

**BEFORE THE  
PUBLIC UTILITIES COMMISSION OF OHIO**

<b>In the Matter of the Application of</b>	)	
<b>Columbus Southern Power Company and</b>	)	
<b>Ohio Power Company for Authority to</b>	)	<b>Case No. 11-346-EL-SSO</b>
<b>Establish a Standard Service Offer</b>	)	<b>Case No. 11-348-EL-SSO</b>
<b>Pursuant to §4928.143, Ohio Rev. Code,</b>	)	
<b>in the Form of an Electric Security Plan</b>	)	

<b>In the Matter of the Application of</b>	)	
<b>Columbus Southern Power Company and</b>	)	<b>Case No. 11-349-EL-AAM</b>
<b>Ohio Power Company for Approval of</b>	)	<b>Case No. 11-350-EL-AAM</b>
<b>Certain Accounting Authority</b>	)	

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**DIRECT TESTIMONY OF  
RODNEY FRAME  
ON BEHALF OF FIRSTENERGY SOLUTIONS CORP.**

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1     **I. INTRODUCTION, PURPOSE AND SUMMARY OF CONCLUSIONS**

2     **Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.**

3     A.           My name is Rodney Frame. I am employed by Analysis Group, Inc. (Analysis  
4           Group), where I was a Managing Principal until July 1, 2011, at which point I became an  
5           Affiliate. Analysis Group is a firm that provides microeconomic, financial and strategy  
6           consulting services. We have approximately 500 employees and offices in Boston,  
7           Chicago, Dallas, Denver, Los Angeles, Menlo Park, Montreal, New York, San Francisco  
8           and Washington, DC, where I am located. My business address is 1899 Pennsylvania  
9           Avenue, NW, Suite 200, Washington, DC 20006.

10    **Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL AND BUSINESS**  
11    **BACKGROUND.**

12    A.           I received an undergraduate degree in business from George Washington  
13           University in Washington, DC. Also at George Washington, I completed all  
14           requirements for a Ph.D. in Economics with the exception of the dissertation. I have been  
15           employed by Analysis Group since January 1998. Prior to my affiliation with Analysis  
16           Group, I was a Vice President at National Economic Research Associates, Inc., where I  
17           was employed from 1984 to January 1998. My professional experience and  
18           qualifications are summarized in my résumé, which is included as Exhibit RF-1 to this  
19           testimony. Most of my professional work has involved consulting with electric industry  
20           clients on a variety of matters including restructuring issues, wholesale bulk power  
21           markets and competition, transmission access and pricing, contractual terms for  
22           wholesale service, antitrust, mergers and acquisitions and contracting for generation  
23           supplies from non-utility suppliers.

1 **Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY BEFORE REGULATORY**  
2 **COMMISSIONS AND COURTS?**

3 A. Yes. I have testified on numerous occasions, before the Federal Energy  
4 Regulatory Commission (FERC), state regulatory commissions, federal and local courts,  
5 the Armed Services Board of Contract Appeals and the Commerce Commission of New  
6 Zealand. My résumé, Exhibit RF-1 includes a list of such occasions. I provided  
7 testimony to the Public Utilities Commission of Ohio (Commission) on behalf of the  
8 Ohio operating companies of FirstEnergy Corp. in Case No. 02-1944-EL-CSS.

9 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

10 A. I am testifying on behalf of FirstEnergy Solutions Corp. (FirstEnergy Solutions).

11 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

12 A. I first provide an overview of the AEP Pool Agreement<sup>1</sup> with a particular focus on  
13 areas that might be relevant if AEP Ohio<sup>2</sup> were to implement a competitive bidding  
14 process (CBP) for procuring Standard Service Offer (SSO) supply prior to the  
15 termination of the AEP Pool Agreement. I then consider specifically whether the AEP  
16 Pool Agreement contains any provisions that would preclude the implementation by AEP  
17 Ohio of a CBP for procuring its SSO supply while the AEP Pool Agreement remains in

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<sup>1</sup> I use the term “AEP Pool Agreement” to refer to the “Interconnection Agreement Between Appalachian Power Company, Kentucky Power Company, Ohio Power Company, Columbus and Southern Electric Company, Indiana & Michigan Electric Company and with American Electric Power Service Corporation, as Agent,” originally dated July 6, 1951 but modified and supplemented on August 1, 1951, September 20, 1962, April 1, 1975, August 1, 1979, August 27, 1979 and November 1, 1980. A copy of the AEP Pool Agreement is included as Exhibit RF-2 to this testimony.

<sup>2</sup> On December 31, 2011, Columbus Southern Power Company (CSP) was merged into Ohio Power Company (OPCO), with OPCO as the surviving firm. I generally refer herein to the merged firm as AEP Ohio.

1 effect. Finally, I consider potential pool-related economic implications if such a CBP  
2 were implemented while the AEP Pool Agreement was in effect.

3 **Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.**

4 A. There are no provisions in the AEP Pool Agreement that would preclude the  
5 implementation by AEP Ohio of a CBP for procuring electricity to support its SSO  
6 supply. As related to the AEP Pool Agreement, the economic impact on AEP Ohio and  
7 other Members of the AEP Pool from purchases and sales under a CBP should be off-  
8 setting, or largely so. I recommend that the Commission move toward a CBP and a  
9 market-priced SSO for AEP Ohio as soon as possible.

10 To be sure, depending on how it is structured, the implementation of a CBP by  
11 AEP Ohio could create “stranded costs” for AEP Ohio in the sense that its generation  
12 capacity would not receive the same amount when forced to rely on the market for its  
13 revenues than it would under the traditional system of regulation. However, this issue is  
14 not related to the AEP Pool Agreement but rather is a direct outcome of moving from a  
15 regulated system of retail electric price determination to a market-oriented system.  
16 Moreover, as I understand things, the time has passed for stranded cost recovery in Ohio  
17 as a result of industry restructuring.

18 **II. OVERVIEW OF THE AEP POOL AGREEMENT**

19 **Q. HAVE YOU REVIEWED THE AEP POOL AGREEMENT?**

20 A. Yes.

1   **Q.     WHO ARE THE CURRENT PARTIES TO THE AEP POOL AGREEMENT?**

2   A.           The current parties to the AEP Pool Agreement are Appalachian Power Company  
3           (APCO), Kentucky Power Company (KPCO), Ohio Power Company (OPCO) (generally  
4           referred to as AEP Ohio herein), Indiana Michigan Power Company (I&M) and  
5           American Electric Power Service Corporation (AEPSC).<sup>3</sup> APCO, KPCO, OPCO and  
6           I&M are referred to Members in the AEP Pool Agreement while AEPSC is the Agent for  
7           the Members.

8   **Q.     WHAT PRINCIPAL TOPICS ARE ADDRESSED IN THE AEP POOL**  
9   **AGREEMENT?**

10 A.           The AEP Pool Agreement addresses a number of topics. Among other things, it  
11 does the following:

- 12               • provides for the interconnected operations of the Members' transmission  
13               systems;
- 14               • establishes an Operating Committee to work with the Agent AEPSC in the  
15               coordination and operation of the Members' systems;
- 16               • establishes the responsibilities of AEPSC as Agent to help the Members  
17               achieve "fuller realization of the benefits and advantages through  
18               coordinated operation of their electric supply facilities ....";
- 19               • obligates each of the Members, "to the extent practicable," to own or  
20               acquire by contract, sufficient generating capacity to supply its own  
21               customers; and

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<sup>3</sup> As indicated, CSP, formerly a Member of the AEP Pool, was merged into OPCO effective December 31, 2011.

- provides for the coordinated operation of the Members' owned and purchased generating resources on a "single system" basis.

Of particular relevance in considering the potential implications of a CBP by AEP Ohio, the AEP Pool Agreement specifies: (i) procedures for the sharing of capacity costs among the Members to account for relative surpluses and deficits; (ii) the compensation arrangements for internal energy transactions among the Members; and (iii) the cost and benefit sharing arrangements for electricity transactions with external parties, both those made by an individual Member and those made by the Agent "on behalf of the collective interest of the Members."

**Q. WHAT ARE SOME OF AEPSC's RESPONSIBILITIES UNDER THE AEP POOL AGREEMENT?**

A. As Agent, AEPSC's responsibilities under the AEP Pool Agreement include coordinating the operation of the Members' owned and purchased electric power sources; making arrangements with non-affiliated suppliers, referred to as "Foreign Companies" in the agreement, for the purchase, sale and interchange of power and energy between such suppliers and the Members; and record keeping and settlements relating to the supply of capacity and energy under the AEP Pool Agreement. In this regard, the AEP Pool Agreement establishes a "System Account," administered by AEPSC, where payments made by Members each month for capacity and energy received under the AEP Pool Agreement match payments to Members for supplying such capacity and energy.

1 **Q. DOES THE AEP POOL AGREEMENT ESTABLISH THE AGENT AS THE**  
2 **EXCLUSIVE ENTITY FOR ENTERING INTO TRANSACTIONS BETWEEN**  
3 **THE MEMBERS AND FOREIGN COMPANIES?**

4 A. No. The AEP Pool Agreement does not establish the Agent, AEPSC, as the  
5 exclusive party for entering into transactions between Members and Foreign Companies.  
6 Rather, the AEP Pool Agreement specifically contemplates that individual Members  
7 might enter into such transactions on their own accounts. For example, Section 3.15,  
8 which provides that the Agent may enter into transactions with Foreign Companies on  
9 behalf of the Members, notes that any such arrangements made by the Agent on behalf of  
10 the Members are “in addition to similar arrangements to be made under agreements  
11 between an individual Member and a Foreign Company ....” Other sections of the AEP  
12 Pool Agreement also suggest that individual Members may enter into such transactions.  
13 Thus, Section 5.7.2 specifically refers to the sale of capacity by a Member to a Foreign  
14 Company “for its own account.” Under Section 7.1, certain external transactions are  
15 excluded from the direct sharing of costs and benefits among the Members: (i) any sale  
16 of power “included in a Member’s Member Load Obligation,” which consists of the  
17 Member’s internal load plus firm sales to Foreign Companies and AEP affiliates that are  
18 not Members;<sup>4</sup> and (ii) any purchase of power from Foreign Companies or AEP affiliates  
19 that is included in a Member’s Member Primary Capacity. However, while the AEP Pool  
20 Agreement does contemplate that individual Members may enter into transactions with  
21 Foreign Companies, it also provides that, under some circumstances, such Member

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<sup>4</sup> A “firm sale is characterized by the Member assuming the load obligation as its own firm power commitment and by the Member retaining advantages accruing from meeting the load.” AEP Pool Agreement, at Section 5.2.



1 transactions with Foreign Companies will be considered as transactions made on behalf  
2 of the collective interests of the members.

3 **Q. PLEASE DESCRIBE THE SHARING OF CAPACITY COSTS AMONG THE**  
4 **MEMBERS UNDER THE AEP POOL AGREEMENT TO ACCOUNT FOR**  
5 **RELATIVE SURPLUSES AND DEFICITS.**

6 A. The capacity cost sharing procedures are set forth in Sections 6.2 and 6.3 of the  
7 AEP Pool Agreement. Basically, under these procedures, Members that are relatively  
8 “short” of capacity—*i.e.*, those whose percent of total pool-wide capacity is lower than  
9 their respective percent of total pool-wide load—make “equalization” payments to the  
10 System Account while Members that are relatively “long”—*i.e.*, those with a higher  
11 percent of total pool-wide capacity than their percent of total pool-wide load—receive  
12 cost-based equalization payments from the System Account. The sum of the amounts  
13 paid by those making equalization payments matches the sum of receipts by those  
14 receiving equalization payments, on a monthly basis.

15 More precisely, each Member’s relative share of the total pool-wide load of all  
16 Members is determined. This ratio is referred to as the Member Load Ratio or MLR.  
17 The determination of the MLRs is based on the Members’ relative Member Maximum  
18 Demands, where a Member’s Member Maximum Demand each month is equal to its  
19 highest (clock-hour integrated) load obligation<sup>5</sup> during the previous 12 months. The  
20 MLR for a particular Member is equal to its Member Maximum Demand divided by the  
21 sum of the Member Maximum Demands of all the Members.

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<sup>5</sup> Under Section 5.2 of the AEP Pool Agreement, a Member’s Member Load Obligation is equal to its “internal load plus any firm power sales to Foreign Companies and to affiliated companies other than Members.”

Each Member's MLR is then multiplied by the System Primary Capacity to determine each Member's Member Primary Capacity Reservation. System Primary Capacity is the sum of the Member Primary Capacity of each of the Members. Member Primary Capacity is the sum of each Member's owned and purchased generating capacity.<sup>6</sup> A Member whose Member Primary Capacity exceeds its Member Primary Capacity Reservation is said to have a Member Primary Capacity Surplus. A Member whose Member Primary Capacity is less than its Member Primary Capacity Reservation is said to have a Member Primary Capacity Deficit.<sup>7</sup> Members with a Member Primary Capacity Surplus receive cost-based equalization payments from the System Account while Members with a Member Primary Capacity Deficit make cost-based equalization payments to the System Account.

**Q. PLEASE PROVIDE AN EXAMPLE.**

A. Assume that AEP Ohio's MLR is 40 percent, and the MLRs for APCO, I&M and KPCO are 30 percent, 20 percent and 10 percent, respectively. Assume further that AEP Ohio has 4,500 MW of Member Primary Capacity, while APCO, I&M and KPCO have Member Primary Capacity of 2,500 MW, 1,500 MW and 1,500 MW, respectively. Thus, the total (AEP East) System Primary Capacity (*i.e.*, the sum of Members' Member Primary Capacity) is 10,000 MW. Under this hypothetical, AEP Ohio's Member Primary

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<sup>6</sup> For purchased capacity to qualify as Member Primary Capacity, it must have been "so designated by the Operating Committee with the approval of the Members." Section 5.7.1 of the AEP Pool Agreement is a non-exhaustive list of considerations the Operating Committee is to take into account in determining whether or not such a designation is appropriate.

<sup>7</sup> The determination of whether or not a Member has a deficit, or a surplus, is not made with respect to that Member's own load obligations, but rather with respect to its net position in comparison to the net position of all Members. Thus, an individual member with generation holdings that slightly exceed its load obligations will still have a deficit if the pool on an overall basis has generation holdings that substantially exceed the pool's total load obligations.

Capacity Reservation is  $.40 \times 10,000 \text{ MW} = 4,000 \text{ MW}$ ; APCO's Member Primary Capacity Reservation is  $.30 \times 10,000 \text{ MW} = 3,000 \text{ MW}$ ; I&M's Member Primary Capacity Reservation is  $.20 \times 10,000 \text{ MW} = 2,000 \text{ MW}$ ; and KPCO's Member Primary Capacity Reservation is  $.10 \times 10,000 \text{ MW} = 1,000 \text{ MW}$ . Because AEP Ohio's Member Primary Capacity of 4,500 MW exceeds its Member Primary Capacity Reservation of 4,000 MW, it has a Member Primary Capacity Surplus of 500 MW. Conversely, because APCO's Member Primary Capacity of 2,500 MW is less than its Member Primary Capacity Reservation of 3,000 MW, it has a Member Primary Capacity Deficit of 500 MW. I&M, with Member Primary Capacity of 1,500 MW but a Member Primary Capacity Reservation of 2,000 MW, also has a Member Primary Capacity Deficit of 500 MW, while KPCO, with Member Primary Capacity of 1,500 MW but a Member Primary Capacity Reservation of 1,000 MW, has a Member Primary Capacity Surplus of 500 MW. This hypothetical example is summarized in Table 1 below.

**Table 1**  
**Member Primary Capacity Surplus and Deficit Example**

	Member Load Ratio %	Member Primary Capacity MW	Member Primary Capacity Reservation MW	Member Primary Capacity Surplus or (Deficit) MW
AEP Ohio	40	4,500	4,000	500
APCO	30	2,500	3,000	(500)
I&M	20	1,500	2,000	(500)
KPCO	10	1,500	1,000	500
<b>Total</b>	<b>100</b>	<b>10,000</b>	<b>10,000</b>	<b>0</b>

In this example, APCO and I&M—the two Members with Member Primary Capacity Deficits—will make equalization payments to the System Account, while AEP

Ohio and KPCO—the two Members with Member Primary Capacity Surpluses—will receive equalization payments from the System Account.

**Q. HOW ARE THE LEVELS OF THE CAPACITY EQUALIZATION PAYMENTS DETERMINED?**

A. The per kW payments made from the System Account to each Member with a Member Primary Capacity Surplus are equal to the sum of (i) the surplus Member's weighted average (embedded) investment cost per kW of non-hydroelectric generation multiplied by a specified Monthly Carrying Charge Factor, and (ii) the surplus Member's per kW non-hydroelectric operating costs, where those operating costs are defined as total production expenses less 100 percent of fuel expenses and 50 percent of maintenance expenses. The per kW payments made to the System Account by Members with a Member Primary Capacity Deficit are equal to the total payments to all Members with a Member Primary Capacity Surplus divided by the total kW deficits of Members with a Member Primary Capacity Deficit. As indicated, these payments are made, and therefore balance, on a monthly basis.

**Q. HAVE YOU PREPARED A TABLE SHOWING CAPACITY EQUALIZATION PAYMENTS IN THE HYPOTHETICAL EXAMPLE PRESENTED ABOVE?**

A. Yes. Table 2 below presents such a hypothetical example of capacity equalization payments under the AEP Pool Agreement, using the above-noted assumptions about Member Primary Capacity holdings and MLRs, as well as specified per kW payments to AEP Ohio and KPCO.

**Table 2**  
**Primary Capacity Equalization Charge Example**

	Member Primary Capacity Surplus or (Deficit) MW	Per kW Month Cost or (Payment) \$	Capacity Equalization Revenue or (Payment) \$
AEP Ohio	500	\$10.00	\$5,000,000
APCO	(500)	\$8.50	(\$4,250,000)
I&M	(500)	\$8.50	(\$4,250,000)
KPCO	500	\$7.00	\$3,500,000
<b>Total</b>	<b>0</b>	<b>N/A</b>	<b>\$0</b>

In this example, the \$10 per kW month and \$7 per kW month payment amounts received by AEP Ohio and KPCO, respectively, represent the assumed cost-based amounts computed using the procedures outlined in Section 6.2 of the AEP Pool Agreement. The \$8.50 per kW month amounts to be paid by APCO and I&M are determined, under Section 6.3 of the AEP Pool Agreement, so that the total cost-based payments to AEP Ohio and KPCO are recouped precisely.

**Q. WHAT “INTERNAL” ENERGY TRANSACTIONS ARE PROVIDED FOR IN THE AEP POOL AGREEMENT?**

A. The AEP Pool Agreement describes two types of “internal” energy transactions, Primary Energy and Economy Energy, with different pricing rules for each.

Primary Energy is defined in Section 5.13 of the AEP Pool Agreement as “[e]lectric energy delivered to the Pool from the Member Primary Capacity of a particular Member to meet another Member’s deficiency in capacity.” According to Section 5.13, the deficiency can result for one or both of two reasons: first where the Member does not have sufficient Member Primary Capacity to meet its Member Load

Obligation, and second, where the Member has too great of a portion of its Member Primary Capacity out of service for maintenance in comparison to its Member Load Obligation.

Economy Energy is defined in Section 5.14 of the AEP Pool Agreement as “[e]lectric energy delivered to the Pool from the Member Primary Capacity of a particular Member to displace energy that otherwise would be supplied by less efficient Member Primary Capacity of another Member to meet its Member Load Obligation.”

**Q. HOW IS PRIMARY ENERGY PRICED UNDER THE AEP POOL AGREEMENT?**

A. Primary Energy is priced on the basis of the average energy production costs of each Member that supplies Primary Energy into the pool. More specifically, each Member that provides Primary Energy to the pool is paid (from the System Account), for each kWh delivered, the per kWh variable production costs (defined to include fuel and one-half of maintenance expenses) associated with its non-hydroelectric Member Primary Capacity, determined on a monthly basis. This is referred to as the Member Primary Energy Rate. Members receiving Primary Energy from the pool make payments to the System Account based on the Primary Energy Rates of the Members that supply the Primary Energy, with Section 6.5 of the agreement providing that the Agent will keep records indicating “the receiving Member and the supplying Member for each kilowatt-hour classified as Primary Energy.”

**Q. HOW IS ECONOMY ENERGY PRICED UNDER THE AEP POOL AGREEMENT?**

A. Economy Energy delivered to the pool by Members is priced on a “split savings” basis. The split savings amount is determined as the per kWh amount that is half way

1 between the selling Member's "out-of-pocket" cost for supplying that kWh and the  
2 buying Member's avoided out-of-pocket costs from not having to supply the kWh from  
3 its own generation resources. Out-of-pocket costs include fuel and an appropriate portion  
4 of maintenance expense as determined by the Operating Committee. Supply from the  
5 selling Member is deemed to come from its highest cost source then used to meet its  
6 Member Load Obligation. Thus, the selling Member's most efficient generating  
7 resources (on an out-of-pocket cost basis) are used first to meet its own load obligations.  
8 The buying Member's avoided out-of-pocket costs are based upon its most efficient  
9 operable but unloaded generation capacity. Thus, its more efficient generating resources  
10 are also used to meet its own load obligations. The AEP Pool Agreement does not  
11 specify precisely how individual buyer and seller Economy Energy kWh are matched to  
12 determine split savings amounts.

13 **Q. PLEASE DESCRIBE GENERALLY THE TREATMENT OF EXTERNAL**  
14 **PURCHASES UNDER THE AEP POOL AGREEMENT.**

15 A. Under the AEP Pool Agreement, external purchases are treated as Member  
16 Primary Capacity, "if so designated by the Operating Committee with the approval of the  
17 Members" (Section 5.7 of the AEP Pool Agreement),<sup>8</sup> and otherwise are treated as what  
18 can be termed "system purchases." I use the term "system purchases" to refer to all  
19 purchases that are not designated as Member Primary Capacity, whether such purchases

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<sup>8</sup> Section 5.7.1 of the AEP Pool Agreement provides a non-exhaustive list of the "circumstances and considerations" to be taken into account by the Operating Committee in making its determination as to whether or not a Member purchase will qualify as Member Primary Capacity. Among these items is the term of the purchase, "a commitment from a reliable source of power and energy for at least five years being normally regarded as appropriate for inclusion as a capacity source of a particular Member, with purchases of a short or intermediate duration being normally regarded as System purchases under Article 7."

1        were entered into by an individual Member or by the Agent on behalf of the Members.<sup>9</sup>

2        These two categories (purchases of Member Primary Capacity and system purchases) are  
3        treated differently under the AEP Pool Agreement.

4                The costs and benefits of system purchases are shared by the Members in  
5        proportion to their MLRs. See Sections, 7.1, 7.2, 7.3 and 7.4 of the AEP Pool  
6        Agreement.

7                Initially, the costs of purchased Member Primary Capacity are borne directly by  
8        the acquiring Member. However, because of the cost-sharing procedures embodied in the  
9        Primary Capacity Equalization Charge, some portion of those directly-borne costs of  
10       purchased Member Primary Capacity effectively are shared with other Members. Thus,  
11       hypothetically, if a Member were to purchase additional capacity that it was permitted by  
12       the Operating Committee to include in its Member Primary Capacity, that would increase  
13       the total amount of Member Primary Capacity used to calculate each Member's Member  
14       Primary Capacity Reservation. Accordingly, each Member's Member Primary Capacity  
15       Reservation would increase. This is illustrated in Table 3, which uses the same  
16       assumptions as Table 1 but increases I&M's Member Primary Capacity by 500 MW.  
17       The effect is to change each Member's Member Primary Capacity Reservation and each  
18       Member's Member Primary Capacity Surplus or Member Primary Capacity Deficit. As a  
19       result, each of the other Members will make greater equalization payments to the System  
20       Account, or receive lower disbursements from it. The addition of new Member Primary

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<sup>9</sup> For purchases that are not designated as Member Primary Capacity, the cost and sharing provisions are the same whether the purchase was entered into by an individual Member or the Agent. See, e.g., Section 7.1 of the AEP Pool Agreement, which states as follows: "All other types of transactions carried out by any Member or on behalf of the Members with any Foreign Company shall be considered a transaction made on behalf of the collective interest of the Members. Costs and benefits associated with such transactions shall be shared proportionately as herein-below provided."



