docket Nos. PL05-7-000, EL03-236-000, ER04-539-000). Invited participant. Statement regarding

the operation of the PJM Capacity market and the proposed new Reliability Pricing Model Market design.

American Arbitration Association Nos. 16-198-00206-03 16-198-002070. On behalf of PG&E Energy Trading. Analyses related to the operation and interpretation of power purchase and sale/tolling agreements and electrical interconnection requirements.

Arbitration on behalf of Black Hills Power, Inc. Expert testimony related to a power purchase and sale and energy exchange agreement, as well as FERC criteria related to the applicable code and standards of conduct.

2004

Federal Energy Regulatory Commission. Docket No. Docket No. EL03-236-003 Testimony on behalf of Mirant companies relating to PJM proposal for compensation of frequently mitigated generation facilities.

Federal Energy Regulatory Commission. Docket No. ER03-563-030. Testimony on behalf of Calpine Energy Services regarding the development of a locational Installed Capacity market and associated generator service obligations for ISO-NE. Supplemental testimony filed 2005.

Federal Energy Regulatory Commission. Docket No. EL04-135-000. Testimony on behalf on the Unified Plan Supporters regarding implications of using a flow based rate design to allocate embedded costs.

Federal Energy Regulatory Commission. Docket No. ER04-1229-000. Testimony on behalf of EME Companies regarding the allocation and recovery of administrative charges in the NYISO markets.

Federal Energy Regulatory Commission. Dockets No. EL01-19-000, No. EL01-19-001, No. EL02-16-000, EL02-16-000. Testimony on behalf of PSE&G Energy Resources and Trade regarding pricing in the New York Independent System Operator energy markets.

Federal Energy Regulatory Commission. Invited panelist regarding performance based regulation (PBR) and wholesale market design. Comments related to the potential role of PBR in transmission expansion, and its interaction with market mechanisms for new transmission.

Federal Energy Regulatory Commission. Docket No. ER04-539-000 Testimony on behalf of EME Companies regarding proposed market mitigation in the energy and capacity markets of the Northern Illinois Control Area.

Federal Energy Regulatory Commission. Standardization of Generator Interconnection Agreements and Procedures Docket No. RM02-1-001, Order 2003-A, Affidavit on Behalf of PSEG Companies regarding the modifications on rehearing to interconnection crediting procedures.

Federal Energy Regulatory Commission. Dockets ER03-236-000,ER04-364-000,ER04-367-000,ER04-375-000. Testimony on behalf of the EME Companies regarding proposed market mitigation measures in the Northern Illinois Control Area of PJM.

Federal Energy Regulatory Commission. Dockets PL04-2-000, EL03-236-000. Invited panelist, testimony related to local market power and the appropriate levels of compensation for reliability must run resources.

2003

American Arbitration Association. 16 Y 198 00204 03. Report on behalf of Trigen-Cineregy Solutions regarding an energy services agreement related to a cogeneration facility.

Federal Energy Regulatory Commission. Docket No. EL03-236-000. Testimony on behalf of EME Companies regarding the PJM proposed tariff changes addressing mitigation of local market power and the implementation of a related auction process.

Federal Energy Regulatory Commission. Docket No. PA03-12-000. Testimony on behalf of Pepco Holdings Incorporated regarding transmission congestion and related issues in market design in general, and specifically addressing congestion on the Delmarva Peninsula.

Federal Energy Regulatory Commission. Docket Nos. ER03-262-007, Affidavit on behalf of EME Companies regarding the cost benefit analysis of the operation of an expanded PJM including Commonwealth Edison.

Supreme Court of the State of New York, Index No. 601505/01. Report on behalf of Trigen-Syracuse Energy Corporation regarding energy trading and sales agreements and the operation of the New York Independent System Operator.

Federal Energy Regulatory Commission. Docket No. ER03-262-000. Affidavit on behalf of the EME Companies regarding the issues associated with the integration of the Commonwealth Edison Company into PJM.

Federal Energy Regulatory Commission. Docket No. ER03-690-000. Affidavit on behalf of Hydro Quebec US regarding New York ISO market rules at external generator proxy buses when such buses are deemed non-competitive.