Capacity by one Member also may create energy benefits, a portion of which effectively would flow to other Members of the AEP Pool under the pool's arrangements for the pricing of internal energy transactions and the sharing of benefits from external energy transactions.

**Table 3**  
**Member Primary Capacity Surplus and Deficit Example**  
**I&M Adds 500 MW**

	Member Load Ratio %	Member Primary Capacity MW	Member Primary Capacity Reservation MW	Member Primary Capacity Surplus or (Deficit) MW
AEP Ohio	40	4,500	4,200	300
APCO	30	2,500	3,150	(650)
I&M	20	2,000	2,100	(100)
KPCO	10	1,500	1,050	450
<b>Total</b>	<b>100</b>	<b>10,500</b>	<b>10,500</b>	<b>0</b>

**Q. PLEASE GENERALLY DESCRIBE THE SHARING OF THE COSTS AND BENEFITS OF EXTERNAL SALES UNDER THE AEP POOL AGREEMENT.**

A. The AEP Pool Agreements specifically refers to three types of external sales—system sales, firm sales included in a Member's Member Load Obligation, and unit or non-firm capacity sales from a Member's Member Primary Capacity—with different sharing provisions for each.

What I refer to as system sales are sales of power to non-affiliated companies (*i.e.*, Foreign Companies) made on behalf of the collective interest of all of the Members. *See, e.g.*, Section 7.1 of the AEP Pool Agreement. Under the AEP Pool Agreement, the

1 costs and benefits from such system transactions are shared by the Members in  
2 proportion to their MLRs.<sup>10</sup>

3 The costs and benefits of firm sales to Foreign Companies that are included in that  
4 Member's Member Load Obligation are not shared directly with the other Members.  
5 However, such firm sales affect the Members' MLRs and therefore the level of  
6 equalization payments and receipts.

7 Unit or non-firm sales of capacity from a Member to an unaffiliated company or a  
8 Foreign Company are considered to be made by the Member "for its own account" and  
9 therefore netted from what otherwise would be its Member Primary Capacity.<sup>11</sup> The  
10 benefits from such a unit or non-firm sale would not be shared directly; however one  
11 Member's sale of Member Primary Capacity will affect other Members via the pool's  
12 capacity equalization process and energy benefit sharing provisions.

13 **Q. HOW IS AEP OHIO'S PROVISION OF UNBUNDLED CAPACITY TO SATISFY**  
14 **THE UNBUNDLED CAPACITY REQUIREMENTS OF RETAIL LOAD THAT**  
15 **HAS SWITCHED TO A COMPETITIVE RETAIL ELECTRIC SERVICE**  
16 **PROVIDER ACCOMODATED UNDER THE AEP POOL AGREEMENT?**

17  
18 A. My understanding is that load served by CRES providers remains in a Member's  
19 Member Maximum Demand and that the Member's MLR is not affected by retail

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<sup>10</sup> Section 7.5 of the AEP Pool Agreement provides as follows: "Settlement by the Members through the System Account for electric power and energy sales to Foreign Companies shall be governed by the principle that the difference between the amount charged a Foreign Company for the power and energy supplied under such a sale and the production expenses ... shall be shared by the Members in proportion to the respective Member Load Ratios."

<sup>11</sup> See Section 5.7.2 of the AEP Pool Agreement. A unit capacity sale is the sale of capacity and associated energy from a particular generating unit. As such, unless alternative "back up" arrangements are in place, the energy output under a unit power transaction will be available to the purchaser only when and to the extent that the generator supporting the transaction actually is operating and generating output. Under such conditions, the capacity covered by the transaction is typically considered to be "non-firm." In contrast, there is an expectation that energy associated with "firm" capacity purchases will be available all of the time, or nearly all of the time.

1 shopping.<sup>12</sup> As such, the revenues from the unbundled capacity sales are not shared as  
2 they would be under a system transaction.

3 **Q. IS THERE A PROVISION IN THE AEP POOL AGREEMENT RELATING TO**  
4 **MODIFICATION?**

5 A. Yes. Section 12.1 of the AEP Pool Agreement allows any Member to call for a  
6 “reconsideration of the terms and conditions” of the agreement with written notice to the  
7 Agent and the other Members not less than 90 days prior to the beginning of any calendar  
8 year covered by the agreement. Section 12.1 further provides that, if the Members agree  
9 to any modifications as a result of the called-for reconsideration, those modifications will  
10 become effective January 1 of the calendar year following the 90-day notice. Thus,  
11 assuming appropriate regulatory approvals, the Members currently can make  
12 modifications to the Pool Agreement that would become effective January 1, 2013.

13 **Q. IS THERE A PROVISION IN THE AEP POOL AGREEMENT RELATING TO**  
14 **TERMINATION?**

15 A. Yes. Section 13.2 provides as follows: “Any member upon at least three years’  
16 prior written notice to the other Members and Agent may terminate this agreement at the  
17 expiration of said initial period [which was December 31, 1971], or at the expiration of  
18 any successive period of one year.” Each of the Members has given notice to the others  
19 to terminate the agreement on January 1, 2014. When the Members filed with FERC on  
20 February 10, 2012 for approval of the noticed termination, they stated that the three-year

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<sup>12</sup> Hearing Transcript, Case No. 11-346-EL-SSO, Vol. II, pp. 718-19 (AEP Ohio witness Nelson explaining that retail shopping in Ohio does not affect the MLR because: “The whole AEP East is FRR and as a subset of that AEP Ohio is an FRR entity and has that obligation to supply capacity for their customers whether they shopped or not. That was the basis for that determination of how you treat customer shopping for purposes of the MLR.” PJM’s Fixed Resource Requirement Alternative is set forth in Schedule 8.1 of the Reliability Assurance Agreement Among Load Serving Entities in the PJM Region.

1 period could be waived and that, in fact, they had agreed to waive it. Instead of  
2 terminating the pool effective January 1, 2014, the Members asked FERC to approve  
3 termination of the pool effective with the corporate separation of AEP Ohio planned for  
4 the first quarter of 2013. This request was withdrawn later that month.

5 **III. THE AEP POOL AGREEMENT AND CBP BY AEP OHIO**

6 **Q. ARE YOU FAMILIAR WITH THE TYPE OF CBPs THAT MANY PJM LOAD-**  
7 **SERVING ENTITIES HAVE USED TO ACQUIRE WHOLESALE ELECTRIC**  
8 **SUPPLIES TO MEET THEIR SSO (OR EQUIVALENT) SUPPLY**  
9 **OBLIGATIONS?**

10 A. Yes. A number of load-serving entities (LSEs) in PJM, including Duke Energy  
11 Ohio and the FirstEnergy Ohio Utilities, have used such competitive solicitations (or  
12 procurement auctions) in recent years. While there are differences among them, common  
13 characteristics in many of these auctions include that (i) the auctions are conducted for a  
14 full requirements “slice-of-load” product where the sellers are required to provide all  
15 components of that product package (*e.g.*, including energy, “load shaping,” congestion,  
16 unbundled capacity and ancillary services), (ii) the winning bidders bear shopping-related  
17 and certain other risks, (iii) the auctions are conducted using a “descending clock”  
18 format, and (iv) the winning bidders are paid the “clearing” prices resulting from the  
19 auction. Likely, an LSE purchasing electricity in such an auction will piece its  
20 requirements out over multiple auctions and, as a result, develop “blended” rates for its  
21 SSO that reflect all of those auctions.

1 **Q. WOULD ANY PROVISIONS IN THE AEP POOL AGREEMENT PREVENT AEP**  
2 **OHIO FROM USING SUCH AN AUCTION MECHANISM TO OBTAIN**  
3 **SUPPLIES TO MEET ITS SSO LOAD WHILE THE AGREEMENT STILL IS IN**  
4 **EFFECT?**

5 A. No. This is true whether such an auction was implemented as an “energy-only”  
6 auction, as conditionally suggested on a limited basis by AEP Ohio witness Mr. Robert P.  
7 Powers at page 20 of his March 30, 2012 testimony in this proceeding, or whether a  
8 “full” capacity and energy auction were to be implemented. In a discovery response,  
9 AEP witness Mr. Philip J. Nelson confirmed that the Pool Agreement does not explicitly  
10 preclude AEP Ohio from conducting a CBP to support its SSO.<sup>13</sup>

11 My understanding is that, in most of the recent solicitations that have been  
12 conducted by PJM entities, the LSE purchases electricity from the winning bidders but  
13 retains the responsibility to provide SSO service to its customers. Thus, the auction is  
14 used as a mechanism to implement a power purchase by the LSE. As discussed above,  
15 the AEP Pool Agreement specifically contemplates that individual Members can make  
16 purchases from external suppliers. Using an auction arrangement would represent one  
17 form of such an external purchase.

18 **Q. DO YOU HAVE ANY FURTHER COMMENTS ON WHETHER AEP OHIO**  
19 **COULD IMPLEMENT A CBP WHILE THE AEP POOL AGREEMENT STILL**  
20 **IS IN EFFECT?**

21 A. Yes. In his testimony, Mr. Powers indicates that AEP Ohio would be willing to  
22 “engage in” an “energy-only, slice-of-system auction for 5 % of the SSO load” while the  
23 AEP Pool Agreement still is in effect so long as certain preconditions hold, including that  
24 “AEP Ohio must be made whole to avoid the financial exposure it would otherwise face,

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<sup>13</sup> CSP’s and OPCO’s Response to STIP-FES-INT-25-030, included as Exhibit RF-3 to this testimony.

1 including financial impacts of the early auction under the AEP Pool Agreement.” While  
2 Mr. Powers does not explain precisely what he means by an “energy-only, slice-of-  
3 system” auction, such an auction could be similar to the auction that Duke Energy Ohio  
4 has implemented. Under Duke Energy Ohio’s auction, it provides unbundled capacity to  
5 support successful bidders who supply the other ingredients of the full-requirements  
6 package. In any case, the testimony of Mr. Powers on this score seems to provide clear  
7 agreement by AEP Ohio that the AEP Pool Agreement would not prevent the  
8 implementation of an auction to acquire supplies to meet its SSO load obligations while  
9 the agreement is in effect.

10 **Q. ARE THERE ANY PROVISIONS IN THE AEP POOL AGREEMENT THAT**  
11 **DISTINGUISH BETWEEN PURCHASES THAT A MEMBER MIGHT MAKE AS**  
12 **PART OF AN AUCTION PROCESS (OR OTHER CBP) AND ANY OTHER**  
13 **PURCHASES THAT A MEMBER MIGHT MAKE TO HELP IT MEET ITS**  
14 **LOAD OBLIGATIONS?**

15 A. No. As discussed above, the AEP Pool Agreement permits individual Members  
16 to enter into unilateral power purchase agreements with non-affiliated suppliers, and  
17 specifies the manner in which costs and revenues associated with such transactions will  
18 be treated. I discuss this further below. Based on my knowledge of the AEP Pool  
19 Agreement, I see no reason why the same process would not apply to any procurements  
20 by AEP Ohio through an auction or other CBP.

1 **Q. ASSUME THAT AEP OHIO IMPLEMENTS A CBP WHILE THE AEP POOL**  
2 **AGREEMENT REMAINS IN EFFECT AND THAT, UNDER THAT CBP, AEP**  
3 **OHIO REMAINS RESPONSIBLE FOR SERVING ITS NON-SHOPPING**  
4 **RETAIL CUSTOMERS. UNDER THESE CIRCUMSTANCES, HOW WOULD**  
5 **THE USE OF A CBP AFFECT AEP OHIO'S MLR UNDER THE AEP POOL**  
6 **AGREEMENT?**

7 A. The use of a CBP would not affect AEP Ohio's MLR under the AEP Pool  
8 Agreement. AEP Ohio would still be the entity responsible for serving the SSO load that  
9 was covered by such a CBP. As such, the use of a CBP by AEP Ohio would not affect its  
10 Member Maximum Demand under the AEP Pool Agreement. It likewise would not  
11 affect the Member Maximum Demand of any other Member. As such, AEP Ohio's MLR  
12 would not be affected by AEP Ohio's use of a CBP.<sup>14</sup> Stated differently, the CBP  
13 represents a way for AEP Ohio to acquire supplies to serve its SSO load, but does not  
14 change the level of that load.

15 As well, under its existing FRR commitment with PJM, AEP is obligated to  
16 supply all of the capacity requirements on the AEP East system, including those for AEP  
17 Ohio, through May 31, 2015. This FRR obligation exists whether or not AEP  
18 implements a CBP and, therefore, reinforces the interpretation that AEP Ohio's MLR  
19 would be unchanged if a CBP were used. Indeed, the pool Members have agreed that this  
20 is the case with regard to retail shopping in Ohio. As long as AEP Ohio satisfies the  
21 capacity requirements of retail load that has switched to a third-party supplier, that load is  
22 considered part of AEP Ohio's Member Maximum Demand.

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<sup>14</sup> As noted above, the MLR is the ratio of a Member's member Maximum Demand to the sum of the Member Maximum Demands of all of the Members. The Member Maximum Demand in any calendar month is equal to the maximum demand experienced by the Member during the previous 12 months, determined on a clock-hour integrated basis, from its internal load and firm power sales to non-Members. See Sections 5.2, 5.4, 5.5 and 5.6 of the AEP Pool Agreement.

1 **Q. HOW WOULD THE USE OF A CBP AFFECT AEP OHIO'S MEMBER**  
2 **PRIMARY CAPACITY UNDER THE AEP POOL AGREEMENT?**

3 A. The use of a CBP by AEP Ohio should not affect its Member Primary Capacity  
4 under the AEP Pool Agreement. The Member Primary Capacity consists of both (i)  
5 capacity at generating stations owned by a Member; and (ii) capacity available to a  
6 Member from affiliated companies or a Foreign Company, if so designated by the  
7 Operating Committee with the approval of the Members. An energy-only CBP would not  
8 affect AEP Ohio's Member Primary Capacity as it would continue to own generating  
9 stations and to obtain capacity from affiliated companies or Foreign Companies as  
10 before.<sup>15</sup>

11 If the product purchased in the CBP included capacity, and that capacity was not  
12 provided by AEP Ohio, AEP Ohio's Member Primary Capacity could be increased if this  
13 treatment of third-party capacity as Member Primary Capacity was authorized by the  
14 other Members and the Operating Committee. This would be unlikely, however, given  
15 that one of the considerations specified in Section 5.7.1 as being part of that authorization  
16 process is that the capacity come from a reliable source of power and energy and  
17 normally be provided for at least a five year term.<sup>16</sup> Section 5.7.1 describes this  
18 consideration as follows: "the term during which such capacity will be available, a  
19 commitment from a reliable source of power and energy for at least five years being

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<sup>15</sup> For example, AEP Ohio obtains capacity and energy from an affiliate, AEP Generating Co., that is produced by the Lawrenceburg plant in Indiana.

<sup>16</sup> Section 5.7.1 of the AEP Pool Agreement also includes two other specific considerations to take into account as part of this determination process. One of these specific considerations is "whether the availability of the purchased capacity will be comparable to the availability of the installed primary capacity of the Members ...." The other specific consideration is "the need on the part of a Member with a Member Primary Capacity deficit of an extended nature to rectify or alleviate such deficit and the interest of all members in maintaining an equalization among the Members of capacity resources over a period of time."



1 normally regarded as appropriate for inclusion as a capacity source of a particular  
2 Member, with purchases of a short or intermediate duration being normally regarded as  
3 System purchases under Article 7.” I do not know what term or delivery period AEP  
4 Ohio might select for its purchases under a CBP supporting its SSO service, but the five-  
5 year “qualification” period for Member Primary Capacity specified in the AEP Pool  
6 Agreement is a much longer period than the delivery periods for SSO-related auctions  
7 that have been conducted by others. Those auctions typically have delivery periods that  
8 run between one and three years. Thus, if AEP Ohio were to use a delivery term for  
9 auction-acquired SSO supplies that was in line with those used by other LSEs, and the  
10 above-noted Section 5.7.1 provision were adhered to, then it seems unlikely that any  
11 purchases made by AEP Ohio in that auction would qualify as Member Primary Capacity  
12 under the AEP Pool Agreement. Stated differently, the use of a CBP by AEP Ohio  
13 should not affect its Member Primary Capacity under the AEP Pool Agreement.

14 **Q. HOW WOULD THE USE OF A CBP BY AEP OHIO TO SUPPORT ITS SSO**  
15 **LOAD AFFECT CAPACITY EQUALIZATION PAYMENTS UNDER THE AEP**  
16 **POOL AGREEMENT?**

17 A. Whether a Member makes or receives capacity equalization payments under the  
18 AEP Pool Agreement depends on its relative load responsibility, as given by its MLR, in  
19 comparison to its relative Member Primary Capacity holdings. Because, as discussed  
20 above, the use of a CBP by AEP Ohio does not affect either AEP Ohio’s MLR or its  
21 Member Primary Capacity holdings, the use of a CBP by AEP Ohio likewise would not  
22 affect capacity equalization payments under the AEP Pool Agreement.

1 **Q. ARE THERE PROVISIONS IN THE AEP POOL AGREEMENT NOT RELATED**  
2 **TO MEMBER PRIMARY CAPACITY THAT COULD ADDRESS PURCHASES**  
3 **BY AEP OHIO UNDER A CBP?**

4 A. Yes. Under Section 5.12 of the AEP Pool Agreement, any energy delivered by a  
5 Foreign Company to AEP Ohio, other than energy associated with AEP Ohio's Member  
6 Primary Capacity, is considered to be energy delivered to the Pool.<sup>17</sup> Such a purchase  
7 would be considered as a "system" purchase under the provisions of Article 7. With  
8 regard to system transactions, Section 7.1 provides that the "[c]osts and benefits  
9 associated with such transactions shall be shared proportionately as herein-below  
10 provided." The provision then describes procedures under which the benefits and costs  
11 of system transactions are shared among the Members based upon their MLRs.

12 Accordingly, if purchases by AEP Ohio in a CBP were considered to be system  
13 purchases under the AEP Pool Agreement, the costs and benefits of those purchases  
14 would be shared by all pool Members, in relative proportion to load, just as would be true  
15 for any other system transaction whether entered into by AEPSC as Agent for the  
16 Members or an individual Member. Of course, as discussed further below, the use of a  
17 CBP by AEP Ohio will create opportunities for AEP Ohio and/or AEPSC to make  
18 additional wholesale system sales, and the same sharing principles would apply to these  
19 as well.

20 **Q. WOULD THE USE OF A CBP BY AEP OHIO POTENTIALLY AFFECT THE**  
21 **LEVEL OF AEP'S PURCHASES AND SALES IN WHOLESALE ENERGY**  
22 **MARKETS, INCLUDING THOSE OPERATED BY PJM?**

23 A. Yes. Assuming that AEP does not itself win all of the supply block, the use of a  
24 CBP by AEP Ohio will allow AEP to make (i) more sales in wholesale energy markets,

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<sup>17</sup> Based on the above discussion, it is unlikely that any CBP-based purchase of energy by AEP Ohio would be considered associated with its Member Primary Capacity.

(ii) fewer purchases in wholesale energy markets, or (iii) some combination of more sales in wholesale energy markets and fewer purchases. To the extent that AEP Ohio would have been a seller in wholesale energy markets before AEP Ohio's use of a CBP, then it will have more energy to sell in wholesale energy markets after the CBP is implemented. This is because whatever AEP-generated electricity would have been used to support AEP Ohio's load in the absence of the CBP now will become available for sale in the wholesale market. To the extent that AEP would have been a purchaser in wholesale energy markets before AEP Ohio's use of a CBP, then it will need to purchase less after the CBP is implemented, and may become a seller.

**Q. HOW WOULD ANY SUCH EXTRA SALES IN WHOLESALE MARKETS BE TREATED UNDER THE AEP POOL AGREEMENT?**

A. If the additional wholesale sales are considered to be system sales under the AEP Pool Agreement, then the benefits will be shared among all Members based upon their relative MLRs. Section 7.5 of the AEP Pool Agreement provides as follows:

“Settlement by the Members through the System Account for electric power and energy sales to Foreign Companies shall be governed by the principle that the difference between the amount charged a Foreign Company for the power and energy supplied under such a sale and the production expenses, i.e., out-of-pocket costs incurred by the System in making such supply, shall be shared by the Members in proportion to the respective Member Load Ratios.”

Depending on their nature, it is also possible to envision situations where the additional sales could be treated as firm sales and therefore part of AEP Ohio's Member Load Obligation under Section 5.2 of the AEP Pool Agreement, or as sales of AEP

Ohio's Member Primary Capacity. As explained above, such transactions are treated differently under the AEP Pool Agreement than are system sales.<sup>18</sup>

**Q. YOU ALSO SAID THAT THE EFFECT OF THE CBP POTENTIALLY MIGHT BE TO REDUCE AEP'S WHOLESALE PURCHASES RATHER THAN TO INCREASE ITS PJM SALES. HOW WOULD THE BENEFITS OF ANY SUCH REDUCED PURCHASES BE SHARED BY THE MEMBERS UNDER THE AEP POOL AGREEMENT?**

A. As I understand things, the cost savings from any such reduced system purchases also would be shared proportionally by the Members based upon their relative MLRs under the AEP Pool Agreement.

**Q WHAT WOULD BE THE CONSEQUENCE UNDER THE AEP POOL AGREEMENT IF AEP OHIO WERE A SUCCESSFUL BIDDER FOR SOME OF THE TRANCHES IN AN AUCTION PROCUREMENT PROCESS?**

A. To the extent that AEP Ohio was a successful bidder, there would be no change in AEP Ohio's Member Load Obligation, Member Primary Capacity, or MLR; no change in the MLRs of other Members; no change in equalization payments or internal energy settlements; and no auction-based change in purchases from or sales to Foreign Companies. To the extent that AEP Ohio was a successful bidder under such an auction procurement process, the *status quo* would be maintained under the AEP Pool Agreement.

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<sup>18</sup> If sales were included as part of AEP Ohio's Member Load Obligation, then the MLRs of all Members would change. If the sales were treated as sales of AEP Ohio's Member Primary Capacity, then the System Primary Capacity would change, as would the Member Primary Capacity Reservation of each of the Members. As a result, equalization payments and internal energy settlements would change under each treatment.

1 **Q. WHAT IS YOUR UNDERSTANDING OF THE NATURE OF AEP'S FRR**  
2 **COMMITMENT?**

3 A. Under that commitment, governed by Schedule 8.1 of PJM's Reliability  
4 Assurance Agreement, AEP is generally obligated to supply all of the unbundled capacity  
5 requirements to serve load in the AEP zone, through May 31, 2015, pursuant to an FRR  
6 Capacity Plan that it has developed (and updates annually) and which is reviewed as to  
7 sufficiency by PJM. Among other things, each capacity resource that is committed under  
8 the FRR Capacity Plan must be identified.

9 **Q. ASSUME THAT AEP OHIO CONDUCTED AN ENERGY-ONLY AUCTION,**  
10 **WHETHER ON A LIMITED BASIS AS SET FORTH IN BY MR. POWERS IN**  
11 **HIS TESTIMONY, OR ON A BROADER BASIS INVOLVING A GREATER**  
12 **QUANTITY OF SSO LOAD. HOW SHOULD THE UNBUNDLED CAPACITY**  
13 **THAT WOULD SUPPORT SUCCESSFUL BIDDERS BE PRICED FOR ANY**  
14 **SUCH ENERGY-ONLY AUCTION?**

15 A. The best approach for pricing unbundled capacity to support bidders in an energy-  
16 only SSO auction would be to use the "unconstrained" or "rest-of-RTO" price for  
17 unbundled capacity, for the appropriate time periods, that results from the Reliability  
18 Pricing Model (RPM) auctions that have been conducted by PJM. This approach, which  
19 yields a proxy for the market price of unbundled capacity for the AEP zone in PJM, has  
20 been used by Duke Energy Ohio. As discussed in the concurrently-file testimony of  
21 Messrs. Lesser and Stoddard in this proceeding, also on behalf of FirstEnergy Solutions,  
22 using this market price proxy is a reasonable way to price capacity in a CBP while AEP  
23 Ohio remains an FRR entity. Any above-market price for unbundled capacity supporting  
24 auction bidders would serve principally to perpetuate the recovery of any stranded costs  
25 by AEP and to delay the full benefits of competition.

1 **Q. BASED ON YOUR KNOWLEDGE OF THE AEP POOL AGREEMENT, WOULD**  
2 **THE REVENUES FROM ANY SUCH UNBUNDLED CAPACITY SALES BY AEP**  
3 **OHIO BE SUBJECT TO SHARING WITH OTHER MEMBERS UNDER THE**  
4 **AEP POOL AGREEMENT?**

5 A. No, the revenues from such an unbundled capacity sale would not be subject to  
6 sharing since Section 7.1 of the AEP Pool Agreement specifically excludes from the  
7 category of transactions where benefits are shared sales of power that are included in a  
8 Member's MLR. Because the load associated with such sales is included as part of AEP  
9 Ohio's MLR, the sharing would not apply.

10 **Q. WHAT TESTIMONY HAS AEP OHIO PROVIDED CONCERNING FINANCIAL**  
11 **CONSEQUENCES IF AN SSO AUCTION WERE IMPLEMENTED WHILE THE**  
12 **AEP POOL AGREEMENT STILL WERE IN EFFECT?**

13 A. The following question and answer appear at page 8 in the March 30, 2012 Direct  
14 Testimony of Philip J. Nelson in this proceeding:

15 Q. CAN AN AUCTION BASED SSO BE ESTABLISHED FOR AEP OHIO'S  
16 NON-SHOPPING LOAD BEFORE CORPORATE SEPARATION IS  
17 IMPLEMENTED AND BEFORE THE AEP POOL IS TERMINATED?  
18

19 A. No, not without the potential to expose AEP Ohio or other AEP Pool members  
20 to significant financial harm. First, the AEP Pool was not designed for, nor  
21 does it have specific provisions that would address this situation. Therefore,  
22 conducting an SSO auction could have substantial impacts on the other  
23 members or subject them to recovery risks in their state jurisdictions.  
24 Conversely, depending on how an auction is treated for AEP Pool settlements,  
25 AEP Ohio might be exposed to significant financial harm. It would also  
26 potentially remove AEP Ohio's generation from participating in the SSO  
27 auction due to the timing difference between the auction and Corporate  
28 Separation.  
29

30 While it is not totally clear, my presumption is that Mr. Nelson here is addressing  
31 a full "capacity and energy" auction rather than the more limited "energy-only" auction  
32 conditionally proposed by Mr. Powers.

1 **Q. DOES MR. NELSON REFER TO ANY SPECIFIC PROVISION IN THE AEP**  
2 **POOL AGREEMENT THAT CREATES THE POTENTIAL TO EXPOSE AEP**  
3 **OHIO AND OTHER POOL MEMBERS TO SIGNIFICANT FINANCIAL HARM**  
4 **IF AN SSO AUCTION IS IMPLEMENTED PRIOR TO CORPORATE**  
5 **SEPARATION AND THE TERMINATION OF THE AEP POOL AGREEMENT?**

6 A. No.

7 **Q. DOES HE EXPLAIN SPECIFICALLY HOW AND WHY SUCH SIGNIFICANT**  
8 **FINANCIAL HARM MIGHT OCCUR?**

9 A. No.

10 **Q. DOES HE PROVIDE ANY QUANTIFICATION OR OTHER DEMONSTRATION**  
11 **OF THE SIGNIFICANT FINANCIAL HARM THAT MIGHT OCCUR?**

12 A. No. AEP Ohio's response to FES-RPD-1-004, included as Exhibit RF-4 to this  
13 testimony, indicates that AEP Ohio does not have any studies that quantify this allegedly  
14 significant financial harm.

15 **Q. IS IT RELEVANT THAT THE AEP POOL AGREEMENT WAS NOT**  
16 **DESIGNED WITH AN SSO AUCTION IN MIND?**

17 A. No. As indicated, the AEP Pool Agreement clearly contemplates that individual  
18 members will make purchases in the market, including purchases that are not classified as  
19 Member Primary Capacity. In this regard, there is no obvious reason to distinguish  
20 between purchases in an auction and other purchases that a pool Member might make.  
21 To be sure, if AEP Ohio were to conduct an auction to support its SSO service, it may  
22 present the pool with issues that it has not heretofore faced, but that in no way means that  
23 such an auction would present insurmountable difficulties or could not be readily  
24 accommodated.

1 **Q. HOW WOULD YOU ASSESS THE FINANCIAL IMPACTS UNDER THE AEP**  
2 **POOL AGREEMENT OF AN ENERGY-ONLY AUCTION CBP THAT AEP**  
3 **OHIO MIGHT CONDUCT TO SUPPORT ITS SSO LOAD?**

4 A. The financial impacts of an energy-only auction under the AEP Pool Agreement  
5 should be relatively slight, whether the auction was confined, as Mr. Power's proposes,  
6 just to 5 percent of the SSO load or whether it involved much larger amounts up to and  
7 including 100 percent of AEP Ohio's SSO load. The principal thrust of such an auction  
8 under the AEP Pool Agreement would be a purchase by AEP Ohio of energy to support  
9 its SSO load and the freeing up of a comparable amount of supply for AEP to make sales  
10 in the PJM market (or elsewhere). But both the energy purchases and the concomitant  
11 sales will occur at competitive market prices. Accordingly, as pertains to the AEP Pool  
12 Agreement, the principal thrust of the "energy-only" auction is a market-priced purchase  
13 and a largely matching market-priced sale. The two are essentially off-setting both as to  
14 pricing principle and quantity. Moreover, because of the manner in which the costs and  
15 benefits of system transactions are shared in the AEP Pool, the market-priced purchase  
16 and the matching market-priced sale also should be largely offsetting from the vantage  
17 point of the individual members. As described above, under the AEP Pool Agreement,  
18 the impacts from both system purchases and system sales would likely be shared on the  
19 same basis, in proportion to relative MLRs.<sup>19</sup>

20 To be sure, the introduction of competitive pricing of unbundled capacity to  
21 support an energy-only auction, as discussed above, could create stranded costs for AEP

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<sup>19</sup> AEP Ohio would be shedding certain risks with an SSO auction (*e.g.*, that shopping customers might return to SSO service when market prices rise), and the auction prices that it pays will reflect sellers' expectations about the costs of shouldering those risks. The prices that the AEP system reaps for the increased sales in the PJM market that are allowed by the SSO auction will not reflect a comparable risk-based "premium." These risk premiums would need to be removed from the amount of the auction payments that flow through AEPSC's System Account in order to maintain comparability.



1 Ohio in the sense that its generation capacity would not receive the same revenues that it  
2 would receive under a system of regulation that is not market-based. Thus, the costs are  
3 “stranded” because the revenues will have decreased. However, the creation of such  
4 stranded costs is not related to the AEP Pool Agreement and is, in fact, independent of it.  
5 That is, the creation of stranded costs is a direct outcome from moving from the  
6 traditional, regulated system of price determination for retail electricity to a more market-  
7 oriented system. Nothing in the AEP Pool Agreement precludes or even counsels against  
8 implementation of market pricing for retail electric service in AEP Ohio’s service  
9 territory.

10 **Q. HOW SHOULD ANY SUCH STRANDED COSTS BE ADDRESSED BY THE**  
11 **COMMISSION?**

12 A. My understanding is that Ohio has made the decision to move from a traditional  
13 (more heavily regulated) regime for electricity supply to a more competitive (and less  
14 heavily regulated) regime and that the time period for electricity suppliers in Ohio to  
15 recover any stranded costs associated with this regime change has passed.<sup>20</sup> My further  
16 understanding is that AEP Ohio has proposed to implement a CBP to support a market-  
17 priced SSO for 100 percent of its load effective June 1, 2015, at which point its stranded  
18 cost recovery presumably would end in any case. The principal question in this regard,  
19 therefore, becomes whether AEP Ohio’s stranded cost recovery should continue up until  
20 June 1, 2015, as is implicit in AEP Ohio’s proposal, or whether it should be terminated

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<sup>20</sup> See R.C. 4928.38 (after termination of transition revenues at end of market development period on December 31, 2005, “the utility shall be fully on its own in the competitive market. The commission shall not authorize the receipt of transition revenues or any equivalent revenues by an electric utility except as expressly authorized in sections 4928.31 to 4928.40 of the Revised Code.”); R.C. 4928.40(A) (directing PUCO to establish transition charge to be collected through December 31, 2005, except that regulatory transition charge may end not later than December 31, 2010.”) See also Direct Testimony of Jonathan A. Lesser filed April 4, 2012 in Case No. 10-2929-EL-UNC.

1           sooner. In my view, the Commission should seek to move toward a CBP and market-  
2           priced SSO for AEP Ohio as soon as that can be done—and therefore reap the  
3           concomitant competition-related benefits—notwithstanding that this will end AEP Ohio’s  
4           period of stranded cost recovery sooner than AEP Ohio would desire.

5   **Q.   DOES THE AEP POOL AGREEMENT CONTAIN PROVISIONS THAT**  
6   **ALLOCATE MEMBERS’ CAPACITY COSTS BETWEEN RETAIL AND**  
7   **WHOLESALE JURISDICTIONS?**

8   A.           No. As discussed above, Sections 6.2 and 6.3 of the AEP Pool Agreement  
9           determine the flow of dollars, through the System Account, from Members that are  
10          relatively short of capacity to Members that are relatively long. However, it does not  
11          allocate the Members’ capacity costs between retail and wholesale jurisdictions.

12 **Q.   DOES THE AEP POOL AGREEMENT PROVIDE GUIDELINES FOR THE**  
13 **COMMISSION IN DETERMINING HOW RETAIL ELECTRIC SERVICE IN**  
14 **OHIO SHOULD BE PRICED?**

15 A.           No. The AEP Pool Agreement contains provisions relating to: (i) capacity  
16          equalization payments from AEP Pool Members that are relatively short to AEP Pool  
17          Members that are relatively long; (ii) the pricing of internal (AEP Pool) energy  
18          transactions; and (iii) the sharing among pool Members of the benefits from external  
19          transactions. But these all represent wholesale, not retail, electricity transactions. The  
20          AEP Pool Agreement does not discuss the pricing of retail electric service or in any way  
21          limit the Commission’s discretion to implement market-based pricing.

22 **Q.   IF AEP OHIO IMPLEMENTED A CBP TO SUPPORT ITS SSO LOAD, WOULD**  
23 **BURDENS BE IMPOSED ON THE OTHER AEP POOL MEMBERS?**

24 A.           Mr. Nelson has indicated that this result could occur, although he has not  
25          provided a specific explanation of just how that would transpire. It is not apparent to me

1 that this outcome would result. As indicated above, the AEP Pool Agreement contains  
2 provisions under which the Members share the costs and benefits of external transactions,  
3 both purchases and sales. This sharing of costs and benefits could leave other Members  
4 neutral, or largely so, to the implementation of a CBP by AEP Ohio, as discussed above,  
5 and the concomitant freeing up of its generation to make additional market-priced sales.  
6 The prices and sharing arrangements for the purchases under the CBP could approximate  
7 the prices and sharing arrangements for the additional sales.

8 **Q. ASSUME, NEVERTHELESS, THAT THE IMPLEMENTATION BY AEP OHIO**  
9 **OF A CBP TO SUPPORT ITS SSO LOAD WERE DEMONSTRATED TO HAVE**  
10 **NEGATIVE EFFECTS ON OTHER AEP POOL MEMBERS DURING THE**  
11 **REMAINING YEARS OF ITS EFFECTIVENESS. SHOULD THAT PRESUMED**  
12 **FACT BE CONSIDERED IN THE COMMISSION'S DETERMINATION**  
13 **PROCESS IN THIS PROCEEDING?**

14 A. No. Based on what is currently known, the AEP Pool Agreement should not be  
15 an important consideration for the Commission in this matter. The AEP Pool Agreement,  
16 as seemingly would be true for any other such agreement, envisions a sharing of benefits  
17 and burdens among the Members. There is an obvious expectation that, on an overall  
18 basis, the benefits will exceed the burdens for each Member. However, this is not the  
19 same thing as saying that there is an expectation that every relevant event that might  
20 occur during the life of the AEP Pool Agreement will result in net benefits for each  
21 Member, and their jurisdictions, or at least not result in any net burdens. Some events in  
22 fact might result in burdens for particular Members under the AEP Pool Agreement in  
23 comparison to what would occur under a stand-alone (or alternative pooling)  
24 arrangement, even though the overall benefits of the AEP Pool Agreement still are  
25 significant. This is to be expected by the very nature of a pooling agreement. The  
26 Commission's determination process in the current proceeding should reflect this focus

1 on the overall benefits of the AEP Pool.<sup>21</sup> Accordingly, not all of the Commission's  
2 actions must serve to benefit other jurisdictions and, in fact, some actions that the  
3 Commission might take could actually create burdens on those others. In this regard, the  
4 Commission naturally should be most concerned about the impacts of its actions on other  
5 jurisdictions if any such presumed actions had a sufficiently adverse effect on the others  
6 as to cause them to want to reconsider their participation in an otherwise beneficial  
7 pooling agreement, but would tend to minimize or even disregard such external impacts  
8 otherwise.<sup>22</sup> Of course, in any such analysis that the Commission might make relating to  
9 potential impacts in other jurisdictions, it would need to reflect the losses to Ohio  
10 customers if, as a result of any such deference, the benefits of enhanced retail competition  
11 in Ohio were delayed further.

12 **Q. DOES THAT CONCLUDE YOUR TESTIMONY?**

13 **A. Yes.**

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<sup>21</sup> Similarly, regulators in other jurisdictions can make their own analyses of the benefits and burdens from continued participation in the AEP Pool by their jurisdictional suppliers, and the prudence of each Member's decision to continue its participation in the AEP Pool.

<sup>22</sup> In the current case, of course, this is a moot argument because each of the Members has given notice of their intent to terminate effective January 1, 2014.

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**Exhibit RF-1**  
**Rodney Frame Résumé**

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**RODNEY FRAME**  
**Affiliate**

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Mr. Frame has consulted with electric utility clients on a variety of matters, including industry restructuring, retail competition, wholesale bulk power markets and competition, market power and mergers, transmission access and pricing, contractual terms for wholesale service, and contracting for non-utility generation. A substantial portion of this work has been in conjunction with litigated antitrust and federal and state regulatory proceedings.

Mr. Frame frequently speaks before electric industry groups on competition-related topics. He has testified in federal and local courts and before federal and state regulatory commissions, the Armed Services Board of Contract Appeals and the Commerce Commission of New Zealand.

Mr. Frame was previously a Managing Principal at Analysis Group and, prior to joining Analysis Group, he was a Vice President at National Economic Research Associates. Mr. Frame graduated from George Washington University and pursued graduate work there under a National Science Foundation Traineeship. His areas of specialization were public finance and urban economics. He completed all requirements for his Ph.D. degree in economics with the exception of the thesis.

**EDUCATION**

1970	B.B.A., George Washington University
1970 - 73	Ph.D. coursework (all requirements for degree in economics completed except thesis), George Washington University

**PROFESSIONAL EXPERIENCE**

1998 -	Analysis Group
	<i>Affiliate, 2011-</i>
	<i>Managing Principal, 1998-2011</i>

- 1984 - 1998      National Economic Research Associates  
*Vice President and Senior Consultant.* Participated in projects dealing with retail competition, wholesale competition, market power assessment and determination of relevant markets for electricity supply, electric utility mergers, transmission access and pricing, partial requirements ratemaking, contractual terms for wholesale service, and contracting for non-utility generation supplies. Principal clients were investor-owned electric utilities.
- 1975 - 1984      Transcomm, Inc.  
*Senior Economist.* Worked on a variety of projects concerning market structure, pricing and cost development in regulated industries. Clients included the U.S. Departments of Commerce, Defense and Energy, the Nuclear Regulatory Commission, the State of Oregon, bulk mailers and various communications equipment manufacturers and service providers. Participated in numerous federal and state regulatory proceedings and was principal investigator for a multi-year Department of Energy study addressing various aspects of electric utility competition.
- 1974 - 1975      *Independent Economic Consultant*  
Advised telephone equipment manufacturers concerning cost and rate development for competitive telephone offerings, analyzed alternative travel agent compensation arrangements and examined nonbank activity by bank holding company firms.
- 1973 - 1974      Program of Policy Studies in Science and Technology  
*Research Staff*
- 1973              Urban Institute  
*Research Staff*

## TESTIFYING EXPERIENCE

- Affidavit on behalf of MidAmerican Energy Holdings Company in Docket No. EC12-61, providing a competitive assessment of MEHC's proposed acquisition of the Bishop Hill II wind facility, January 20, 2012.
- Affidavit on behalf of ALLETE, Inc., with Donna Lau Brooks, before the Federal Energy Regulatory Commission in Docket Nos. ER01-2636 and ER10-2819, providing updated market screen analyses for the Central region, December 30, 2011.
- Affidavit on behalf of Plum Point Energy Associates, LLC and Plum Point Services Company, LLC, with Donna Lau Brooks, before the Federal Energy Regulatory Commission in Docket Nos. ER11-2734 and ER11-2335, providing updated market screen analyses for the Southeast region, December 29, 2011.
- Affidavit on behalf of Orlando CoGen Limited, L.P. and Vandolah Power Company, L.L.C., with Donna Lau Brooks, before the Federal Energy Regulatory Commission in Docket Nos. ER10-2218 and ER10-2211, providing updated market screen analyses for the Southeast region, December 28, 2011.

- Affidavit on behalf of MidAmerican Energy Holdings Company in Docket No. EC12-52, providing a competitive assessment of MEHC's proposed acquisition of a 49 percent interest in the Agua Caliente solar generating facility, December 15, 2011.
- Affidavit on behalf of various affiliates of MidAmerican Energy Holdings Company, before the Federal Energy Regulatory Commission in Docket No. ER11-3876 *et al.*, providing (i) updated triennial market screen analyses for the Central region and (ii) change in status market screen analyses reflecting 1,001 MW of new wind generation consisting of the Pomeroy IV, Laurel, Rolling Hills, Eclipse, Morninglight and Vienna projects, November 17, 2011.
- Affidavit on behalf of various affiliates of Southern Company, before the Federal Energy Regulatory Commission in Docket No. ER10-2881 *et al.*, providing supplemental updated triennial market screen analyses for the Southeast region, November 4, 2011.
- Affidavit on behalf of PacifiCorp, before the Federal Energy Regulatory Commission in Docket No. ER10-3246 *et al.*, providing change in status DPT and other analyses to support continued market-based pricing by PacifiCorp after acquisition by contract of the West Valley generating station, October 7, 2011.
- Affidavit on behalf of PacifiCorp, before the Federal Energy Regulatory Commission in Docket No. ER10-3246 *et al.*, providing change in status market screen analyses to support continued market-based pricing by PacifiCorp after acquisition by contract of the West Valley generating station, September 14, 2011.
- Affidavit on behalf of various affiliates of Southern Company, before the Federal Energy Regulatory Commission in Docket No. ER10-2881 *et al.*, providing updated triennial market screen analyses for the Southeast region, June 30, 2011.
- Affidavit on behalf of FirstEnergy Operating Companies *et al.*, before the Federal Energy Regulatory Commission in Docket No. ER10-2727 *et al.*, providing updated change in status market screen analyses reflecting the merger of FirstEnergy and Allegheny and ATSI's transfer from the Midwest ISO to PJM, June 30, 2011.
- Affidavit on behalf of various affiliates of MidAmerican Energy Holdings Company, before the Federal Energy Regulatory Commission in Docket No. ER11-3876 *et al.*, providing updated triennial market screen analyses for the Northeast region, June 30, 2011.
- Affidavit on behalf of Astoria Energy LLC and Astoria Energy II LLC, with Donna Lau Brooks, before the Federal Energy Regulatory Commission in Docket Nos. ER10-2253 and ER10-3319, providing updated triennial market screen analyses for the Northeast region, June 29, 2011.
- Affidavit on behalf of various affiliates of EIF, with Donna Lau Brooks, before the Federal Energy Regulatory Commission in Docket No. ER10-2480 *et al.*, providing updated triennial market screen analyses for the Northeast region, June 30, 2011.
- Affidavit on behalf the FirstEnergy Operating Companies *et al.*, before the Federal Energy Regulatory Commission in Docket Nos. ER01-1403 *et al.*, applying the Commission's pivotal supplier and market share screens to FirstEnergy, December 29, 2010.
- Additional Testimony on behalf of MidAmerican Energy Company, before the Iowa State Utilities Board in Docket No. RPU-2009-0003, providing updated analyses addressing competitive issues raised in conjunction with MidAmerican's proposed Wind VII project, December 1, 2010.



- Affidavit on behalf of Astoria Energy II LLC, with Donna Lau Brooks, before the Federal Energy Regulatory Commission in Docket No. ER10-3319, providing indicative screen analyses in support of Astoria II's request for market-based rate authority, September 30, 2010.
- Affidavit on behalf of PacifiCorp, before the Federal Energy Regulatory Commission in Docket No. ER97-2801 *et al.*, providing updated market screen and delivered price test analyses for the Northwest region, June 30, 2010.
- Affidavit on behalf of Idaho Power Company, before the Federal Energy Regulatory Commission in Docket No. ER97-1481-013, providing updated market screen analyses for the Northwest region, June 30, 2010.
- Affidavit on behalf of Lea Power Partners, LLC, with Donna Lau Brooks, before the Federal Energy Regulatory Commission in Docket No. ER07-751-002, providing updated market screen analyses for the Southwest Power Pool region, March 1, 2010.
- Affidavit on behalf of Northeastern Power Company, with Donna Lau Brooks, before the Federal Energy Regulatory Commission in Docket No. ER10-720-000, providing indicative screen analyses in support of NEPCO's request for market-based rate authority, February 4, 2010.
- Affidavit on behalf of various affiliates of Covanta Energy Corporation, with Donna Lau Brooks, before the Federal Energy Regulatory Commission in Docket Nos. ER10-395-000, ER10-409-000 and ER10-410-000, providing indicative screen analyses in support of Covanta affiliates' requests for market-based rate authority, February 1, 2010.
- Affidavit on behalf of Denver City Energy Associates, L.P., with Donna Lau Brooks, before the Federal Energy Regulatory Commission in Docket No. ER97-4084-011, providing updated market screen analyses for the Southwest Power Pool region, December 22, 2009.
- Affidavit on behalf of Kleen Energy Systems, LLC, with Donna Lau Brooks, before the Federal Energy Regulatory Commission in Docket No. ER10-308-000, providing indicative screen analyses in support of Kleen's request for market-based rate authority and in support of continued market-based pricing for EIF affiliates after the addition of the Kleen facility, November 25, 2009.
- Expert Report on behalf of Sho-Me Power Electric Cooperative, before the Armed Services Board of Contract Appeals in Case ASBCA No. 56640, comparing Sho-Me's charges to Fort Leonard Wood for full requirements electric service under its Conservation Tariff to market-based prices for full-requirements service, November 11, 2009.
- Affidavit on behalf of Southern Power Company *et al.*, before the Federal Energy Regulatory Commission in Docket No. EC10-15-000, addressing competitive issues raised by the proposed swap of generating capacity whereby Southern Power would acquire the West Georgia generating facility now owned by affiliates of LS Power Development, and LS Power Development would acquire the DeSoto generating facility now owned by Southern Power, November 2, 2009.
- Affidavit on behalf of PacifiCorp, before the Federal Energy Regulatory Commission in Docket No. ER97-2801 *et al.*, providing updated delivered price test and other analyses in support of continued market-based pricing by PacifiCorp after capacity changes to its existing generator fleet and after commercial operation of its new High Plains and McFadden Ridge wind generating facilities, October 2, 2009.