Federal Energy Regulatory Commission. Docket RT01-2-006,007. Affidavit on behalf of the PSEG Companies regarding the PJM Regional Transmission Expansion Planning Protocol, and proper incentives and structure for merchant transmission expansion.

Federal Energy Regulatory Commission. Docket No. ER03-406-000. Affidavit on behalf of seven PJM Stakeholders addressing the appropriateness of the proposed new Auction Revenue Rights/Financial Transmission Rights process to be implemented by the PJM ISO.

Federal Energy Regulatory Commission. Docket No. ER01-2998-002. Testimony on behalf of Pacific Gas and Electric Company related to the cause and allocation of transmission congestion charges.

Federal Energy Regulatory Commission. Docket No. RM01-12-000. On behalf of six different companies including both independent generators, integrated utilities and distribution companies comments on the proposed resource adequacy requirements of the Standard Market Design.

United States Bankruptcy Court, Northern District of California, San Francisco Division, Case No. 01-30923 DM. On behalf of Pacific Gas and Electric Dr. Shanker presented testimony addressing issues related to transmission congestion, and the proposed FERC SMD and California MD02 market design proposals.

2002

Arbitration. Testimony on behalf of AES Ironwood regarding the operation of a tolling agreement and its interaction with PJM market rules.

Federal Energy Regulatory Commission. Docket No. RM01-12-000. Dr. Shanker was asked by the three Northeast ISO's to present a summary of his resource adequacy proposal developed in the Joint Capacity Adequacy Group. This was part of the Standard Market Design NOPR process.

Federal Energy Regulatory Commission. Docket No. ER02-456-000. Testimony on behalf of Electric Gen LLC addressing comparability of a contract among affiliates with respect to non-price terms and conditions.

Circuit Court for Baltimore City. Case 24-C-01-000234. Testimony on behalf of Baltimore Refuse Energy Systems Company regarding the appropriate implementation and pricing of a power purchase agreement and related Installed Capacity credits.

Federal Energy Regulatory Commission. Docket No. RM01-12-000. Comments on the characteristics of capacity adequacy markets and

alternative market design systems for implementing capacity adequacy markets.

2001

Federal Energy Regulatory Commission. Docket ER02-456-000. Testimony on behalf of Electric Gen LLC regarding the terms and conditions of a power sales agreement between PG&E and Electric Generating Company LLC.

Delaware Public Service Commission. Docket 01-194. On behalf of Conectiv et al. Testimony relating to the proper calculation of Locational Marginal Prices in the PJM market design, and the function of Fixed Transmission Rights.

Federal Energy Regulatory Commission. Docket No. IN01-7-000 On behalf of Exelon Corporation . Testimony relating to the function of Fixed Transmission Rights, and associated business strategies in the PJM market system.

Federal Energy Regulatory Commission. Docket No. RM01-12-000. Comments on the basic elements of RTO market design and the required market elements.

Federal Energy Regulatory Commission. Docket No. RT01-99-000. On behalf of the One RTO Coalition. Affidavit on the computational feasibility of large scale regional transmission organizations and related issues in the PJM and NYISO market design.

Arbitration. On behalf of Hydro Quebec. Testimony related to the eligibility of power sales to qualify as Installed Capacity within the New York Independent system operator.

Virginia State Corporation Commission. Case No. PUE000584. On behalf of the Virginia Independent Power Producers. Testimony related to the proposed restructuring of Dominion Power and its impact on private power contracts.

United States District Court, Northern District of Ohio, Eastern Division, Case: 1:00CV1729. On behalf of Federal Energy Sales, Inc. Testimony related to damages in disputed electric energy trading transactions.

Federal Energy Regulatory Commission. Docket Number ER01-2076-000. Testimony on behalf of Aquila Energy Marketing Corp and Edison Mission Marketing and Trading, Inc. relating to the implementation of an Automated Mitigation Procedure by the New York ISO.

2000

New York Independent System Operator Board. Statement on behalf of Hydro Quebec, U.S. regarding the implications and impacts of the imposition of a price cap on an operating market system.