- Answering Testimony on behalf of NV Energy, Public Service Company of New Mexico and Tucson Electric Power Company, before the Federal Energy Regulatory Commission in Docket No. EL02-71, addressing whether a putative failure to file proper and timely quarterly transaction reports masked an accumulation of market power by NVE, PNM and/or TEP, September 17, 2009.
- Rebuttal Testimony on behalf of J.P. Morgan Energy Ventures Corporation, before an arbitration panel in TAQA GEN X LLC (f/k/a BE Red Oak LLC), Ref. No. 16 198 001 80 09, addressing regulatory policy and other issues raised by respondents in a dispute involving the assignment of station power costs under a long-term tolling agreement, July 24, 2009.
- Surrebuttal Testimony on behalf of MidAmerican Energy Company, before the Iowa State Utilities Board in Docket No. RPU-2009-0003, addressing competitive issues raised in conjunction with MidAmerican's proposed ratemaking principles for its Wind VII project, July 17, 2009.
- Direct Testimony on behalf of J.P. Morgan Energy Ventures Corporation, before an arbitration panel in TAQA GEN X LLC (f/k/a BE Red Oak LLC) v. AES RED OAK, L.L.C., Ref. No. 16 198 00180 09, addressing regulatory issues relating to the assignment of station power costs in a long term tolling agreement, July 2, 2009.
- Affidavit on behalf of Southern Company Services, Inc. *et al.*, before the Federal Energy Regulatory Commission in Docket No. ER96-780 *et al.*, in support of continued market-based pricing by Southern Company affiliates after its acquisition by purchase of additional generating capacity, June 30, 2009.
- Affidavit on behalf of various affiliates of MidAmerican Energy Holdings Company, before the Federal Energy Regulatory Commission in Docket No. ER99-2156 *et al.*, requesting that their existing market-based rate authority be extended to include the MidAmerican BAA, May 15, 2009.
- Affidavit on behalf of Southern Power Company, before the Federal Energy Regulatory Commission in Docket No. EC09-70, addressing competitive issues raised by Southern Power's proposed acquisition of Hartwell Energy Limited Partnership, April 20, 2009.
- Affidavit on behalf of Minnesota Power, with Donna Lau Brooks, before the Federal Energy Regulatory Commission in Docket No. ER01-2636, providing updated market screen analyses for the Central region, December 31, 2008 and February 6, 2009.
- Affidavit on behalf of various affiliates of Northern Star Generation, with Donna Lau Brooks, before the Federal Energy Regulatory Commission in Docket No. ER06-1265 *et al.*, providing updated market screen analyses for the Southeast region, December 30, 2008.
- Affidavit on behalf of the FirstEnergy Operating Companies *et al.*, before the Federal Energy Regulatory Commission in Docket No. ER01-1403 *et al.*, providing updated market screen analyses for the Central region, December 29, 2008.
- Affidavit on behalf of various affiliates of Ameren, before the Federal Energy Regulatory Commission in Docket No. ER00-3412 *et al.*, providing updated market screen analyses for the Central region, December 24, 2008.

- Affidavit on behalf of MidAmerican Energy Holdings Company, before the Federal Energy Regulatory Commission in Docket No. ER99-2156 *et al.*, applying the Commission's pivotal supplier and market share screen to MidAmerican in the Central region, December 3, 2008.
- Affidavit on behalf of MidAmerican Energy Holdings Company, before the Federal Energy Regulatory Commission in Docket No. EC09-26-000, providing competitive analyses supporting MidAmerican's proposed acquisition of the West Valley Project, December 2, 2008.
- Affidavit on behalf of West Valley Holdings, LLC, before the Federal Energy Regulatory Commission in Docket No. ER09-352-000, providing competitive analyses supporting West Valley's application for market-based rate authority, December 2, 2008.
- Affidavit on behalf of Safe Harbor Holding Company, LLC, before the Federal Energy Regulatory Commission in Docket No. ER09-318-000, providing competitive analyses supporting Safe Harbor's application for market-based rate authority, November 24, 2008.
- Affidavit on behalf of MidAmerican Energy Holdings Company, before the Federal Energy Regulatory Commission in Docket No. EC09-25-000, providing competitive analyses associated with MidAmerican's proposed acquisition of an interest in Safe Harbor Water Power Corporation, November 23, 2008.
- Affidavit on behalf of Southern Company Services, Inc., before the Federal Energy Regulatory Commission in Docket No. ER09-88-000, providing assessment of proposed energy auction mechanism as a means to mitigate perceived market power concerns, October 17, 2008.
- Affidavit on behalf of PacifiCorp, before the Federal Energy Regulatory Commission in Docket No. ER97-2801 *et al.*, providing updated delivered price test and other analyses in support of continued market-based pricing by PacifiCorp after its acquisition of new generation capacity and after commercial operation of new generating facilities, October 15, 2008.
- Affidavit on behalf of MidAmerican Energy Holdings Company, before the Federal Energy Regulatory Commission in Docket No. EC09-6, addressing competitive issues raised by MEHC's proposed merger with Constellation Energy Group, October 14, 2008.
- Additional Affidavit on behalf of the FirstEnergy Operating Companies *et al.*, before the Federal Energy Regulatory Commission in Docket No. ER01-1403 *et al.*, providing revised pivotal supplier and market share screen analyses to reflect updated simultaneous import limit values, September 2, 2008.
- Additional Affidavit on behalf of Public Service Electric and Gas Company *et al.*, before the Federal Energy Regulatory Commission in Docket No. ER99-3151 *et al.*, providing revised indicative screen and DPT analyses to reflect updated simultaneous import limit values, and assessing the need for additional market power mitigation measures, September 2, 2008.
- Affidavit on behalf of various affiliates of Southern Company, before the Federal Energy Regulatory Commission in Docket No. ER96-780 *et al.*, providing updated indicative screen analyses, September 2, 2008.
- Affidavit on behalf of Berkshire Power Company, LLC and Waterside Power, LLC, before the Federal Energy Regulatory Commission in Docket Nos. ER99-3502-000 and ER02-1884-000, applying the Commission's pivotal supplier and market share screens, June 30, 2008.

- Affidavit on behalf of Astoria Energy LLC, before the Federal Energy Regulatory Commission in Docket No. ER01-3103, applying the Commission's pivotal supplier and market share screens, June 30, 2008.
- Affidavit on behalf of MidAmerican Energy Holdings Company, before the Federal Energy Regulatory Commission in Docket No. ER96-719-002 *et al.*, applying the Commission's pivotal supplier and market share screens, June 30, 2008.
- Affidavit on behalf of Black River Generation, LLC and Northbrook New York, LLC, before the Federal Energy Regulatory Commission in Docket Nos. ER04-617-003 and ER99-3911-006, applying the Commission's pivotal supplier and market share screens, June 2, 2008.
- Affidavit on behalf of PacifiCorp, before the Federal Energy Regulatory Commission in Docket No. EC08-82, concerning competitive issues raised by PacifiCorp's proposed acquisition of Chehalis Power Generating, LLC, April 29, 2008.
- Affidavit on behalf of PacifiCorp, before the Federal Energy Regulatory Commission in Docket No. ER97-2801 *et al.*, providing updated indicative horizontal market power screen, delivered price test and other analyses to support continued market-based pricing by PacifiCorp after its acquisition by contract of new generation capacity and after commercial operation of certain new generating facilities, March 31, 2008.
- Supplemental affidavit on behalf of the FirstEnergy Operating Companies *et al.*, before the Federal Energy Regulatory Commission in Docket No. ER01-1403 *et al.*, responding to intervenor arguments supporting certain adjustments to previously-submitted horizontal market power screen analyses, March 31, 2008.
- Affidavit on behalf of Idaho Power Company, before the Federal Regulatory Commission in Docket No. ER97-1481, updating Idaho Power's market screen analysis to reflect the addition of its new Danskin No. 1 generator, March 21, 2008.
- Affidavit on behalf of various affiliates of Southern Company, before the Federal Energy Regulatory Commission in Docket No. ER96-780 *et al.*, providing updated market screen analyses to support continued market-based pricing by those affiliates after the operation of Southern Power Company's new Franklin 3 generating facility, February 11, 2008.
- Affidavit on behalf of Public Service Electric and Gas Company *et al.*, before the Federal Energy Regulatory Commission in Docket No. ER99-3151 *et al.*, applying the Commission's pivotal supplier and market share screens to Public Service Electric and Gas Company and its affiliates, providing a delivered price test analysis for PJM East and assessing the need for additional market power mitigation measures, January 14, 2008.
- Affidavit on behalf of the FirstEnergy Operating Companies *et al.*, before the Federal Energy Regulatory Commission in Docket No. ER01-1403 *et al.*, applying the Commission's pivotal supplier and market share screens to the FirstEnergy Operating Companies, January 14, 2008.
- Affidavit on behalf of FirstEnergy Mansfield Unit 1 Corp, before the Federal Energy Regulatory Commission in Docket No. ER08-107, assessing the appropriateness of market-based rate authority for FirstEnergy Mansfield, October 26, 2007.

- Affidavit on behalf of various affiliates of Southern Company, before the Federal Energy Regulatory Commission in Docket No. ER96-780 *et al.*, providing updated market screen analyses to support continued market-based pricing by those affiliates after Southern Companies' purchase of capacity and energy from Calpine, August 31, 2007.
- Affidavit on behalf of PacifiCorp, before the Federal Energy Regulatory Commission in Docket No. ER97-2801, providing updated delivered price test and other analyses to support continued market-based pricing by PacifiCorp after commercial operation of its new Lake Side, Marengo and Goodnoe Hills generating facilities, August 27, 2007.
- Affidavit on behalf of various affiliates of Southern Company, before the Federal Energy Regulatory Commission in Docket No. RM04-7-000, identifying and assessing the significance of various aspects of FERC's Order No. 697, its Final Rule pertaining to regulations governing market-based rate authority for wholesale sales of electricity, July 23, 2007.
- Affidavit on behalf of PacifiCorp, before the Federal Energy Regulatory Commission in Docket No. ER97-2801 *et al.*, providing updated market screen analyses to support continued market-based pricing by PacifiCorp after commercial operation of its new Lake Side, Marengo and Goodnoe Hills generating facilities, June 8, 2007.
- Affidavit on behalf of affiliates of MidAmerican Energy Holdings Company, before the Federal Energy Regulatory Commission in Docket No. ER96-719 *et al.*, concerning the extent to which MidAmerican Energy Company's operation of Council Bluffs Energy Center Unit 4, the Victory Wind Project and the Pomeroy Wind Project represents a significant change in status regarding the characteristics relied upon by the Commission in granting market-based pricing authority to affiliates of MEHC, March 2, 2007.
- Rebuttal Testimony on behalf of Southern Company Services, Inc., before the Federal Energy Regulatory Commission in Docket No. EL04-124 *et al.*, concerning various computational and conceptual issues that arise in applying the Commission's delivered price test to Southern Companies for the Southern Control Area, February 20, 2007.
- Affidavit on behalf of PSEG Energy Resources & Trade LLC *et al.*, before the Federal Energy Regulatory Commission in Docket No. ER99-3151 *et al.*, applying the Commission's pivotal supplier and wholesale market share screens to Public Service Electric and Gas Company and its affiliates, November 29, 2006.
- Affidavit on behalf of PacifiCorp and PPM Energy, Inc., before the Federal Energy Regulatory Commission in Docket No. ER97-2801 *et al.*, providing revised delivered price test analyses to support continued market-based rate authority by PacifiCorp and PPM Energy, Inc., November 6, 2006.
- Affidavit on behalf of Southern Company Services, Inc. *et al.*, before the Federal Energy Regulatory Commission in Docket No. ER96-780 *et al.*, concerning the extent to which Southern Company's acquisition of the Rowan generating station represents a significant change in status regarding the characteristics relied upon by the Commission in granting market-based pricing authority to affiliates of Southern Company, October 2, 2006.
- Affidavit on behalf of Oleander Power Project, L.P., before the Federal Energy Regulatory Commission in Docket No. ER00-3240, applying the Commission's pivotal supplier and wholesale market share screens to affiliates of Southern Company, September 27, 2006.

- Direct Testimony on behalf of Southern Company Services, Inc., before the Federal Energy Regulatory Commission in Docket No. ER04-124 *et al.*, applying the Commission's delivered price test to Southern Companies for the Southern Control Area, September 18, 2006.
- Supplemental Testimony on behalf of PacifiCorp, before the Federal Energy Regulatory Commission in Docket Nos. ER97-2801-007 and ER97-2801-010, providing updated market screen, delivered price test and other analyses to support continued market-based pricing by PacifiCorp after commercial operation of its new Currant Creek, Goshen and Leaning Juniper generators, August 21, 2006.
- Affidavit on behalf of various affiliates of D.E. Shaw, before the Federal Energy Regulatory Commission in Docket No. ER03-879 *et al.*, applying the Commission's pivotal supplier and wholesale market share screens to the D.E. Shaw affiliates, July 24, 2006.
- Affidavit on behalf of DeSoto County Generating Company, LLC, before the Federal Energy Regulatory Commission in Docket No. ER03-1383 *et al.*, demonstrating that the company's acquisition by Southern Power allows certain restrictions on its market-based rate authority to be removed, June 30, 2006.
- Affidavit on behalf of Southern Power Company, before the Federal Energy Regulatory Commission in Docket No. EC06-132-000, concerning competitive issues raised by Southern Power's proposed acquisition of Rowan County Power, LLC from Progress Energy, June 16, 2006.
- Affidavit on behalf of MidAmerican Energy Company and its affiliates, before the Federal Regulatory Commission in Docket No. ER96-719 *et al.*, examining the extent to which MidAmerican's acquisition of PacifiCorp presents a departure from the conditions relied upon by the Commission in granting market-based rate authority to MidAmerican and its affiliates, April 20, 2006.
- Affidavit on behalf of Southern Power Company, before the Federal Energy Regulatory Commission in Docket No. EC06-112-000, concerning competitive issues raised by Southern Power's acquisition of the DeSoto Generating Station from Progress Energy, April 14, 2006.
- Affidavit on behalf of PPM Energy, Inc., before the Federal Energy Regulatory Commission in Docket Nos. EL05-95 and ER03-478, providing a market screen analysis to reflect the change of status as a result of the acquisition of PPM's former affiliate PacifiCorp by MidAmerican Energy Holdings Company, April 10, 2006.
- Supplemental Testimony on behalf of PacifiCorp and PPM Energy, Inc., before the Federal Energy Regulatory Commission in Docket No. ER97-2801-006 *et al.*, providing additional market screen and delivered price test analyses to assess whether PacifiCorp and PPM have market power for wholesale sales of electricity, March 29, 2006.
- Supplemental Testimony on behalf of Public Service Electric and Gas Company and Exelon Corporation, with Michael M. Schnitzer, before the State of New Jersey Board of Public Utilities in BPU Docket No. EM05020106 and OAL Docket No. PUC-1874, addressing analyses provided by PJM's Market Monitoring Unit and market power mitigation measures proposed by Joint Petitioners, March 17, 2006.

- Affidavit on behalf of PSEG Power Connecticut, LLC, before the Federal Energy Regulatory Commission in Docket No. ER99-967, applying the Commission's pivotal supplier and wholesale market share screens to PSEG Connecticut, February 28, 2006.
- Affidavit on behalf of Union Electric Company d/b/a AmerenUE and NRG Audrain Generating, LLC, before the Federal Energy Regulatory Commission in Docket No. EC06-55-000, concerning competitive issues raised by AmerenUE's proposed acquisition of the Audrain generating station from NRG, December 28, 2005.
- Affidavit on behalf of Union Electric Company d/b/a AmerenUE and affiliates of Aquila, Inc., before the Federal Energy Regulatory Commission in Docket No. EC06-56-000, concerning competitive issues raised by AmerenUE's proposed acquisition of the Goose Creek and Raccoon Creek generating stations from Aquila, December 28, 2005.
- Supplemental Rebuttal Testimony on behalf of Public Service Electric and Gas Company and Exelon Corporation, before the Board of Public Utilities of New Jersey in BPU Docket No. EM05020106 and OAL Docket No. PUC-1874-05, responding to testimony on behalf of the BPU staff concerning the horizontal competitive effects of the proposed merger of Public Service Enterprise Group and Exelon, December 12, 2005.
- Rebuttal Testimony on behalf of Public Service Electric and Gas Company and Exelon Corporation, before the Board of Public Utilities of New Jersey in BPU Docket No. EM05020106 and OAL Docket No. PUC-1874-05, responding to intervenor concerns about the competitive effects of the proposed merger of Public Service Enterprise Group and Exelon, December 5, 2005.
- Affidavit on behalf of Electric Energy, Inc., before the Federal Energy Regulatory Commission in Docket No. ER05-1482-000, applying the Commission's pivotal supplier and wholesale market share screens to the Electric Energy, Inc. control area, November 3, 2005.
- Direct Testimony on behalf of Southern Company Services, Inc., before the Federal Energy Regulatory Commission in Docket No. EL04-124, providing various delivered price test analyses to support Southern Companies' request for continuing market-based rate authority, September 20, 2005.
- Surrebuttal Testimony on behalf of the Ameren Companies, before the Illinois Commerce Commission in Docket No. 05-0160 *et al.*, responding to intervenor concerns about the underlying maturity and competitiveness of the wholesale electricity markets in which Illinois BGS auction participants can procure the wholesale supplies needed to support their auction bids, August 29, 2005.
- Additional Testimony on behalf of Public Service Electric and Gas Company, before the State of New Jersey Board of Public Utilities in BPU Docket No. EM05020106 and OAL Docket No. PUC-1874-05, that addresses the effect of the proposed merger of PSEG and Exelon on competition in the New Jersey Basic Generation Service Auction and that applies FERC's market power screen measures to the post-merger firm, August 15, 2005.
- Rebuttal Testimony on behalf of the Ameren Companies, before the Illinois Commerce Commission in Docket No. 05-0160 *et al.*, responding to intervenor arguments that there are likely to be competitive problems with Ameren's proposed competitive procurement of wholesale supplies used to provide "basic generation service," July 13, 2005.

- Direct Testimony on behalf of PacifiCorp and PPM Energy, Inc., before the Federal Energy Regulatory Commission in Docket No. ER97-2801 *et al.*, providing a delivered price test and other evidence rebutting the Commission's presumption that PacifiCorp and PPM possess market power over wholesale sales of electricity, July 8, 2005.
- Supplemental Affidavit on behalf of PacifiCorp and PPM Energy, Inc., before the Federal Energy Regulatory Commission in Docket No. ER97-2801 *et al.*, providing additional information and analyses concerning the application of the Commission's pivotal supplier and wholesale market share screens to PacifiCorp and PPM, June 8, 2005.
- Affidavit on behalf of Astoria Energy, LLC, before the Federal Energy Regulatory Commission in Docket No. ER01-3103, applying the Commission's pivotal supplier and wholesale market share screen to Astoria, May 23, 2005.
- Supplemental Testimony on behalf of various affiliates of Southern Company, before the Federal Energy Regulatory Commission in Docket No. ER97-4166-015 *et al.*, responding to issues raised by intervenors Calpine Corporation and Shell Trading Gas and Power Company concerning the "delivered price test" competitive analysis provided by Southern Company, May 16, 2005.
- Affidavit on behalf of Lake Road Generating Company, L.P., before the Federal Energy Regulatory Commission in Docket No. ER99-1714, applying the Commission's pivotal supplier and wholesale market share screens to Lake Road, May 13, 2005.
- Supplemental Testimony on behalf of Public Service Electric and Gas Company, before the State of New Jersey Board of Public Utilities in BPU Docket No. EM05020106 and OAL Docket No. PUC-1874-05, addressing revised market power mitigation proposal of merging parties PSEG and Exelon Corporation, May 12, 2005.
- Affidavit on behalf of Idaho Power Company, before the Federal Regulatory Commission in Docket No. ER97-1481-009, updating Idaho Power's market screen analysis to reflect the addition of its new Bennett Mountain generator, May 2, 2005.
- Affidavit on behalf of Southern Power Company, before the Federal Energy Regulatory Commission in Docket No. EC05-71-000, concerning competitive issues raised by Southern's proposed acquisition of the Oleander Power Project from Constellation Energy Group, April 20, 2005.
- Affidavit on behalf of UGI Development Company and UGI Energy Services, before the Federal Energy Regulatory Commission in Docket No. ER97-2817 *et al.*, applying the Commission's pivotal supplier and wholesale market share screens to UGI, April 12, 2005.
- Affidavit on behalf of La Paloma Generating Company, LLC, before the Federal Energy Regulatory Commission in Docket No. ER00-107, applying the Commission's pivotal supplier and wholesale market share screens to La Paloma and its affiliates, March 31, 2005.
- Supplemental Affidavit on behalf of the Detroit Edison Company and certain of its affiliates, before the Federal Energy Regulatory Commission in Docket No. ER93-324 *et al.*, providing additional information concerning the application of the Commission's new interim generation market power screens to Detroit Edison, March 21, 2005.



- Direct Testimony on behalf of Public Service Electric and Gas Company, before the State of New Jersey Board of Public Utilities, in BPU Docket No. EM05020106 and OAL Docket No. PUC-1874-05, assessing the competitive effects of the proposed merger of Public Service Enterprise Group Incorporated and Exelon Corporation, February 28, 2005.
- Direct Testimony on behalf of various affiliates of Southern Company, before the Federal Energy Regulatory Commission in Docket No. ER97-4166-015 *et al.*, providing a delivered price test and other evidence rebutting the Commission's presumption that Southern Company possesses market power over wholesale sales of electricity, February 15, 2005.
- Affidavit on behalf of PacifiCorp and PPM Energy, Inc., before the Federal Energy Regulatory Commission in Docket No. ER97-2801-005 *et al.*, applying the Commission's new pivotal supplier and wholesale market share screens to PacifiCorp and PPM, February 14, 2005.
- Affidavit on behalf of PSEG Lawrenceburg Energy Company LLC and PSEG Waterford Energy LLC, before the Federal Energy Regulatory Commission in Docket No. ER01-2460-002 *et al.*, applying the Commission's pivotal supplier and wholesale market share screens, February 7, 2005.
- Affidavit on behalf of the First Energy Operating Companies *et al.*, before the Federal Energy Regulatory Commission in Docket No. ER01-1403 *et al.*, applying the Commission's pivotal supplier and wholesale market share screens, February 7, 2005.
- Supplemental Affidavit on behalf of Idaho Power Company, before the Federal Regulatory Commission in Docket No. ER97-1481-003, responding to issues raised in a Commission Staff letter relating to Idaho Power's application of the Commission's pivotal supplier and wholesale market share screens, January 19, 2005.
- Affidavit on behalf of various affiliates of Ameren Corporation, before the Federal Energy Regulatory Commission in Docket No. ER-01-294-002 *et al.*, applying the Commission's new pivotal supplier and wholesale market share screens to Ameren's affiliates, December 27, 2004.
- Affidavit on behalf of Detroit Edison and various of its affiliates, before the Federal Energy Regulatory Commission in Docket No. ER02-963-002 *et al.*, applying the Commission's new pivotal supplier and wholesale market share screens to Detroit Edison Company and its affiliates, December 23, 2004.
- Affidavit on behalf of various affiliates of Black Hills Corporation, before the Federal Energy Regulatory Commission in Docket No. ER-00-1952-000 *et al.*, applying the Commission's new pivotal supplier and wholesale market share screens to Black Hills' affiliates, December 23, 2004.
- Affidavit on behalf of Minnesota Power Company, before the Federal Energy Regulatory Commission in Docket No. ER01-2636-001, applying the Commission's new pivotal supplier and wholesale market share screens to Minnesota Power and its affiliates, November 9, 2004.
- Affidavit on behalf of Oasis Power Partners, LLC, before the Federal Energy Regulatory Commission in Docket No. ER05-41-000, applying the Commission's new screens for market-based rate authority to enXco, the owner of OASIS, October 12, 2004.
- Affidavit on behalf of Idaho Power Company, before the Federal Energy Regulatory Commission in Docket No. ER97-1481-003, applying the Commission's new pivotal supplier and wholesale market share screens to Idaho Power Company, September 27, 2004.

- Affidavit on behalf of Alliant Energy Corporate Services, Inc., before the Federal Energy Regulatory Commission in Docket No. ER99-230-002, applying the Commission's new pivotal supplier and wholesale market share screens to Alliant Energy, August 20, 2004.
- Affidavit on behalf of various affiliates of Southern Company, before the Federal Energy Regulatory Commission in Docket No. ER96-2495-018 *et al.*, concerning the application of the Commission's new screens for determining the appropriateness of market-based rate authority to Southern Company, August 9, 2004.
- Affidavit on behalf of Fulton Cogeneration Associates, L.P. and Rensselaer Plant Holdco, L.L.C., before the Federal Energy Regulatory Commission in Docket No. ER04-1044-000, ER04-1045-000 and ER04-1046-000, applying FERC's new screens for determining the appropriateness of market-based rate authority, July 28, 2004.
- Rebuttal Testimony on behalf of Ameren Corporation, before the Illinois Commerce Commission in Docket No. 04-0294, concerning issues raised by Ameren's acquisition of Illinois Power Company, July 23, 2004.
- Direct Testimony on behalf of Ameren Energy Marketing Company and Central Illinois Public Service Company d/b/a AmerenCIPS, before the Federal Energy Regulatory Commission in Docket No. ER04-1001, concerning competitive issues raised by the two year extension of a power supply agreement between AEM and AmerenCIPS, July 9, 2004.
- Affidavit on behalf of Constellation Generation Group, before the New York State Public Service Commission in Case No. 04-E-0630, concerning competitive issues raised by Constellation's proposed acquisition of an interest in the Flat Rock Wind Project currently in development, May 27, 2004.
- Additional Affidavit on behalf of various affiliates of Southern Company, before the Federal Energy Regulatory Commission in Docket No. PL02-8-000 *et al.*, addressing the new market power screens and mitigation rules contained in the Commission's April 14, 2004 Order on Rehearing (107 FERC ¶ 61,018), May 14, 2004.
- Affidavit on behalf of Interstate Power and Light Company, before the Federal Energy Regulatory Commission in Docket No. EC04-61-000, concerning competitive issues raised by IPL's acquisition of an additional interest in the George Neal Generating Station Unit 4, April 26, 2004.
- Direct Testimony on behalf of Ameren Corporation and Dynegy, Inc., before the Federal Energy Regulatory Commission in Docket No. EC04-81-000, concerning competitive issues raised by Ameren's proposed acquisition of Illinois Power Company, March 25, 2004.
- Affidavit on behalf of Constellation Energy Group and Rochester Gas and Electric Corporation, before the Federal Energy Regulatory Commission in Docket No. EC04-79-000, concerning competitive issues raised by Constellation's proposed acquisition of the R.E. Ginna Nuclear Generating Station from Rochester Gas and Electric Corporation, March 23, 2004.
- Affidavit on behalf of Constellation Energy Group and Rochester Gas and Electric Corporation, before the New York State Public Service Commission in Case No. 03-E-1231, concerning competitive issues raised by Constellation's proposed acquisition of the R.E. Ginna Nuclear Generating Station from Rochester Gas and Electric, February 2, 2004.

- Rebuttal Testimony on behalf of Southern Power Company, before the Federal Energy Regulatory Commission in Docket No. ER03-713-000 *et al.*, responding to claims of intervenor witnesses that Southern Power Company's long-term power sales to its Georgia Power Company and Savannah Electric and Power Company affiliates, among other things, represent "affiliate abuse," embody cross-subsidization, are a result of improper advantages and otherwise adversely affect wholesale competition, and rejecting intervenor's proposed recommendations as anti-competitive, designed to reward inefficient competitors and likely to increase customers' costs, January 31, 2004.
- Second Affidavit on behalf of Ameren Energy, Inc. and other affiliates of Ameren Corporation, before the Federal Energy Regulatory Commission in Docket No. ER01-294 *et al.*, responding to intervenor arguments concerning the manner in which the Commission's SMA test should be applied to Ameren, January 15, 2004.
- Affidavit on behalf of various affiliates of Southern Company, before the Federal Energy Regulatory Commission in Docket No. PL02-8-000 *et al.*, addressing alternatives to the SMA and proposed market power mitigation as contained in the Commission's Staff Paper, January 6, 2004.
- Affidavit on behalf of Public Utility Subsidiaries of FirstEnergy Corp., before the Federal Energy Regulatory Commission in Docket No. ER-04-363, concerning the appropriateness of market based rate authority for the Public Utility Subsidiaries of FirstEnergy Corp., December 31, 2003.
- Affidavit on behalf of Ameren Energy, Inc. and other affiliates of Ameren Corporation, before the Federal Energy Regulatory Commission in Docket No. ER00-2687 *et al.*, concerning the appropriateness of market based rate authority for affiliates of Ameren Corporation, December 10, 2003.
- Affidavit on behalf of Idaho Power Company, before the Federal Energy Regulatory Commission in Docket No. ER97-1481-003, applying the Commission's SMA test to Idaho Power Company and its affiliates, October 9, 2003.
- Rebuttal Testimony on behalf of Ameren Energy Generating Company and Union Electric Company d/b/a AmerenUE, before the Federal Regulatory Commission in Docket No. EC03-53-000, rebutting intervenor claims that AmerenUE's purchase of generating units from its AEGC affiliate would create competitive concerns, October 6, 2003.
- Direct Testimony on behalf of Southern Power Company, before the Federal Energy Regulatory Commission in Docket No. ER03-713-000 *et al.*, concerning competitive issues raised by long-term power sales agreements between Southern Power and its Georgia Power Company and Savannah Electric and Power Company affiliates, September 22, 2003.
- Third Affidavit on behalf of Alliant Energy Services, Inc., before the Federal Energy Regulatory Commission in Docket Nos. ER99-230-002 and ER03-762-000, applying the Commission's SMA test to various control area markets, August 15, 2003.
- Affidavit on behalf of The Connecticut Light and Power Company (CL&P), before the Federal Energy Regulatory Commission in Docket Nos. EL03-123-000 and EL03-134-000, concerning incentive and public interest considerations associated with NRG Energy's attempt to discontinue standard offer service to CL&P, July 18, 2003.

- Direct Testimony on behalf of Ameren Energy Generating Company and Union Electric Company d/b/a AmerenUE, before the Federal Energy Regulatory Commission in Docket No. EC03-53-000, concerning competitive issues raised by AEGC's proposed sale of two affiliated merchant generating stations to AmerenUE, June 10, 2003.
- Affidavit on behalf of DTE East China, LLC, before the Federal Energy Regulatory Commission in Docket No. ER03-931-000, concerning the appropriateness of market based rate authority for DTE East China, an affiliate of Detroit Edison Company, June 5, 2003.
- Testimony on behalf of Detroit Edison Company, before the Michigan Public Service Commission in Case No. U-13797, addressing market power issues raised by restructuring legislation in Michigan, May 29, 2003.
- Testimony on behalf of the PJM Transmission Owners, before the Federal Energy Regulatory Commission in Docket No. ER03-738-000, concerning the appropriate equity return and depreciation lives for new transmission assets constructed by transmission owners pursuant to a regional transmission expansion plan, April 11, 2003.
- Affidavit on behalf of Baltimore Gas & Electric and various of its affiliates, before the Federal Energy Regulatory Commission in Dockets No. ER99-2948-002 *et al.*, concerning application of the Commission's SMA test to those entities, March 28, 2003.
- Affidavit on behalf of Ameren Energy Generating Company and Union Electric Company d/b/a AmerenUE, before the Federal Energy Regulatory Commission in Docket No. EC03-53-000, concerning competitive issues raised by the proposed transfer of certain generating facilities from Ameren Energy Generating Company to AmerenUE, March 13, 2003.
- Rebuttal Testimony on behalf of Public Service Electric and Gas Company, before the Federal Energy Regulatory Commission in Docket No. EL02-23-000 (Phase II), concerning financial responsibility for redispatch costs and market power issues associated with certain transmission agreements between Public Service Electric and Gas Company and Consolidated Edison Company, February 20, 2003.
- Testimony on behalf of FirstEnergy Corp and its operating company affiliates The Cleveland Electric Illuminating Company, The Toledo Edison Company, and Ohio Edison Company, before the Public Utilities Commission of Ohio in Case No. 02-1944-EL-CSS, concerning the terms and conditions under which the operating companies should purchase the accounts receivables of competitive retail electric service providers, February 19, 2003.
- Affidavit on behalf of Detroit Edison and various of its affiliates, before the Federal Energy Regulatory Commission in Docket No. ER97-324-004 *et al.*, applying the Commission's SMA test to those entities, January 31, 2003.
- Rebuttal testimony on behalf of certain "Classic" PJM Transmission Owners, before the Federal Energy Regulatory Commission in Docket No. EL-02-111-000, concerning the appropriateness of "seams" charges for transmission service between the MISO and PJM regions, December 10, 2002.
- Affidavit on behalf of various affiliates of Black Hills Corporation, before the Federal Energy Regulatory Commission in Docket No. ER00-3109 *et al.*, concerning application of the Commission's SMA test to those affiliates, November 25, 2002.

- Direct testimony on behalf of certain “Classic” PJM Transmission Owners, before the Federal Energy Regulatory Commission in Docket No. EL-02-111-000, concerning the appropriateness of “seams” charges for transmission service between the MISO and PJM regions, November 14, 2002.
- Affidavit on behalf of Southern Company Services, Inc., before the Federal Energy Regulatory Commission in Docket No. PL02-8, Conference on Supply Margin Assessment, assessing the Commission’s proposed SMA market screen and accompanying market power mitigation measures, October 22, 2002.
- Second affidavit on behalf of Garnet Energy LLC, before the Federal Energy Regulatory Commission in Docket No. ER02-1190-000, responding to intervenor claims about the proper method for applying the Commission’s application for market pricing authority, August 2002.
- Direct Testimony on behalf of Ameren Services Company, before the Federal Energy Regulatory Commission in Docket No. EC02-96-000, concerning competitive issues raised by Ameren’s proposed acquisition of Central Illinois Lighting Company, July 19, 2002.
- Affidavit on behalf of Garnet Energy LLC, before the Federal Energy Regulatory Commission in Docket No. ER02-1119-000, concerning the application of the Commission’s SMA test to Garnet, an affiliate of Idaho Power Company, July 11, 2002.
- Testimony on behalf of Public Service Electric and Gas Company, before the Federal Energy Regulatory Commission in Docket No. EL-02-23-000, concerning vertical market power issues associated with certain transmission agreements between Public Service Electric and Gas Company and Consolidated Edison Company, July 1, 2002.
- Affidavit on behalf of applicants Wisvest Corporation, Wisvest-Connecticut, LLC and PSEG Fossil LLC, before the Federal Energy Regulatory Commission in Docket Nos. EC02-87-002, ER02-2204-000 and ER99-967-002, concerning competitive issues presented by PSEG Fossil’s proposed acquisition of Wisvest-Connecticut, June 28, 2002.
- Direct testimony on behalf of Ameren Corporation, before the Illinois Commerce Commission in Docket No. 02-0428, concerning competitive issues raised by Ameren’s proposed acquisition of Central Illinois Lighting Company, June 19, 2002.
- Rebuttal testimony on behalf of PSEG Power in New York Public Service Commission Case No. 02-M-0132, responding to intervenor concerns about alleged horizontal and vertical market power problems arising from PSEG’s construction of the Cross Hudson Project, May 2002.
- Affidavit on behalf of Southern Company Services, Inc., before the Federal Energy Regulatory Commission in Docket No. ER96-780-005, describing appropriate procedures for triennial market pricing update and addressing whether Southern Company Services, Inc. has market power in wholesale electricity markets, April 30, 2002.
- Direct testimony on behalf of PSEG Power, before New York Public Service Commission in Case No. 02-M-0132, concerning market power implications of the application of PSEG Power to construct an approximately eight mile radial connection between Bergen Generating Station in New Jersey and Consolidated Edison Company’s West 49<sup>th</sup> Street Substation in New York City, April 26, 2002.

- Expert report on behalf of Virginia Electric and Power Company in Virginia Electric and Power Company v. International Paper Company, Civil Action No. 2:01cv703, United States District Court, Eastern District of Virginia, Norfolk Division, concerning damages issues associated with terminated NUG contract, March 21, 2002.
- Affidavit on behalf of Crete Energy Venture, LLC, before the Federal Energy Regulatory Commission in Docket No. ER02-963, concerning application of the Commission's SMA test to a joint venture of Entergy and DTE, February 4, 2002.
- Second Affidavit on behalf of Alliant Energy Service, Inc., before the Federal Energy Regulatory Commission in Docket No. ER99-230-002, concerning appropriate computational procedures and data sources for applying the Commission's SMA test, January 24, 2002.
- Affidavit on behalf of Rainy River Energy Corporation-Taconite Harbor, before the Federal Energy Regulatory Commission in Docket No. ER02-124-000, applying the Supply Margin Assessment test to Minnesota Power and its affiliates, January 7, 2002.
- Affidavit on behalf of Alliant Energy Services, Inc., before the Federal Energy Regulatory Commission in Docket No. ER99-230-002, applying the Supply Margin Assessment test to Alliant Energy Corporation to determine whether mitigation is required for affiliates of Alliant with market pricing authority under the procedures recently promulgated by the Commission, December 18, 2001.
- Affidavit on behalf of Southern Company Services, Inc., before the Federal Energy Regulatory Commission in Docket Nos. ER96-2495-015, ER97-4143-003, ER97-1238-010, ER98-2075-009, ER 98-542-005 and ER91-569-009, addressing the economic underpinnings of the Commission's SMA test, including its usefulness as a market power screening device, as well as the appropriateness of the mitigation measures that the Commission has ordered, December 14, 2001.
- Affidavit on behalf of Rainy River Energy Corporation – Wisconsin, before the Public Service Commission of Wisconsin in Docket No. 05-CE-128, providing a market power screen analysis to support Rainy River's application to the Wisconsin Public Service Commission to construct, own and operate the Superior project, December 3, 2001.
- Affidavit on behalf of Attala Energy Company, LLC, before the Federal Energy Regulatory Commission in Docket No. ER02-40-000, providing a Supply Margin Assessment, consistent with proposed FERC rules, for its generation, November 5, 2001.
- Prepared Rebuttal Testimony on behalf of Appalachian Power Company d/b/a American Electric Power, before the State Corporation Commission of Virginia in SCC Case No. PUE010011, concerning AEP's corporate separation plan, October 5, 2001.
- Affidavit on behalf of Southern Company Services, Inc., before the Federal Energy Regulatory Commission in Docket No. RM01-8-000, concerning potential competitive harms that could result if commercially sensitive transaction data are made available to the public, October 5, 2001.
- Affidavit on behalf of PSEG Lawrenceburg, before the Federal Energy Regulatory Commission in Docket No. ER01-01-2460, concerning market power issues associated with construction of new generation facilities, June 27, 2001.

- Affidavit on behalf of PSEG Waterford Energy Company, before the Federal Energy Regulatory Commission in Docket No. ER-01-2482, concerning market power issues associated with construction of new generation facilities, June 27, 2001.
- Prepared Rebuttal Testimony on behalf of Applicants FirstEnergy and Jersey Central Power & Light, before the New Jersey Board of Public Utilities in BPU Docket No. EM00110870 and OAL Docket No. PUCOT01585-01N, responding to allegations about defects in the competitive analysis of the proposed FirstEnergy-GPU merger, April 23, 2001.
- Affidavit on behalf of Nine Mile Point Nuclear Station, LLC, before the Federal Energy Regulatory Commission in Docket No. ER01-1654-000, concerning market based pricing by Nine Mile Point Nuclear Station, LLC, March 30, 2001.
- Affidavit on behalf of Niagara Mohawk Power Corporation, New York State Electric & Gas Corporation, Rochester Gas and Electric Corporation, Central Hudson Gas & Electric Corporation and Nine Mile Point Nuclear Station, LLC, before the Federal Energy Regulatory Commission in Docket No. EC01-75-000, concerning competitive issues raised by the proposed acquisition of the Nine Mile Point 1 nuclear unit and a portion of Nine Mile Point 2 nuclear unit by an affiliate of Constellation Energy Group, February 28, 2001.
- Affidavit on behalf of Constellation Energy Group *et al.*, before the Federal Energy Regulatory Commission in Docket Nos. EC01-50-000 and ER01-824-000, concerning market based pricing by affiliates of Constellation Energy Group, December 28, 2000.
- Prepared Direct Testimony on behalf of FirstEnergy and GPU, Inc., before the Federal Energy Regulatory Commission in Docket No. EC01-22-000, concerning competitive issues raised by the proposed merger of FirstEnergy and GPU, November 9, 2000.
- Prepared Direct Testimony on behalf of FirstEnergy and GPU, Inc., before the Pennsylvania Public Utility Commission in Application Docket No. A-110300F0095 *et al.*, concerning competitive issues raised by the proposed merger of FirstEnergy and GPU, November 9, 2000.
- Prepared Direct Testimony on behalf of FirstEnergy and GPU, Inc., before the Board of Public Utilities of the State of New Jersey in Docket No. EM00110870, concerning competitive issues raised by the proposed merger of FirstEnergy and GPU, November 9, 2000.
- Deposition in the matter of Illinois Power Company and Illinova Corporation v. Wegman Electric Company *et al.*, No. 98-L-280, Circuit Court of the third Circuit of Illinois, Madison County, concerning damages from having electric generating stations out of service, October 17, 2000.
- Affidavit and Declaration on behalf of Alabama Power Company, before the Environmental Protection Agency in FOIA RIN 003111-99, concerning appropriateness of protecting certain competitively valuable documents from public release, October 13, 2000.
- Affidavit on behalf of Northeast Utilities Service Company and Select Energy, Inc., before the Federal Energy Regulatory Commission in Docket No. EL00-102-000, concerning the cost of providing ICAP to New England capacity market, September 25, 2000.
- Affidavit on behalf of Ameren Energy, Inc., before the Federal Energy Regulatory Commission in Docket Nos. ER97-3664 and ER00-2687-000, concerning market based pricing of wholesale electricity by Ameren, September 22, 2000.

- Affidavit on behalf of Alabama Power Company, before the Federal Communications Commission in P.A. No. 00-003, concerning appropriateness of protecting certain competitively sensitive information from public release, September 6, 2000.
- Affidavit on behalf of Gulf Power Company, before the Federal Communications Commission in P.A. No. 00-004, concerning appropriateness of protecting certain competitively sensitive information from public release, September 6, 2000.
- Affidavit on behalf of Southern Company and Southern Energy, Inc., before the Federal Energy Regulatory Commission in Docket No. EC00-121-000, concerning whether the proposed spin-off of Southern Energy, Inc. would create competitive concerns, August 15, 2000.
- Affidavit on behalf of Northeast Utilities Service Company, before the Federal Energy Regulatory Commission in Docket Nos. EL00-62-001 and ER00-2052-002, concerning proposed termination of ICAP market and proposed mitigation of ICAP prices, May 30, 2000.
- Prepared Rebuttal Testimony on behalf of Detroit Edison Company, before the Michigan Public Service Commission in Case No. U-12134, concerning the design of a code of conduct for implementing retail customer choice, March 21, 2000.
- Affidavit on behalf of Split Rock Energy LLC, before the Federal Energy Regulatory Commission in Docket No. ER00-1857-000, concerning Split Rock LLC's application for market based pricing authority, March 10, 2000.
- Affidavit on behalf of Baltimore Gas and Electric Company, Calvert Cliffs, Inc., Constellation Enterprises, Inc. and Constellation Generation, Inc., before the Federal Energy Regulatory Commission in Docket No. EC00-57-000 and on behalf of Baltimore Gas and Electric Company, Calvert Cliffs, Inc., Constellation Generation, Inc., and Constellation Power Source, Inc., before the Federal Energy Regulatory Commission in Docket No. ER00-1598-000, concerning the application of Calvert Cliffs, Inc. and Constellation Generation, Inc. for market based pricing authority, February 11, 2000.
- Deposition in the matter of Cleveland Thermal Energy Company v. Cleveland Electric Illuminating Company, Case No. 1: 97 CV 3023, United States District Court, Northern District of Ohio, Eastern Division, concerning competitive issues and damages, October 15, December 7 and December 8, 1999.
- Supplemental Expert Report on behalf of Cleveland Electric Illuminating Company in Cleveland Thermal Energy Corp. v. Cleveland Electric Illuminating Company, Case No. 1: 97 CV 3023, United States District Court, Northern District of Ohio, Eastern Division, concerning damages issues, December 1, 1999.
- Expert Report on Behalf of Cleveland Electric Illuminating Company in Cleveland Thermal Energy Corp. v. Cleveland Electric Illuminating Company, Case No. 1: 97 CV 3023, United States District Court Northern District of Ohio, Eastern Division, concerning allegations that a clause giving Cleveland Electric Illuminating Company the right to purchase electricity at avoided costs from a cogeneration plant that Cleveland Thermal Energy Corp. would have constructed was anticompetitive and an unreasonable restraint of trade, and computing damages, September 27, 1999.