Federal Energy Regulatory Administration. Docket No. EL00-24-000. *Testimony on behalf of Dayton Power and Light Company* regarding the proper characterization and computation of regulation and imbalance charges.

American Arbitration Association File 71-198-00309-99. Report on behalf of Orange and Rockland Utilities, Inc. regarding the estimation of damages associated with the termination of a power marketing agreement.

Circuit Court, 15th Judicial Circuit, Palm Beach County, Florida. On behalf of Okeelanta and Osceola Power Limited Partnerships et. al. Analyses related to commercial operation provisions of a power purchase agreement.

1999

Federal Energy Regulatory Commission. Docket No. ER00-1-000. *Testimony on behalf of TransEnergie U.S.* related to market power associated with merchant transmission facilities. Also related analyses regarding market based tariff design for merchant transmission facilities.

Federal Energy Regulatory Commission. Docket RM99-2-000. Analyses on behalf of Edison Mission Energy relating to the Regional Transmission Organization Notice of Proposed Rulemaking.

Federal Energy Regulatory Commission. Docket No. ER99-3508-000. On behalf of PG&E Energy Trading, analyses associated with the proposed implementation and cutover plan for the New York Independent System Operator.

Federal Energy Regulatory Commission. Docket No. EL99-46-000. Comments on behalf of the Electric Power Supply Association relating to the Capacity Benefit Margin.

New York Public Service Commission, Case 97-F-1563. *Testimony on behalf of Athens Generating Company* describing the impacts on pricing and transmission of a new generation facility within the New York Power Pool under the new proposed ISO tariff.

JAMS Arbitration Case No. 1220019318 *On behalf of Fellows Generation Company*. Testimony related to the development of the independent

power and qualifying facility industry and related industry practices with respect to transactions between cogeneration facilities and thermal hosts.

Court of Common Pleas, Philadelphia County, Pennsylvania. Analyses on behalf of Chase Manhattan Bank and Grays Ferry Cogeneration Partnership related to power purchase agreements and electric utility restructuring.

1998

Virginia State Corporation Commission. Case No. PUE 980463. Testimony on behalf of Appomattax Cogeneration related to the proper implementation of avoided cost methodology.

Virginia State Corporation Commission. Case No. PUE980462 Testimony on behalf of Virginia Independent Power Producers related to an application for a certificate for new generation facilities.

Federal Energy Regulatory Commission. Analyses related to a number of dockets reflecting amendments to the PJM ISO tariff and Reliability Assurance Agreement.

U.S. District Court, Western Oklahoma. CIV96-1595-L. Testimony related to anti-competitive elements of utility rate design and promotional actions.

Federal Energy Regulatory Commission Dockets No. EL94-45-001 and QF88-84-006. Analyses related to historic measurement of spot prices for as available energy.

Circuit Court, Fourth Judicial Circuit, Duval County, Florida. Analyses related to the proper implementation of a power purchase agreement and associated calculations of capacity payments. (Testimony 1999)

1997

United States District Court for the Eastern District of Virginia, CA No. 3:97CV 231. Analyses of the business and market behavior of Virginia Power with respect to the implementation of wholesale electric power purchase agreements.

United States District Court, Southern District of Florida, Case No. 96-594-CIV, Analyses related to anti-competitive practices by an electric utility and related contract matters regarding the appropriate calculation of energy payments.

Virginia State Corporation Commission. Case No. PUE960296. Testimony related to the restructuring proposal of Virginia Power and associated stranded cost issues.

Federal Energy Regulatory Commission. Dockets No. ER97-1523-000 and OA97-470-000, Analyses related to the restructuring of the New York Power Pool and the implementation of locational marginal cost pricing.

Federal Energy Regulatory Commission Dockets No. OA97-261-000 and ER97-1082-000 Analyses and testimony related to the restructuring of the PJM Power Pool and the implementation of locational marginal cost pricing.

Missouri Public Service Commission. Case No. ET-97-113. Testimony related to the proper definition and rate design for standby, supplemental and maintenance service for Qualifying facilities.

American Arbitration Association. Case 79 Y 199 00070 95. Testimony and analyses related to the proper conditions necessary for the curtailment of Qualifying Facilities and the associated calculations of negative avoided costs.