- Deposition in the matter of Florida Municipal Power Agency v. Florida Power & Light Company, Case No. 92-35-CIV-ORL22C, United States District Court, Middle District of Florida, Orlando Division, concerning damages and market issues, August 31, 1999.
- Expert Report on Behalf of Florida Power & Light Company in Florida Municipal Agency v. Florida Power & Light Company in Case No. 92-35-CIV-ORL22C, United States District Court, Middle District of Florida, Orlando Division, concerning damages and market issues, August 26, 1999.
- Affidavit on behalf of AmerGen Energy Company, before the Federal Energy Regulatory Commission in Docket Nos. EC99-104-000 and ER99-754-001, concerning AmerGen's proposed acquisition of the Clinton nuclear unit, August 1999.
- Affidavit on behalf of AmerGen Energy Company, before the Federal Energy Regulatory Commission in Docket Nos. EC99-98-000 and ER99-754-002, concerning AmerGen's proposed acquisition of the Nine Mile Point 1 nuclear unit and a portion of the Nine Mile Point 2 nuclear unit, July 1999.
- Affidavit on behalf of Minnesota Power, Inc., before the Federal Energy Regulatory Commission in Docket No. ER99-3586-000, concerning Minnesota Power's application for market based pricing authority, July 1999.
- Deposition in the matter of Allegheny Energy, Inc. v. DQE, Inc., Civ. A. No. 98-16396 (RJC), United States District Court, Western District of Pennsylvania, concerning issues relating to the value of plaintiff's generating assets, June 11, 1999.
- Affidavit on behalf of Public Service Electric and Gas Company (PSEG), before the Federal Energy Regulatory Commission in Docket No. EC99-79-000 *et al.*, concerning PSEG's request to transfer its generating assets to an affiliate, June 4, 1999.
- Expert Report on behalf of Allegheny Energy in Allegheny Energy, Inc. v. DQE, Inc. Civ. A. No. 98-16396 (RJC), United States District Court, Western District of Pennsylvania, concerning issues relating to the value of plaintiff's generating assets, May 17, 1999.
- Affidavit on behalf of Baltimore Gas & Electric (BG&E) Company, before the Federal Energy Regulatory Commission in Docket No. ER99-2948-000, concerning BG&E's application for market based pricing authority, May 13, 1999.
- Affidavit on behalf of Florida Power & Light in Florida Municipal Power Agency v. Florida Power & Light Co., Case No. 92-35-CIV-ORL-22, concerning legitimacy of Florida Power & Light's conduct, March 22, 1999.
- Affidavit on behalf of PECO Energy, before the Federal Energy Regulatory Commission in Docket No ER99-1872-000, concerning PECO's application of market based pricing authority, February 1999.
- Affidavit on behalf of Northeast Utilities, before the Federal Energy Regulatory Commission in Docket No. ER 99-1829-000, concerning Northeast Utilities application for market based pricing authority, February 1999.

- Affidavit on behalf of AmerGen Energy Company, LLC (AmerGen), before the Federal Energy Regulatory Commission in Docket Nos. EC99-11-000, EL99-13-000 and ER99-754-000, concerning (i) AmerGen's acquisition of Three Mile Island No. 1 from GPU, Inc. and (ii) AmerGen's application for market based pricing authority, November 1998.
- Affidavit on behalf of Constellation Energy Source, Inc. (CES), before the Federal Energy Regulatory Commission in Docket No. ER99-198-000, concerning CES's application for market based pricing authority, October 14, 1998.
- Affidavit on behalf of Select Energy, Inc. (Select), before the Federal Energy Regulatory Commission in Docket No. ER99-14-000, concerning Select's application for market based pricing authority, October 1, 1998.
- Rebuttal Testimony on Retail Market Power Issues on behalf of Mississippi Power Company, before the Mississippi Public Service Commission in Docket No. 96-UA-389, concerning whether Mississippi Power Company will be able to exercise market power in deregulated retail markets in Mississippi, September 11, 1998.
- Prepared Testimony and Report on Retail Market Power Issues on behalf of Mississippi Power Company, before the Mississippi Public Service Commission in Docket No. 96-UA-389, concerning whether Mississippi Power Company will be able to exercise market power in deregulated retail markets in Mississippi, August 7, 1998.
- Affidavit on behalf of Southern California Edison Company, before the Federal Energy Regulatory Commission, concerning market power issues associated with the supply of ancillary services to the California ISO, July 13, 1998.
- Prepared Rebuttal Testimony on behalf of Public Service Electric & Gas Company, with Paul Joskow, before the State of New Jersey Board of Public Utilities in Docket Nos. EX94120585Y, E097070457, E097070460, E097070463 and E097070466, responding to market power issues raised by intervenor witnesses, including in particular the role of transmission constraints in market power analyses, appropriate mitigation measures for "load pocket" situations, proper standards for granting market based pricing authority, the role of transitional mechanisms in mitigating market power concerns and the use and role of market simulations in addressing market power topics, April 13, 1998.
- Prepared Rebuttal Testimony on behalf of Atlantic City Electric Company, with Paul Joskow, before the State of New Jersey Board of Public Utilities in Docket Nos. EX94120585Y, E097070457, E097070460, E097070463 and E097070466, responding to market power issues raised by intervenor witnesses, including, in particular, the role of transmission constraints in market power analyses, appropriate mitigation measures for "load pocket" situations, proper standards for granting market based pricing authority and the use and role of market simulations in addressing market power topics, April 13, 1998.
- Prepared Additional Supplemental Direct Testimony on behalf of Ohio Edison and Centerior Energy, before the Federal Energy Regulatory Commission in Docket No. EC97-5-000, concerning the competitive analyses associated with Ohio Edison's merger with Centerior Energy, August 8, 1997.

- Prepared Testimony on behalf of Public Service Electric and Gas Company on Market Power Issues, with Paul Joskow, before State of New Jersey Board of Public Utilities, concerning market power issues associated with PSEG's proposal to implement retail customer choice in its competitive filings in New Jersey, July 30, 1997.
- Affidavit on behalf of Union Electric Development Corporation, before the Federal Energy Regulatory Commission in Docket No. ER97-3663-000, concerning Union Electric Development Corporation's request for the right to make wholesale bulk power sales at market-determined prices, July 8, 1997.
- Affidavit on behalf of Union Electric Company, before the Federal Energy Regulatory Commission in Docket No. ER97-3664-000, concerning Union Electric's request for the right to make wholesale bulk power sales at market-determined prices, July 8, 1997.
- Rebuttal Testimony on Reopening on behalf of Union Electric Company and Central Illinois Public Service Company, before the Illinois Commerce Commission in Docket No. 95-0551, addressing competitive issues raised by witnesses for intervenors and the staff of the ICC in response to previous testimony, May 23, 1997.
- Rebuttal Testimony on behalf of Wisconsin Power and Light Company, Interstate Power Company and IES Industries, Inc., before the Public Service Commission of Wisconsin in Docket No. 6680-UM-100, responding to concerns raised by intervenors regarding competitive issues associated with the proposed merger of the three companies, May 20, 1997.
- Direct Testimony on Reopening on behalf of Union Electric Company and Central Illinois Public Service Company, before the Illinois Commerce Commission in Docket No. 95-0551, responding to ICC's request that applicants apply the screening analysis contained in Appendix A of the Federal Energy Regulatory Commission's Order 592 to the effects of the proposed merger on existing and future Illinois retail markets, April 14, 1997.
- Prepared Rebuttal Testimony on behalf of IES Utilities, Inc., Interstate Power Company, Wisconsin Power & Light Company, South Beloit Water, Gas & Electric Company, Heartland Energy Services and Industrial Energy Applications, Inc., before the Federal Energy Regulatory Commission in Docket No. EC96-13-000, responding to issues raised by intervenors concerning the proposed merger and the application of the screening analysis contained in Appendix A of FERC's Order 592, April 14, 1997.
- Affidavit on behalf of Constellation Power Source, Inc., before the Federal Energy Regulatory Commission in Docket No. ER97-2261-000, concerning Constellation's request for the right to make wholesale bulk power sales at market-determined prices, March 25, 1997.
- Prepared Supplemental Direct Testimony on behalf of Ohio Edison Company, Pennsylvania Power Company, The Cleveland Electric Illuminating Company and The Toledo Edison Company, before the Federal Energy Regulatory Commission in Docket No. EC97-5-000, concerning the application of the screening analysis contained in Appendix A of FERC's Order 592 to the applicants' proposed merger, March 20, 1997.

- Prepared Additional Direct Testimony on behalf of IES Utilities, Inc., Interstate Power Company, Wisconsin Power & Light Company, South Beloit Water, Gas & Electric Company, Heartland Energy Services and Industrial Energy Applications, Inc., before the Federal Energy Regulatory Commission in Docket No. EC96-13-000, concerning the application of the screening analysis contained in Appendix A of FERC's Order 592 to the applicants' proposed merger, February 27, 1997.
- Prepared Rebuttal Testimony on behalf of Union Electric Company and Central Illinois Public Service Company, before the Federal Energy Regulatory Commission in Docket No. EC96-7-000 *et al.*, addressing competitive issues related to the proposed merger of Union Electric Company and Central Illinois Public Service Company, January 13, 1997.
- Affidavit on behalf of Union Electric Company and Central Illinois Public Service Company, before the Federal Energy Regulatory Commission in Docket No. EC96-7-000 *et al.*, concerning the effect of the FERC's Policy Statement on mergers (Order No. 592) on the proposed merger of Union Electric Company and Central Illinois Public Service Company, January 13, 1997.
- Prepared Supplemental Direct Testimony on behalf of Union Electric Company and Central Illinois Public Service Company, before the Federal Energy Regulatory Commission in Docket No. EC96-7-000 *et al.*, concerning the effects of transmission constraints on the potential to exercise market power as a result of the proposed merger of Union Electric and Central Illinois Public Service Company, November 15, 1996.
- Direct Testimony on behalf of Ohio Edison Company and Centerior, before the Federal Energy Regulatory Commission in Docket No. EC97-5-000, concerning the effect of the proposed merger of Ohio Edison and Centerior on market power and competition, November 8, 1996.
- Prepared Direct Testimony on behalf of Union Electric Company, before the Missouri Public Service Commission in Case No. EM-96-149, concerning the effects on various market power concerns of the proposed merger between Union Electric Company and Central Illinois Public Service Company, November 1, 1996.
- Testimony on behalf of Virginia Electric and Power Company in the matter of Gordonsville Energy, L.P. v. Virginia Electric and Power Company, before the Circuit Court of the City of Richmond, Case No. LA-2266-4, concerning damages suffered by VEPCO as a result of a NUG outage, and the appropriateness of a liquidated damages provision in the contract between VEPCO and the NUG, October 23, 1996.
- Prepared Direct Testimony on behalf of Southern Company Services, Inc., before the Federal Energy Regulatory Commission in Docket No. ER96-780-000, concerning whether constraints on the Florida/Southern interface give Southern the ability to exercise market power, September 23, 1996.
- Deposition in the matter of Gordonsville Energy, L.P. v. Virginia Electric and Power Company, before the Circuit Court of the City of Richmond, Case No. LA-2266-4, concerning damages suffered by VEPCO as a result of a NUG outage, September 17, 1996.
- Prepared Rebuttal Testimony on behalf of Public Service Company of New Mexico, before the Federal Energy Regulatory Commission in Docket No. ER95-1800-000 *et al.*, addressing market power issues raised by intervenors in response to previous testimony, August 30, 1996.

- Prepared Testimony on behalf of Public Service Company of New Mexico, before the Federal Energy Regulatory Commission in Docket No. ER96-1551-000, concerning whether PNM possesses market power in transmission-constrained areas, July 10, 1996.
- Affidavit on behalf of Central Louisiana Electric Company, before the Federal Energy Regulatory Commission in Docket No. ER96-2677-000, concerning CLECO's request for the right to make wholesale bulk power sales at market-determined prices, July 9, 1996.
- Supplemental Direct Testimony on behalf of IES Utilities, Inc., Interstate Power Company, Wisconsin Power & Light Company, South Beloit Water, Gas & Electric Company, Heartland Energy Services and Industrial Energy Applications, Inc., before the Federal Energy Regulatory Commission in Docket No. EC96-13-000, examining the effects of the proposed formation of a regional Independent System Operator on the analyses and conclusions contained in previous testimony in support of the companies' proposed merger, June 5, 1996.
- Prepared Testimony on behalf of Minnesota Power & Light Company, before the Federal Energy Regulatory Commission in Docket No. EC95-16-000, concerning Minnesota Power & Light's request for the right to make wholesale bulk power sales at market-determined prices, May 16, 1996.
- Prepared Rebuttal Testimony on behalf of IES Industries, Inc., Interstate Power Company and WPL Holdings, Inc., before the Iowa Utilities Board in Docket No. SPU-96-6, addressing market power and competition issues raised by intervenors in response to previous merger testimony, April 22, 1996.
- Prepared Direct Testimony on behalf of IES Utilities, Inc., Interstate Power Company, Wisconsin Power & Light Company, South Beloit Water, Gas & Electric Company, Heartland Energy Services and Industrial Energy Applications, Inc., before the Federal Energy Regulatory Commission in Docket No. EC96-13-000, concerning the effects of their proposed merger on market power and competition, February 29, 1996.
- Deposition in the matter of Westmoreland-LG&E Partners v. Virginia Electric and Power Company, Case No. LX-2859-1, concerning interpretation of capacity payment provisions in power purchase agreement under which Westmoreland-LG&E sells output of non-utility generator to VEPCO, February 23, 1996 and October 9, 1998.
- Prepared Testimony on behalf of Union Electric Company and Central Illinois Public Service Company, before the Federal Energy Regulatory Commission in Docket Nos. EC96-7-000 and ER96-679-000, concerning the effects of their proposed merger on market power and competition, December 22, 1995.
- Prepared Testimony on behalf of Northeast Utilities, before the Federal Energy Regulatory Commission in Docket No. ER95-1686-000, concerning FERC's generation dominance standard in support of Northeast Utilities' request for market-based pricing authority, November 13, 1995.
- Sur-reply affidavit on behalf of Rochester Gas & Electric, before the U.S. District Court, Western District of New York, in *Kamine/Besicorp Allegheny L.P. v. Rochester Gas & Electric Corporation*, Case No. 95-CIV-6045L, in response to motion by Kamine/Besicorp Allegheny L.P. for a preliminary injunction, July 10, 1995.

- Prepared Supplemental Rebuttal Testimony on Transmission NOPR Issues on behalf of Florida Power & Light Company, before the Federal Energy Regulatory Commission in Docket No. ER93-465-000 *et al.*, addressing transmission NOPR issues raised by FERC Staff and Intervenor, May 19, 1995.
- Prepared Direct Testimony on Transmission NOPR Issues on behalf of Florida Power & Light, before the Federal Energy Regulatory Commission in Docket No. ER93-465-000 *et al.*, concerning the effects of FERC's recent Notice of Proposed Rulemaking on issues in FPL's ongoing case, April 25, 1995.
- Affidavit on behalf of Rochester Gas & Electric, before the U.S. District Court, Western District of New York, in *Kamine/Besicorp Allegheny L.P. v. Rochester Gas & Electric Corporation*, Case No. 95-CIV-6045L, in support of its opposition to a request by *Kamine/Besicorp Allegheny L.P.* for a temporary restraining order, March 9, 1995.
- Testimony on behalf of Virginia Power, before the Circuit Court of the City of Richmond in Case No. LW-730-4, *Doswell Limited Partnership v. Virginia Electric Power Company*, concerning the level of fixed gas transportation costs associated with the proxy unit which forms the basis for VEPCO's payments to Doswell, March 2, 1995.
- Prepared Rebuttal Testimony on behalf of American Electric Power Service Corporation, before the Federal Energy Regulatory Commission in Docket No. ER93-540-001, addressing issues concerning FERC's new comparability standard and its implications for AEP's transmission service offerings, January 17, 1995.
- Deposition on behalf of El Paso Electric Company and Central and South West Services, Inc., before the Federal Energy Regulatory Commission in Docket Nos. EC94-7-000 and ER94-898-000, concerning comparability and other transmission issues, December 22, 1994.
- Prepared Rebuttal Testimony on behalf of Florida Power & Light Company, before the Federal Energy Regulatory Commission in Docket No. ER93-465-000 *et al.*, concerning market power and competitive issues, comparability and other transmission issues, wholesale electric service tariff revisions, and issues concerning interchange contract revisions, December 16, 1994.
- Prepared Rebuttal Testimony on behalf of El Paso Electric Company and Central and South West Services, Inc., before the Federal Energy Regulatory Commission in Docket Nos. EC94-7-000 and ER94-898-000, concerning network transmission service and point-to-point transmission service, December 12, 1994.
- Prepared Direct Testimony on behalf of Midwest Power Systems, Inc. and Iowa-Illinois Gas and Electric Company, before the Federal Energy Regulatory Commission in Docket No. EC95-4-000, concerning competitive issues raised by their proposed merger to form MidAmerican Energy Company, November 10, 1994.
- Deposition on behalf of Florida Power Corporation in *Orlando Cogen, Inc. et al., v. Florida Power Corporation*, Case No. 94-303-CIV-ORL-18, US District Court in and for the Middle District of Florida, Orlando Division, involving a contract dispute between FPC and one of its NUG suppliers, August 30, 1994.

- Prepared Direct Testimony on Comparability Issues on behalf of Florida Power & Light Company in Florida Power & Light Company, before the Federal Energy Regulatory Commission in Docket Nos. ER93-465-000 and ER93-922-000, concerning a discussion of the differences between types of transmission services, usage of transmission systems by their owners, transmission services that FPL provides, and how those services compare and contrast with FPL's own uses of the transmission system, August 5, 1994.
- Prepared Answering Testimony on behalf of Florida Power & Light Company, before the Federal Energy Regulatory Commission in Docket Nos. ER93-465-000 and ER93-922-000, concerning (i) whether municipal systems should receive billing credits for certain transmission facilities which they own which were argued to be part of an "integrated" transmission grid, and (ii) FPL's obligation to sell wholesale power under its Nuclear Regulatory Commission antitrust license conditions, July 7, 1994.
- Deposition on behalf of Virginia Electric & Power Co. in re: Doswell Limited Partnership v. Virginia Electric & Power Co., Case No. LW-730-4, Circuit Court for the City of Richmond, involving an alleged fraud and breach of contract relating to payments by VEPCO to one of its NUG suppliers, April 5, 1994.
- Prepared Final Rebuttal Testimony on behalf of Central Louisiana Electric Company, before the Federal Energy Regulatory Commission in Docket No. ER93-498-000, examining an allegation of predatory pricing, March 16, 1994.
- Prepared Rebuttal Testimony on behalf of Central Louisiana Electric Company, before the Federal Energy Regulatory Commission in Docket No. ER93-498-000, examining an allegation of a municipal joint action agency that Central Louisiana's contract to provide bulk power service to a new municipal system customer constituted predatory pricing, December 23, 1993.
- "Comments on the Commerce Commission's Draft Determination Concerning Trans Power's Proposal to Recover Fixed/Sunk Transmission Costs," testimony on competitive issues prepared at the request of The Electricity Industry Committee, New Zealand, November 30, 1993.
- Prepared Direct Testimony on behalf of Florida Power & Light Company, before the Federal Energy Regulatory Commission in Docket Nos. ER93-465-000 and ER93-922-000, concerning competitive implications of wholesale tariff revisions, interchange contract revisions and a proposed "open access" transmission tariff, November 26, 1993.
- Deposition on Behalf of Florida Power & Light in Florida Municipal Power Agency v. Florida Power & Light Co., Case No. 92-35-CIV-ORL-22, concerning damage related issues, July 21 and 22, 1993.
- Affidavit on behalf of Florida Power & Light in Florida Municipal Power Agency v. Florida Power & Light Co., Case No. 92-35-CIV-ORL-22, concerning damage related issues, July 14, 1993.
- Prepared Direct Testimony on behalf of the Detroit Edison Company In the Matter of the Application of the Association of Businesses Advocating Tariff Equity for Approval of an experimental retail wheeling tariff for Consumers Power Company, Case No. U-10143, and In the Matter on the Commission's own motion, to consider approval of an experimental retail wheeling tariff for The Detroit Edison Company, Case No. U-10176, before the Michigan Public Service Commission, March 1, 1993.

- Deposition on behalf of Florida Power & Light in Florida Municipal Power Agency vs. Florida Power & Light Company, Case No. 92-35-CIV-ORL-22, concerning relevant markets, market power and competitive issues, February 25, 1993.
- Deposition in Tucson Electric Power Company v. SCE Corporation *et al.*, Superior Court of the State California, Case No. 628170, June 19, 1992.
- Affidavit on behalf of Iowa Power Inc. and Iowa Public Service Company, before the Federal Energy Regulatory Commission, concerning the competitive effects of a merger of the two companies, 1991.
- Testimony on behalf of Defendants Union Electric and Missouri Utilities, in City of Malden, Missouri v. Union Electric Company and Missouri Utilities Company, U.S. District Court, Eastern District of Missouri, Southeastern Division, Civil Action No. 83-2533-C, 1988.
- Testimony on behalf of Defendant Union Electric, in City of Kirkwood, Missouri v. Union Electric Company, U.S. District Court, Eastern District of Missouri, Civil Action No. 86-1787-C-6 (deposition testimony), 1987.
- Testimony on behalf of Defendant Union Electric Company, in Citizens Electric Corporation v. Union Electric Company, U.S. District Court, Eastern District of Missouri, Eastern Division, Civil Action No. 83-2756C(c), 1986.
- Testimony on behalf of Advo-System, Inc., before the Postal Rate Commission, Docket No. R84-1, concerning rates for third class mail, 1984.
- Testimony on behalf of D/FW Signal, Inc., before the Federal Communications Commission, Docket No. CC83-945, concerning cellular telephone service in Dallas-Fort Worth, 1983.
- Testimony on behalf of the Department of Defense, before the Montana Public Service Commission, Docket No. 82.2.8, concerning telephone service rate structure, 1982.
- Testimony on behalf of Multnomah County, before the Public Utility Commissioner of Oregon, Docket UF 3565, concerning telephone service rate structure, 1980.
- Testimony on behalf of the Louisiana Consumer League, before the Louisiana Public Service Commission, Docket No. U-14078, concerning marginal cost pricing for Louisiana Power and Light Company, 1979.
- Testimony on behalf of the State of Oregon, City of Portland, and County of Multnomah, before the Public Utility Commissioner of Oregon, Dockets UF3342 and UF3343, concerning rates for Centrex and ESSX telephone service, 1978.

## **SELECTED REPORTS AND PAPERS**

- “Comments” in Federal Energy Regulatory Commission Docket No. RM04-7-000, concerning rules governing short-term transactions between generation-owning regulated electric utilities and their marketing affiliates, June 30, 2004.
- “Large RTOs and Traditional Transmission Pricing Don’t Mix,” with Michael Quinn, prepared for The Electricity Journal, January/February 2002.



- “Potential Adverse Consequences of Poor Transmission Pricing,” prepared for Southern Company Services, Inc., October 23, 2001.
- “An Economic Assessment of the Benefits of Repealing PUHCA,” with John Landon, Ajay Gupta and Virginia Perry-Failor, prepared for Mid-American Energy Holdings, April 2000.
- Updated Market Power Analysis for Detroit Edison Company, concerning Detroit Edison Company’s market based pricing authority, submitted to the Federal Energy Regulatory Commission, December 17, 1999.
- Report of Ameren to the Public Service Commission of Missouri on Market Power Issues, concerning whether Ameren, created by the merger of Union Electric Company and Central Illinois Public Service Company, is likely to have market power if deregulation and retail competition are introduced in Missouri, February 27, 1998.
- “Supporting Companies’ Report on Horizontal Market Power Analysis,” with Paul Joskow, concerning analysis of market power issues in connection with a proposed reorganization of the PJM Pool, July 14, 1997.
- “International Electricity Sector Investment by US Electric Utilities,” with Graham Hadley, Paul Hennemeyer and Barbara MacMullen, prepared for The Kansai Electric Power Company, Inc., March 5, 1997.
- “Report on Horizontal Market Power Issues,” with Paul Joskow, prepared for Southern California Edison Company in FERC Docket No. ER96-1663-000, May 29, 1996.
- “Recent Developments in North American Electric Generation Capacity Procurement Systems,” with Mahim Chellappa, prepared for Electricite de France (EDF), Paris, France, August 1994.
- “Comments on Transmission Reform Proposals,” report prepared for the Edison Electric Institute, October 1993.
- “Sunk Transmission Cost Recovery Issues,” report prepared for The Electricity Industry Committee, New Zealand, September 1, 1993.
- “Opportunity Cost Pricing for Electric Transmission: An Economic Assessment,” report prepared for Edison Electric Institute, June 1992.
- “Transmission Access and Pricing: What Does A Good ‘Open Access’ System Look Like,” NERA Working Paper #14, January 1992.
- “Evaluation of Qualifying Facility Proposals,” prepared for Florida Power Corporation, March 1991.
- “Design of Capacity Procurement Systems,” prepared for Electricite de France, January 1991.
- “Issues in the Design of Generating Capacity Procurement Systems,” prepared for TransAlta Utilities, January 1991.
- “Government Regulators and Market Power Issues,” prepared for Edison Electric Institute, January 1991.