Virginia State Corporation Commission. Case Number PUE960117 Testimony related to proper implementation of the differential revenue requirements methodology for the calculation of avoided costs.

New York Public Service Commission. Case 96-E-0897, Analyses related to the restructuring of Consolidated Edison Company of New York and New York Power Pool proposed Independent System Operator and related transmission tariffs.

1996

Florida Public Service Commission. Docket No. 950110-EI. Testimony related to the correct calculation of avoided costs using the Value of Deferral methodology and its implementation.

Federal Energy Regulatory Commission Dockets No. EL94-45-001 and QF88-84-006. Testimony and Analyses related to the estimation of historic market rates for electricity in the Virginia Power service territory.

Circuit Court of the City of Richmond Case No. LA-2266-4. Analyses related to the incurrence of actual and estimated damages associated with the outages of an electric generation facility.

New Hampshire Public Utility Commission, Docket No. DR96-149. Analyses related to the requirements of light loading for the curtailment of Qualifying Facilities, and the compliance of a utility with such requirements.

State of New York Supreme Court, Index No. 94-1125. Testimony related to system planning criteria and their relationship to contract performance specifications for a purchased power facility.

United States District Court for the Western District of Pennsylvania, Civil Action No. 95-0658. Analyses related to anti-competitive actions of an electric utility with respect to a power purchase agreement.

United States District Court for the Northern District of Alabama, Southern Division. Civil Action Number CV-96-PT 0097-S. Affidavit on behalf of TVA and LG&E Power regarding displacement in wholesale power transactions.

1995

American Arbitration Association. Arbitration No. 14 198 012795 H/K. Report concerning the correct measurement of savings resulting from a commercial building cogeneration system and associated contract compensation issues.

Circuit Court City of Richmond. Law No. LX-2859-1. Analyses related to IPP contract structure and interpretation regarding plant compensation under different operating conditions.

Federal Energy Regulatory Commission. Case EL95-28-000. Affidavit concerning the provisions of the FERC regulations related to the Public Utility Regulatory Policies Act of 1978, and relationship of estimated avoided cost to traditional rate based recovery of utility investment.

New York Public Service Commission, Case 95-E-0172, Testimony on the correct design of standby, maintenance and supplemental service rates for qualifying facilities.

Florida Public Service Commission, Docket No. 941101-EQ. Testimony related to the proper analyses and procedures related to the curtailment of purchases from Qualifying Facilities under Florida and FERC regulations.

Federal Energy Regulatory Commission, Dockets ER95-267-000 and EL95-25-000. Testimony related to the proper evaluation of generation expansion alternatives.

1994

American Arbitration Association, Case Number 11 Y198 00352 94
Analyses related to contract provisions for milestones and commercial
operation date and associated termination and damages related to the
construction of a NUG facility.

United States District Court, Middle District Florida, Case No. 94-303
Civ-Orl-18. Analyses related to contract pricing interpretation other
contract matters in a power purchase agreement between a qualifying
facility and Florida Power Corporation.

Florida Public Service Commission Docket 94037-EQ. Analyses related to
a contract dispute between Orlando Power Generation and Florida Power
Corporation.

Florida Public Service Commission Docket 941101-EQ. Testimony and
analyses of the proper procedures for the determination and measurement
for the need to curtail purchases from qualifying facilities.

New York Public Service Commission Case 93-E-0272, Testimony
regarding PURPA policy considerations and the status of services
provided to the generation and consuming elements of a qualifying
facility.

Circuit Court for the City of Richmond. Case Number LW 730-4.
Analyses of the historic avoided costs of Virginia Power, related
procedures and fixed fuel transportation rate design.

New York Public Service Commission, Case 93-E-0958 Analyses of
Stand-by, Supplementary and Maintenance Rates of Niagara Mohawk
Power Corporation for Qualifying Facilities .

New York Public Service Commission, Case 94-E-0098. Analyses of cost
of service and rate design of Niagara Mohawk Power Corporation.

American Arbitration Association, Case 55-198-0198-93, Arbitrator in
contract dispute regarding the commercial operation date of a qualifying
small power generation facility.

1993

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Exhibit RJS-2

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