- “A Critique and Evaluation of the Large Public Power Council’s Transmission Access and Pricing Proposal,” prepared for Edison Electric Institute, December 1990.
- “The Effects of a Premature Shutdown of the Trojan Nuclear Power Plant,” prepared for Portland General Electric Company, October 1990.
- “An Examination of the Proper Role for Utilities in Promoting Conservation Expenditures,” prepared for Public Service Electric and Gas Company with T. Scott Newlon, 1990.
- “Issues Concerning Selection Criteria Development for Capacity RFPs,” prepared for the Bonneville Power Administration, February 15, 1990.
- “Nonutility Generators and Bonneville Power Administration Resource Acquisition Policy,” prepared for the Bonneville Power Administration, with David L. Weitzel, January 31, 1990.
- “An Evaluation of Resource Solicitation Alternatives,” prepared for the Bonneville Power Administration, January 31, 1990.
- “Approaching the Transmission Access Debate Rationally,” Transmission Research Group Working Paper Number 1, with Joe D. Pace, November 1987.
- “The Essential Facilities Doctrine,” NERA, June 1985.
- “The Nuclear Regulatory Commission’s Antitrust Review Process: An Analysis of the Impacts,” Transcomm, Inc., prepared for the U.S. Department of Energy, 1981.
- “Competitive Aspects of Utility Involvement in Cogeneration and Solar Programs,” Transcomm, Inc., prepared for the U.S. Department of Energy, June 1981.
- “An Appraisal of Antitrust Review Extension in the Context of Small Utility Fuel Use Act Compliance,” Transcomm, Inc., prepared for the U.S. Department of Energy, July 28, 1980.
- “Analysis of Proposed License Conditions with Respect to Antitrust Deficiencies,” Transcomm, Inc., prepared for the U.S. Nuclear Regulatory Commission, 1978.
- “Analysis of NRC Staff’s Proposed License Conditions for Midland Units,” Transcomm, Inc., prepared for the U.S. Nuclear Regulatory Commission, August 7, 1978.

## **SELECTED SPEECHES**

- “Coping With Uncertainty in Power Supply Planning,” presented to the National Rural Utilities Cooperative Finance Corporation’s Independent Borrowers Executive Summit, San Diego CA, with John Landon, November 17, 2010.
- “Key Issues that Keep IOU Executives Awake at Night,” presented to the National Rural Utilities Cooperative Finance Corporation’s Independent Borrowers Executive Summit, San Diego CA, with John Landon, November 16, 2010.
- Panelist at Edison Electric Institute’s Supply Policy Task Force conference discussing various topics associated with proposed revisions to FERC’s procedures for determining when market-based as opposed to cost-based pricing is appropriate, Washington, DC, July 18, 2006.

- “Resource Acquisition and Market Power Topics: Overview of FERC’s Current and Evolving Practices,” presented to Edison Electric Institute Workshop on Market Power Policies and Current Practices at the NARUC’s Summer Committee Meetings, Salt Lake City, Utah, July 10, 2004.
- “Examining the Commission’s Recent Treatment of Market Power and Competitive Issues,” speech presented to the Edison Electric Institute Spring Legal Conference, Scottsdale, Arizona, March 29, 2004.
- Presentation on Transmission Pricing Issues to the EEI Winter Chief Executive Conference and Board of Directors Meeting, Scottsdale, AZ, January 10, 2002.
- Presentation to the Board of Directors of the Salt River Project on Code of Conduct Issues Associated with Industry Restructuring, November 9, 1998.
- “FERC’s Approach To Addressing Horizontal Market Power in Electric Mergers,” speech presented to Infocast Conference on Utility Mergers & Acquisitions, Washington, D.C., July 17, 1998.
- “Problems in Applying the Appendix A Analytical Screen,” speech presented to the Edison Electric Institute Workshop on Practical Applications of the FERC Merger Policy Guidelines, Arlington, Virginia, April 1, 1997.
- “Evolving Market Power Issues in the Context of Electric Restructuring,” speech presented to Eastern Mineral Law Foundation Forum on Natural Resources and Energy Law, Sanibel Island, Florida, February 13, 1997.
- “An Overview of Antitrust in the Electric Industry,” speech presented to Antitrust Law & Economics for the Electric Industry, sponsored by Energy Business, Inc., Washington, D.C., February 22, 1996.
- “Moving From Here to There: Some Implications for Electric Transmission,” speech presented to the Infocast Power Industry Forum, Palm Springs, California, February 17, 1995.
- “What Does ‘Comparability’ Really Mean?,” speech presented to The Federal Energy Bar Association, Washington, D.C., November 17, 1994.
- “Current Transmission Topics” and “Trans Alta’s Unbundled Rate Proposal,” presented to the Canadian Electrical Association, Montreal, PQ, Canada, May 9, 1994.
- “Retail Wheeling Issues,” speech presented to the Edison Electric Institute National Accounts Workshop, Atlanta, Georgia, February 7, 1994.
- “Retail Wheeling: Doing It the Right Way,” speech presented to the Retail Wheeling Conference, Denver, Colorado, November 8, 1993.
- “Retail Wheeling,” speech presented to the Missouri Valley Electric Association Division Conference, Kansas City, Missouri, October 22, 1993.

- “An Economic Perspective on Current Transmission Pricing Issues,” speech presented to the Edison Electric Institute 1993 Fall Legal Committee Meeting, Minneapolis, Minnesota, October 7, 1993.
- “Characteristics of a ‘Good’ Retail Wheeling System,” speech presented to the Second Annual Electricity Conference sponsored by Executive Enterprises, Inc., Washington, D.C., April 21-22, 1993.
- “Characteristics of a ‘Good’ Retail Wheeling System,” speech presented to the Electric Utility Business Environment Conference sponsored by Electric Utility Consultants, Inc., Denver, Colorado, March 16-17, 1993.
- “Change in the Industry,” seminar presentation on privatization and service unbundling presented to Ontario Hydro management and special strategy task force, Ontario, Canada, February 3, 1993.
- “The U.S. Experience and What Is To Come,” speech presented to NERA Seminar on Competition in the Regulated Industries (Electric/Telecommunications), Rye Town Hilton, Rye Town, New York, October 30, 1992.
- “Emerging Transmission Pricing Issues,” speech presented to Electric Utility Consultants, Inc.’s 3rd Annual Transmission & Wheeling Conference, Chicago, Illinois, September 22-23, 1992.
- “Emerging Transmission Pricing Issues,” speech presented to Executive Enterprises, Inc., 1992 Electricity Conference: Restructuring the Electricity Industry, Washington, D.C., September 15-16, 1992.
- “A Pragmatic Look at Open Access,” presented to DOE/NARUC Workshop on Electricity Transmission, Stockbridge, Massachusetts, June 2, 1992.
- “Some Thoughts About Open Access,” presented to EMA’s Issues and Outlook Forum, Atlanta, Georgia, May 5, 1992.
- “Transmission Access: How Should We Proceed?” speech presented to the Second Annual Transmission and Wheeling Conference, Denver, Colorado, November 21, 1991.
- “Can We Implement Reasonable Transmission Pricing and Access Procedures?” presented to the Edison Electric Institute System Planning Committee, Dallas, Texas, October 24, 1990.
- “Issues in the Design of Competitive Bidding Systems,” presented at the Pennsylvania Electric Association System Planning Meeting,” 1990.
- “Should We Use Opportunity Cost Pricing for Transmission?” presented to the Edison Electric Institute Interconnection Arrangements Committee, 1990.
- “Recent Changes in the Electric Power Industry and Pressures on the Transmission System,” presented at seminar “Competitive Electricity: Why the Debate?” Sponsored by the Electricity Consumers Resource Council, 1988.
- “Some Thoughts on New Transmission Access and Pricing Proposals,” presented at “Transmission Pricing and Access: Reinventing the Wheel” conference, sponsored by Cogeneration and Independent Power Coalition of America and American Cogeneration Association, 1988.

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**Exhibit RF-2**  
**AEP Pool Agreement**

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INTERCONNECTION AGREEMENT  
BETWEEN  
APPALACHIAN POWER COMPANY  
KENTUCKY POWER COMPANY  
OHIO POWER COMPANY  
COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY \*  
INDIANA & MICHIGAN ELECTRIC COMPANY  
AND WITH  
AMERICAN ELECTRIC POWER SERVICE CORPORATION,  
AS AGENT

Dated: July 6, 1951, as modified and supplemented by:

Modification No. 1, August 1, 1951  
Modification No. 2, September 20, 1962  
Modification No. 3, April 1, 1975  
Supplement No. 1 to  
Modification No. 3, August 1, 1979  
Supplement No. 2 to  
Modification No. 3, August 27, 1979  
Modification No. 4, November 1, 1980 \*  
Compliance Filing (FERC ordered), Opinion 266,  
Docket Nos. ER84-579-006 and EL86-10-001

\* Pursuant to Modification No. 4 the terms "Member" and "Members", whenever said terms appear in the 1951 Agreement, shall, on and after the time when Modification No. 4 shall become effective, include Columbus Company.

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0.1 THIS AGREEMENT, made and entered into as of the 6th day of July, 1951 by and between APPALACHIAN POWER COMPANY (Appalachian Company), a Virginia corporation, KENTUCKY POWER COMPANY (Kentucky Company), a Kentucky corporation, OHIO POWER COMPANY (Ohio Company), an Ohio corporation, COLUMBUS AND SOUTHERN OHIO ELECTRIC COMPANY (Columbus Company), an Ohio corporation, INDIANA & MICHIGAN ELECTRIC COMPANY (Indiana Company), an Indiana corporation, said companies (herein sometimes called 'Members' when referred to collectively and 'Member' when referred to individually), being affiliated companies of an integrated public utility electric system, and AMERICAN ELECTRIC POWER SERVICE CORPORATION (Agent), a New York corporation, being a service company engaged solely in the business of furnishing essential services to the aforesaid companies and to other affiliated electric utility companies.

The term "affiliate" shall include American Electric Power Company, Inc., Appalachian Power Company, Columbus and Southern Ohio Electric Company, Indiana & Michigan Electric Company, Kentucky Power Company, Ohio Power Company, Kingsport Power Company, Michigan Power Company, Wheeling Electric Company, and any subsidiaries, direct or indirect, of the foregoing.

W I T N E S S E T H,

T H A T:

0.2 WHEREAS, the Members own and operate electric facilities in the states herein indicated: (i) Appalachian Company in Tennessee, Virginia, and West Virginia, (ii) Kentucky Company in Kentucky, (iii) Ohio Company in Ohio and West Virginia, and (iv) Indiana Company in Indiana and Michigan, and (v) Columbus Company in Ohio, and

0.3 WHEREAS, the Members' electric facilities are now and have been for many years interconnected through their respective transmission facilities at a number of points (hereby designated and hereinafter called "Interconnection Points"), such facilities and the transmission facilities of other affiliated electric utility companies forming an integrated transmission network; and



0.4 WHEREAS, the transmission facilities of each Member are interconnected at a number of points with the transmission facilities of various non-affiliated electric utility companies, and those of Appalachian Company are interconnected with those of Tennessee Valley Authority, (said companies and Tennessee Valley Authority hereinafter sometimes called "Foreign Companies" when referred to collectively and "Foreign Company" when referred to individually; and

0.5 WHEREAS, the Members through cooperation with each other have been successful for some years in achieving substantial economies in the conduct of their business by coordinating the expansion and operation of their power supply facilities; and

0.6 WHEREAS, the Members believe that a fuller realization of the benefits and advantages through coordinated operation of their electric supply facilities will be better assured and more efficiently and economically achieved by having such operation directed and supervised by a centrally located organization skilled in the technique of system operation on a large scale and thoroughly familiar with the power supply facilities of the Members, and that their participation in the coordinated expansion and operation of their facilities will be simplified and facilitated by having such procedures conducted by a single clearing agent; and

0.7 WHEREAS, the Members believe that the Agent designated herein for such purpose is qualified to perform

such services for them.

0.8 NOW, THEREFORE, in consideration of the premises and of the mutual covenants and agreements hereinafter contained, the parties hereto agree as follows:

#### ARTICLE I

##### PROVISIONS FOR, AND CONTINUITY OF INTERCONNECTED OPERATION

1.1 Throughout the duration of this agreement the systems of the Members shall be operated in continuous synchronism through each of the various lines interconnecting their respective systems; provided, however, if synchronous operation of the systems through a particular line or lines becomes interrupted because of reasons beyond the control of any Member or because of scheduled maintenance that has been agreed to by the Members, the Members shall cooperate so as to remove the cause of such interruption as soon as practicable and restore the affected line or lines to normal operating condition.

1.2 Each Member shall keep the portions of the lines interconnecting their respective systems, together with all associated facilities and appurtenances, that are located on their respective sides of the Interconnection Points in a suitable condition of repair at all times in order that said lines will operate in a reliable and satisfactory manner and that reduction in their capacity will be avoided.

#### ARTICLE 2

##### OPERATING COMMITTEE

2.1 The parties herein shall appoint representatives to act as the "Operating Committee" in cooperation with each other and the Agent in the coordination and operation and/or use

of the electric power sources of or available to the Members and of their transmission and distribution and substation facilities to the end that the advantages to be derived thereunder may be realized to the fullest practicable extent.

2.2 Each Member shall designate in writing delivered to the other Members and Agent, the person who is to act as its representative on said committee and the person or persons who may serve as alternate whenever such representative is unable to act. Agent shall designate in writing delivered to the Members the person who is to act as its representative on said committee. Such person shall act as chairman of the Operating Committee and shall be known as the "Pool Manager". All such representatives or alternates so designated shall be fully authorized to cooperate with the other representatives or alternates in all matters described in this agreement as responsibilities of the Operating Committee.

### ARTICLE 3

#### AGENT'S RESPONSIBILITIES

3.1 For the purpose of carrying out the coordinated operation of the generating and transmission facilities of Members and the most efficient use of the energy produced by them and of other energy available to them, the Members hereby delegate to Agent and Agent hereby accepts the responsibility of supervising and directing such operation and use, and in furtherance thereof Agent agrees as follows; viz:

3.11 To coordinate the operation of the electric power sources of or available to the Members, which include their own generating stations and electric power available to them through interconnection with affiliated companies other than Members and Foreign Companies.

3.12 To arrange for and conduct such meetings of the Operating Committee as may be required to insure the effective and efficient carrying out of all matters of procedure essential to the complete performance of the provisions of this agreement.

3.13 To prepare and collect such log sheets and other records as may be needed to afford a clear history of the electric power and energy supplied under this agreement. Preparation and collection of such log sheets and other record shall be coordinated with similar responsibilities of the Members as provided for under Article 9.

3.14 To render to each Member as promptly as possible after the end of each calendar month a statement setting forth the electric power and energy transactions carried out during such month pursuant to the provisions of this agreement in such detail and with such segregations as may be needed for operating records or for settlements hereunder.

3.15 To make arrangements with Foreign Companies on behalf of the Members for the purchase, sale, or interchange of power and energy between such companies and the Members, such arrangements to be made in addition to similar arrangements to be made under agreements between an individual Member and a Foreign Company and to be made whenever in the judgment of the Members the effecting of matters of operation and contract related thereto can be simplified and their performance facilitated.

3.16 To carry out cash settlements for electric power and energy supplied under this agreement. Settlements by the Members shall be made for each calendar month through an account (hereby designated and hereinafter called "SYSTEM ACCOUNT") to be administered by Agent. Payments to or from such account shall be made to or by Agent as clearing agent of the account. The total of the payments made by Members to the SYSTEM ACCOUNT for a particular month shall be equal to the payments made to the Members from the SYSTEM ACCOUNT for such month.

#### ARTICLE 4

##### MEMBERS' OBLIGATIONS AND RIGHTS

4.1 For the purpose of obtaining the most efficient coordinated expansion and operation of their electric power supply facilities the Members hereby agree to operate and utilize their electric power sources under the direction of the Pool Manager in such manner that each Member shall receive at all times sufficient electric power and energy from such sources to meet its specific load obligations.

Each member shall, to the extent practicable, install or have available to it under contract such capacity as is necessary to supply all of the requirements of its own customers.

4.2 The Members agree that their electric power sources, which shall include all the generating stations owned by the Members and all electric power available to them through interconnection with affiliated companies other than Members and Foreign Companies, shall be used as needed to carry the combined load obligations of the Member under the direction of the Pool Manager. Each Member in return shall receive at all times sufficient electric power and energy from such sources to meet the specific load obligations of such Member.

4.3 The Members recognize that in carrying out the interconnected operation of their respective transmission systems as herein provided, electric energy being received by a portion of a particular Member's transmission system from another portion of such system or from the system of another interconnected company, or electric energy being delivered by a portion of a particular Member's transmission system to another portion of such system or to the system of another interconnected company, may flow over the transmission system of another Member. In respect of such flow of electric energy (hereinafter called "Energy Transfer") the Members agree that such Energy Transfer over their respective transmission facilities shall be permitted whenever it occurs, and, except as may be specifically agreed to otherwise by the Members, no Member shall make a charge at any time to another Member to permit such Energy Transfer. Electric power and energy associated with such Energy Transfer, including electrical losses associated therewith, shall be accounted for each clockhour. Proper consideration shall be given to such electrical losses in accordance with the manner determined and agreed upon by the Operating Committee, and such consideration shall be fully in accord with the provisions of LINE LOSS FACTOR as defined under subdivision 5.15 of Article 5.

#### ARTICLE 5

##### DEFINITIONS OF LOAD, CAPACITY, AND ENERGY CLASSES AND RELATED FACTORS ASSOCIATED WITH SETTLEMENTS FOR POWER SUPPLIED FROM MEMBER'S ELECTRIC POWER SOURCES

5.1 Load, capacity, and energy shall be designated and allocated to various classes for the purposes of effecting settlements under this agreement. Load, capacity, and energy

classes and related factors associated with the settlement for electric power and energy supplied from electric power sources of the Members are defined as follows; viz:

Load

5.2 MEMBER LOAD OBLIGATION - A Member's internal load plus any firm power sales to Foreign Companies and to affiliated companies other than Members. Principally characterized by the Member assuming the load obligation as its own firm power commitment and by the Member retaining advantages accruing from meeting the load.

5.3 SYSTEM LOAD OBLIGATION - Load obligation shared proportionately by the Members where one Member or Agent will act as Agent of the Members in meeting the commitment; principally characterized by the load not being considered as a part of any MEMBER LOAD OBLIGATION.

(Examples of SYSTEM LOAD OBLIGATIONS are electric power and energy deliveries made to Foreign Companies under emergency and storage power arrangements with such companies.)

5.4 MEMBER DEMAND - MEMBER LOAD OBLIGATION determined on a clock-hour integrated kilowatt basis.

5.5 MEMBER MAXIMUM DEMAND - The MEMBER MAXIMUM DEMAND in effect for a calendar month for a particular Member shall be equal to the maximum MEMBER DEMAND experienced by said Member during the twelve consecutive calendar months next preceding such calendar month.

5.6 MEMBER LOAD RATIO - The ratio of a particular Member's MEMBER MAXIMUM DEMAND in effect for a calendar month to the sum of the five MEMBER MAXIMUM DEMANDS in effect for such month.

## Capacity

5.7 MEMBER PRIMARY CAPACITY - The aggregate capacity of the electric power sources of a particular Member, in Kilowatts, that is normally expected to be available to carry load. Such capacity shall include (i) the capacity installed at the generating stations owned by the Member and (ii) the capacity available to that Member through inter-connection arrangements with affiliated companies or Foreign Companies, if so designated by the Operating Committee with the approval of the Members.

5.7.1 All determinations by the Operating Committee pursuant to (ii) of Section 5.7 with respect to purchases of capacity from non-affiliated companies shall take into account, but shall not be limited to, the following circumstances and considerations: (1) the term during which such capacity will be available, a commitment from a reliable source of power and energy for at least five years being normally regarded as appropriate for inclusion as a capacity source of a particular Member, with purchases of a short or intermediate duration being normally regarded as System purchases under Article 7; (2) whether the availability of the purchased capacity will be comparable to the availability of the installed primary capacity of the Members, although the Operating Committee may make adjustments in the quantity of purchased capacity to be included as Member Primary Capacity to give effect to any disparity in the availability of such purchased capacity; (3) the need on the part of a Member with a Member Primary Capacity deficit of an extended nature to



rectify or alleviate such deficit and the interest of all Members in maintaining an equalization among the Members of capacity resources over a period of time.

5.7.2 In the event that arrangements are made hereunder for any Member to make capacity available to an affiliated company or to a Foreign Company through the sale by such Member, for its own account, of unit capacity or other non-firm capacity, the amount of the capacity so sold shall be excluded from the Primary Capacity of such Member.

5.8 SYSTEM PRIMARY CAPACITY - The sum of the MEMBER PRIMARY CAPACITY of all the Members.

5.9 MEMBER PRIMARY CAPACITY RESERVATION - SYSTEM PRIMARY CAPACITY multiplied by the MEMBER LOAD RATIO of a particular Member.

5.10 MEMBER PRIMARY CAPACITY SURPLUS - Difference between the MEMBER PRIMARY CAPACITY and MEMBER PRIMARY CAPACITY RESERVATION of a particular Member, when such MEMBER PRIMARY CAPACITY exceeds such MEMBER PRIMARY CAPACITY RESERVATION.

5.11 MEMBER PRIMARY CAPACITY DEFICIT - Difference between the MEMBER PRIMARY CAPACITY and MEMBER PRIMARY CAPACITY RESERVATION of a particular Member, when such MEMBER PRIMARY CAPACITY is less than such MEMBER PRIMARY CAPACITY RESERVATION.

#### Energy

5.12 POOL - Electric energy delivered by one Member, from its MEMBER PRIMARY CAPACITY, to another Member shall be considered to be energy delivered to the POOL by the former Member and received from the POOL by the latter Member.

Electric energy delivered by a Foreign Company to a Member, other than energy associated with a Member's MEMBER PRIMARY CAPACITY, shall be considered to be energy delivered to the POOL. Electric energy delivered by a Member to a Foreign Company to meet a SYSTEM LOAD OBLIGATION shall be considered to be energy delivered by the POOL to the Foreign Company.

5.13 PRIMARY ENERGY - Electric energy delivered to the POOL from the MEMBER PRIMARY CAPACITY of a particular Member to meet another Member's deficiency in capacity. The deficiency may be caused by one or both of two reasons, the total MEMBER PRIMARY CAPACITY of a particular Member may not be great enough to meet its MEMBER LOAD OBLIGATION or a Member may have a portion of its MEMBER PRIMARY CAPACITY out of service for maintenance and the remainder may not be great enough to meet its MEMBER LOAD OBLIGATION.

5.14 ECONOMY ENERGY - Electric energy delivered to the POOL from the MEMBER PRIMARY CAPACITY of a particular Member to displace energy that otherwise would be supplied by less efficient MEMBER PRIMARY CAPACITY of another Member to meet its MEMBER LOAD OBLIGATION.

5.15 LINE LOSS FACTOR - The transmission electrical loss factor to be applied for settlement purposes to a particular metered quantity of energy delivered to the POOL by a Member. The Operating Committee shall determine and agree upon the LINE LOSS FACTOR required, such determinations to be governed by the understanding that the Member receiving such energy shall bear the entire loss caused in transmitting such energy over the facilities of the delivering Member and over the facilities of any other party whose system may be used for such delivery.

## ARTICLE 6

### SETTLEMENTS FOR POWER AND ENERGY SUPPLIED FROM MEMBER'S ELECTRIC POWER SOURCES

6.1 As promptly as practicable following the end of each month (all references to month mean calendar month), for electric power and energy supplied under this agreement during such month from SYSTEM PRIMARY CAPACITY, the Members shall carry out cash settlements through the SYSTEM ACCOUNT in accordance with the following; viz:

#### Primary Capacity Equalization Charge

6.2 For each kilowatt of MEMBER PRIMARY CAPACITY SURPLUS each Member having such surplus during any month shall receive payment from the SYSTEM ACCOUNT at a rate per kilowatt per month equal to the MEMBER PRIMARY CAPACITY INVESTMENT RATE plus the MEMBER PRIMARY CAPACITY FIXED OPERATING RATE, as hereinbelow defined, applicable to the particular surplus.

6.21 The MEMBER PRIMARY CAPACITY INVESTMENT RATE chargeable against the SYSTEM ACCOUNT for any calendar month by a particular Member shall be equal to the product of (A) the MEMBER WEIGHTED AVERAGE INVESTMENT COST, determined pursuant to subdivision 6.211 below, and (B) the MONTHLY CARRYING CHARGE FACTOR, determined pursuant to subdivision 6.212 below.

6.211 The MEMBER WEIGHTED AVERAGE INVESTMENT COST shall be equal to the ratio of (i) the total installed cost of production plant of the generation stations, other than hydro, classified as part of a particular Member's MEMBER PRIMARY CAPACITY to (ii) the total kilowatt capability of such generating stations. The total installed cost of production plant used in the

determination of the MEMBER WEIGHTED AVERAGE INVESTMENT COST, as described above, shall be the total cost of such plant for the aforesaid generating stations included, as of the end of the next preceding year, in Accounts 310 to 316, inclusive, Accounts 320 to 325, inclusive and Accounts 340 to 346, inclusive, of the Uniform System of Accounts prescribed by the Federal Energy Regulatory Commission for Public Utilities and Licensees, as in effect on January 1, 1975.

6.212 The MONTHLY CARRYING CHARGE FACTOR shall be 0.0137, or such larger amount as shall be established by order of the Federal Energy Regulatory Commission issued upon rehearing or reconsideration of its Opinion No. 50, issued July 27, 1979 in Docket No. E-9408.

6.22 The MEMBER PRIMARY CAPACITY FIXED OPERATING RATE chargeable against the SYSTEM ACCOUNT for any calendar month by a particular Member shall be equal to the weighted average fixed operating cost as hereinbelow defined, incurred by said Member during such month. Such weighted average fixed operating cost for purposes hereof shall be equal to the ratio of the fixed operating expense, i.e., the total production expenses minus the fuel and one-half of the maintenance expenses, incurred by a particular Member during a month at the generating stations other than hydro, classified as a part of its MEMBER PRIMARY CAPACITY to the total kilowatt capability of such generating stations.

6.3 For each kilowatt of MEMBER PRIMARY CAPACITY DEFICIT, any Member having such deficit during any month shall make payment into the SYSTEM ACCOUNT at a rate per kilowatt per month equal to the total payments from the SYSTEM ACCOUNT during any such month, determined pursuant to subdivision 6.2 above, divided

by the total kilowatts of MEMBER PRIMARY CAPACITY DEFICITS for such month.

#### Primary Energy Charge

6.4 For PRIMARY ENERGY delivered to the POOL during any month by any Member, the Member so delivering such energy shall receive payment from the SYSTEM ACCOUNT at a rate per kilowatt-hour equal to said Member's MEMBER PRIMARY ENERGY RATE, as hereinbelow defined, for such month. The MEMBER PRIMARY ENERGY RATE chargeable against the SYSTEM ACCOUNT for any month by said Member shall be equal to the Member's weighted average variable production cost, as hereinbelow defined, for such month. Such weighted average variable production cost for purposes hereof shall be equal to the ratio of the sum of the fuel and one-half of the maintenance expenses incurred by said Member during a month at the generating stations other than hydro, classified as part of such Member's MEMBER PRIMARY CAPACITY to the total kilowatt-hours of net generation at said generating stations during such month.

6.5 For PRIMARY ENERGY received from the POOL during any month by any Member, said Member shall make payment into the SYSTEM ACCOUNT for energy so received at a rate per kilowatt-hour equal to the MEMBER PRIMARY ENERGY RATE payable from the SYSTEM ACCOUNT to the other Members for such month for such PRIMARY ENERGY. The rate applicable to such PRIMARY ENERGY shall be determined from clock-hour records to be kept by Agent as provided under Article 3. Such records shall indicate the receiving Member and supplying Member for each kilowatt-hour classified as PRIMARY ENERGY.

#### Economy Energy Charge

6.6 For ECONOMY ENERGY delivered to the POOL during any

month the Member delivering such energy shall receive payment from and the Member receiving such energy shall make payment to the SYSTEM ACCOUNT at the ECONOMY ENERGY RATE, as herein-below defined, applicable to the energy so delivered and received. The ECONOMY ENERGY RATE applicable to a particular kilowatt-hour of ECONOMY ENERGY shall be equal to the out-of-pocket cost of delivering said kilowatt-hour to the POOL plus one-half the difference between such cost and the out-of-pocket cost of generation avoided by the Member receiving such energy. Said kilowatt-hour shall be considered to be supplied from the highest cost source carrying load to meet MEMBER LOAD OBLIGATIONS of the supplying Member, excluding sources operated for minimum operating requirements, and its out-of-pocket cost shall include fuel expense and an appropriate portion of maintenance expense of generating facilities. The cost of generation avoided by the Member receiving said kilowatt-hour of ECONOMY ENERGY shall be considered to be the out-of-pocket cost that would be experienced if said kilowatt-hour were not delivered and its equivalent generated upon the most efficient operable unloaded generation of the receiving Member. Such out-of-pocket cost shall include cost of fuel and an appropriate portion of maintenance expense of generating facilities. The appropriate portion of maintenance expense allocable to the out-of-pocket cost of the supplying Member and to the avoided cost of the receiving Member shall be determined and agreed upon by the Operating Committee.

#### System Primary Energy Rate

6.7 Settlements for various classes of electric power and energy delivered under transactions with Foreign Companies shall

include the use of a rate referred to as SYSTEM PRIMARY ENERGY RATE. For purposes of this agreement, the SYSTEM PRIMARY ENERGY RATE chargeable for any month shall be equal to the weighted average variable operating cost, as hereinbelow defined, incurred during such month at the generating stations, other than hydro, classified as part of the SYSTEM PRIMARY CAPACITY. Such weighted average variable operating cost for purposes hereof shall be equal to the ratio of the variable production expenses, i.e., the fuel and one-half of the maintenance expenses, incurred during a month at the generating stations, other than hydro, classified as part of the SYSTEM PRIMARY CAPACITY to the total kilowatt-hours of net generation generated at said generating stations during such month.

#### ARTICLE 7

##### TRANSACTIONS WITH FOREIGN COMPANIES

7.1 As promptly as practicable following the end of each month, cash settlements by the Members through the SYSTEM ACCOUNT for power transactions carried out in their behalf with Foreign Companies during such month shall be effected in accordance with the principles and procedures provided therefor under this Article 7. Any sale of power included in a Member's MEMBER LOAD OBLIGATION and any purchase of power included in a Member's MEMBER PRIMARY CAPACITY shall be excluded from such transactions. All other types of transactions carried out by any Member or on behalf of the Members with any Foreign Company shall be considered a transaction made on behalf of the collective interest of the Members. Costs and benefits associated with such transactions shall be shared proportionately as hereinbelow provided.

Settlement For Power And Energy  
Purchases From Foreign Companies

Power and Energy Purchases  
other than Economy Energy

7.2 Definitions of billing factors required for settlements by the Members through the SYSTEM ACCOUNT for electric power and energy, other than ECONOMY ENERGY PURCHASE from any Foreign Company shall be as follows; viz:

7.21 SYSTEM PURCHASE FROM FOREIGN COMPANY - All energy purchased from a Foreign Company either by a particular Member or by the Members collectively through arrangements made on their behalf by Agent, except ECONOMY ENERGY or such energy as may be purchased to meet a SYSTEM LOAD OBLIGATION (settlement for energy so purchased that is supplied to another Foreign Company is provided for under subdivisions 7.5 and 7.7 below.)

7.22 MEMBER RESERVATION OF SYSTEM PURCHASE FROM FOREIGN COMPANY - For a month, the SYSTEM PURCHASE FROM FOREIGN COMPANY multiplied by the MEMBER LOAD RATIO of a particular Member.

7.23 MEMBER ENTITLEMENT OF SYSTEM PURCHASE FROM FOREIGN COMPANY - For a month, when the quantity of the MEMBER RESERVATION OF SYSTEM PURCHASE FROM FOREIGN COMPANY for a particular Member exceeds such quantity of energy delivered to said Member by the Foreign Company, the difference between such quantities is the MEMBER ENTITLEMENT OF SYSTEM PURCHASE FROM FOREIGN COMPANY of



said Member for such month.

7.24 MEMBER OBLIGATION OF SYSTEM PURCHASE FROM FOREIGN COMPANY - For a month, when the quantity of the MEMBER RESERVATION OF SYSTEM PURCHASE FROM FOREIGN COMPANY for a particular Member is less than such quantity of energy delivered to said Member by the Foreign Company, the difference between such quantities is the MEMBER OBLIGATION OF SYSTEM PURCHASE FROM FOREIGN COMPANY of said Member for such month.

7.25 MEMBER DEFICIT OF SYSTEM PURCHASE FROM FOREIGN COMPANY - For a month, when the quantity of the MEMBER OBLIGATION OF SYSTEM PURCHASE FROM FOREIGN COMPANY for a particular Member exceeds the quantity of kilowatt-hours of SYSTEM PURCHASE from FOREIGN COMPANY delivered to the POOL by the Member, the difference between such quantities is the MEMBER DEFICIT OF SYSTEM PURCHASE FROM FOREIGN COMPANY of said Member for such month.

7.26 MEMBER SURPLUS OF SYSTEM PURCHASE FROM FOREIGN COMPANY - For a month, when the quantity of the MEMBER ENTITLEMENT OF SYSTEM PURCHASE FROM FOREIGN COMPANY for a particular Member exceeds the quantity of kilowatt-hours of SYSTEM PURCHASE FROM FOREIGN COMPANY received from the POOL by said Member, the difference between such quantities is the MEMBER SURPLUS OF SYSTEM PURCHASE FROM FOREIGN COMPANY of said Member for such month.

7.3 To effect a proportionate sharing of the cost of any SYSTEM PURCHASE FROM FOREIGN COMPANY, purchases so made from each Foreign Company shall be treated separately as follows:

7.31 At the end of each month, from data supplied by the Members, Agent shall determine the cost of SYSTEM PURCHASE FROM FOREIGN COMPANY.

7.32 The total cost so determined multiplied by the [MEMBER] LOAD RATIO of a particular Member shall be the gross amount chargeable to said Member.

7.33 If a particular Member has established a MEMBER DEFICIT OF SYSTEM PURCHASE FROM FOREIGN COMPANY, the adjusted gross amount chargeable to the Member shall equal the sum of the gross amount determined under subdivision 7.32 above plus the amount chargeable to the Member for the MEMBER DEFICIT OF SYSTEM PURCHASE FROM FOREIGN COMPANY. The rate applicable to such deficit shall be the SYSTEM PRIMARY ENERGY RATE determined for the particular month.

7.34 If a particular Member has established a MEMBER SURPLUS OF SYSTEM PURCHASE FROM FOREIGN COMPANY, the adjusted gross amount chargeable to the Member shall equal the difference between the gross amount determined under subdivision 7.32 above and the amount to be credited to the Member for the MEMBER SURPLUS OF SYSTEM PURCHASE FROM FOREIGN COMPANY. The rate applicable to such surplus shall be the SYSTEM PRIMARY ENERGY RATE determined for the particular month.

7.35 If the adjusted gross amount chargeable to a particular Member for any month as determined under either subdivisions 7.33 or 7.34 is greater than the payment made by said Member to the Foreign Company for the SYSTEM

PURCHASE FROM FOREIGN COMPANY, said Member shall make payment into the SYSTEM ACCOUNT of the difference between such amount and payment. Conversely, if the amount so determined for a particular Member is less than the Member's aforesaid payment to the Foreign Company, such Member shall receive payment from the SYSTEM ACCOUNT of the difference between such amount and such payment to the Foreign Company.

#### Economy Energy Purchases

7.4 Settlement by the Members through the SYSTEM ACCOUNT for ECONOMY ENERGY PURCHASE from a Foreign Company shall be governed by the principle that the saving in production expense realized by the System (the term "System" as used in this agreement refers to the electric facilities of the Members viewed as a unit) shall be shared by the Members in proportion to their respective MEMBER LOAD RATIOS.

(The following illustrates the application of the principle and procedure for effecting such settlements:

It is assumed that Appalachian Company has purchased a block of ECONOMY ENERGY PURCHASE at a rate of 1.00 mill per kilowatt-hour which has displaced generation at Twin Branch Station of Indiana Company; the production expense saving to Indiana Company being 2.00 mills per kilowatt-hour.

Charges payable to and credits payable from the SYSTEM ACCOUNT for such energy shall be at the following rates: (1) pay Appalachian Company at a rate per kilowatt-hour equal to the sum of 1.00 mill plus the product of 2.00 mills times Appalachian Company's MEMBER LOAD RATIO, (2) pay Ohio Company at a rate per kilowatt-hour equal to the product of 2.00 mills times Ohio Company's MEMBER LOAD RATIO, and (3) charge Indiana Company at a rate per kilowatt-hour equal to the sum of 1.00 mill plus the product of 2.00 mills times the sum of Appalachian Company's and Ohio Company's MEMBER LOAD RATIOS.)

For the purpose of this agreement, the cost of generation avoided by the System in receiving a kilowatt-hour of ECONOMY ENERGY PURCHASE shall be considered to be the out-of-pocket

cost, i.e., fuel expense and an appropriate portion of maintenance expense of generating facilities that would be experienced if said kilowatt-hour were not delivered and its equivalent generated upon the most efficient operable unloaded generation of the System. The appropriate portion of maintenance expense allocable to the out-of-pocket cost of such generating facilities shall be determined and agreed upon by the Operating Committee.

#### Settlement for Power Sales to Foreign Companies

7.5 Settlement by the Members through the SYSTEM ACCOUNT for electric power and energy sales to Foreign Companies shall be governed by the principle that the difference between the amount charged a Foreign Company for the power and energy supplied under such a sale and the production expenses, i.e., out-of-pocket costs incurred by the System in making such supply, shall be shared by the Members in proportion to the respective MEMBER LOAD RATIOS. Electric Power and energy for such sales shall be considered to be supplied from the higher cost of the following two sources: (1) from the highest cost source carrying load on the System, excluding sources operated for minimum operating requirements, or (2) the highest cost source supplying power to the System under arrangements with Foreign Companies.

(The following illustrates the application of the principles and procedures for effecting such settlements:

It is assumed that Indiana Company has sold a block of energy at a rate of 4.00 mills per kilowatt-hour which has been supplied by carrying a block of load that would not otherwise be carried at Philo Station of Ohio Company, the out-of-pocket cost incurred by Ohio Company being 3.00 mills per kilowatt-hour.

Charges payable to and credits payable from the SYSTEM ACCOUNT for such energy would be at the following rates: (1) charge

Indiana Company at a rate per kilowatt-hour equal to the sum of 3.00 mills plus the product of 1.00 mill times the sum of Appalachian Company's and Ohio Company's MEMBER LOAD RATIOS, (2) pay Ohio company at a rate per kilowatt-hour equal to the sum of 3.00 mills and the product of 1.00 mill times Ohio Company's MEMBER LOAD RATIO, and (3) pay Appalachian Company at a rate per kilowatt-hour equal to the product of 1.00 mill times Appalachian Company's MEMBER LOAD RATIO.)

Settlement For Power and Energy Received Under  
Interchange Arrangements With Foreign Companies

Power and Energy Received other  
than Interchange Economy Energy

7.6 Definitions of billing factors required for settlements by the Members through the SYSTEM ACCOUNT for electric power and energy received, other than INTERCHANGE ECONOMY ENERGY, from any Foreign Company under interchange arrangements which require no cash settlements shall be as follows; viz:

7.61 SYSTEM INTERCHANGE FROM FOREIGN COMPANY - All energy received from Foreign Company by either a particular Member or by the Members collectively through arrangements made on their behalf by Agent, which requires no cash settlement, except INTERCHANGE ECONOMY ENERGY.

7.62 MEMBER RESERVATION OF SYSTEM INTERCHANGE FROM FOREIGN COMPANY - For a month, the SYSTEM INTERCHANGE FROM FOREIGN COMPANY multiplied by the MEMBER LOAD RATIO of a particular Member.

7.63 MEMBER ENTITLEMENT OF SYSTEM INTERCHANGE FROM FOREIGN COMPANY - For a month, when the quantity of the MEMBER RESERVATION OF SYSTEM INTERCHANGE FROM FOREIGN COMPANY for a particular Member exceeds the quantity of such energy delivered to the Member by the Foreign Company, the difference between such quantities is the MEMBER ENTITLEMENT OF SYSTEM

INTERCHANGE FROM FOREIGN COMPANY of such Member for such month.

7.64 MEMBER OBLIGATION OF SYSTEM INTERCHANGE FROM FOREIGN COMPANY - For a month, when the quantity of the MEMBER RESERVATION OF SYSTEM INTERCHANGE FROM FOREIGN COMPANY for a particular Member is less than the quantity of such energy delivered to the Member by the Foreign Company, the difference between such quantities is the MEMBER OBLIGATION OF SYSTEM INTERCHANGE FROM FOREIGN COMPANY of said Member for such month.

7.65 MEMBER DEFICIT OF SYSTEM INTERCHANGE FROM FOREIGN COMPANY - For a month, when the quantity of the MEMBER OBLIGATION OF SYSTEM INTERCHANGE FROM FOREIGN COMPANY for a particular Member exceeds the quantity of kilowatt-hours of SYSTEM INTERCHANGE FROM FOREIGN COMPANY delivered to the POOL by said Member, the difference between such quantities is the MEMBER DEFICIT OF SYSTEM INTERCHANGE FROM FOREIGN COMPANY of said Member for such month.

7.66 MEMBER SURPLUS OF SYSTEM INTERCHANGE FROM FOREIGN COMPANY - For a month, when the quantity of the MEMBER ENTITLEMENT OF SYSTEM INTERCHANGE FROM FOREIGN COMPANY for a particular Member exceeds the quantity of kilowatt-hours of SYSTEM INTERCHANGE FROM FOREIGN COMPANY received from the POOL by said Member, the difference between such quantities is the MEMBER SURPLUS OF SYSTEM INTERCHANGE FROM FOREIGN COMPANY of said Member for such month.

7.7 To effect a proportionate sharing of the benefits of SYSTEM INTERCHANGE FROM FOREIGN COMPANY, electric energy so received from each Foreign Company shall be treated separately as follows:

7.71 If a particular Member has established a MEMBER DEFICIT OF SYSTEM INTERCHANGE FROM FOREIGN COMPANY, said Member shall make payment into the SYSTEM ACCOUNT for the kilowatt-hours of such deficit at the SYSTEM PRIMARY ENERGY RATE determined for the particular month.

7.72 If a particular Member has established a MEMBER SURPLUS OF SYSTEM INTERCHANGE FROM FOREIGN COMPANY, said Member shall receive payment from the SYSTEM ACCOUNT for the kilowatt-hours of such surplus at the SYSTEM PRIMARY ENERGY RATE determined for the particular month.

#### Interchange Economy Energy

7.8 The principles described under subdivision 7.4 above for the settlement of ECONOMY ENERGY PURCHASE shall also govern the settlements by the Members through the SYSTEM ACCOUNT for INTERCHANGE ECONOMY ENERGY received from a Foreign Company. It shall be assumed for the purpose of such settlement that payment to the Foreign Company for INTERCHANGE ECONOMY ENERGY was made at a rate of zero mills per kilowatt-hour.

#### Settlements For Power Delivered Under Interchange Arrangements With Interconnected Foreign Companies

7.9 Settlement hereunder for electric power and energy (hereinafter called "SYSTEM INTERCHANGE TO FOREIGN COMPANY") delivered to any Foreign Company under interchange arrangements with either a particular Member or with the Members collectively through arrangements made on their behalf by Agent, which require no cash settlements, will be governed by the principle that the production expenses, i.e., out-of-pocket costs incurred by the System in making such deliveries, shall be shared by the

Members in proportion to their respective MEMBER LOAD RATIOS.

(The following illustrates the application of the principle and procedure for effecting such settlements:

It is assumed that Appalachian Company has delivered a block of SYSTEM INTERCHANGE TO FOREIGN COMPANY which has been supplied by carrying a block of load that would not otherwise be carried at Windsor Station of Ohio Company; the out-of-pocket cost incurred by Ohio Company being 3.50 mills per kilowatt-hour.

Charges payable to and credits payable from the SYSTEM ACCOUNT for such energy shall be at the following rates: (1) charge Appalachian Company and Indiana Company at rates per kilowatt-hour equal to the product of 3.50 mills per kilowatt-hour and their respective MEMBER LOAD RATIOS, and (2) pay Ohio Company at a rate equal to the sum of the rates charged Appalachian Company and Indiana.)

As described under subdivision 7.5 above, electric power and energy for sales to Foreign Companies shall be considered to be supplied from the higher cost of the following two sources: (1) from the highest cost source carrying load on the System, excluding sources operated for minimum operating requirements, or (2) the highest cost source supplying electric power and energy to the System under arrangements with Foreign Companies. Similarly, following the determination and designation of such source for the aforesaid sales, electric power and energy for SYSTEM INTERCHANGE TO FOREIGN COMPANY deliveries shall be considered to be supplied from the higher cost of the balance of said two sources.

## ARTICLE 8

### DELIVERY POINTS, METERING POINTS AND METERING

#### Delivery Points

8.1 All electric energy delivered under this agreement shall be of the character commonly known as three-phase sixty-cycle energy, and shall be delivered at the various Interconnection



points where the transmission systems of the Members are interconnected at the nominal unregulated voltage designated for such points, and at such other points and voltages as may be determined and agreed upon by the Members.

#### Metering Points

8.2 Electric power and energy supplied and delivered by one Member to another Member shall be measured by suitable metering equipment to be provided, owned, and maintained by the Members at such metering points as are determined and agreed upon by them.

#### Metering

8.3 Suitable metering equipment at metering points as provided under subdivision 8.2 above shall include electric meters which shall give for each direction of flow the following quantities (1) an automatic record for each clock-hour of kilowatt-hours and (2) a continuous integrating record of the kilowatt-hours.

8.4 Measurements of electric energy for the purpose of effecting settlements under this agreement shall be made by standard types of electric meters, installed and maintained by the owner at the metering points as provided under subdivision 8.2 above. The timing devices of all meters having such devices shall be maintained in time synchronism as closely as practicable. The meters shall be sealed and the seals shall be broken only upon occasions when the meters are to be tested or adjusted. For the purpose of checking the records of the metering equipment installed by any Member as hereinabove provided, the other Members shall have the right to install check metering equipment at the aforesaid metering points. Metering equipment so installed by

one Member on the premises of another Member shall be owned and maintained by the Member installing such equipment. Upon termination of this agreement the Member owning such metering equipment shall remove it from the premises of the other Member. Authorized representatives of any Member shall have access at all reasonable hours to the premises where the meters are located and to the records made by the meters.

8.5 The aforesaid metering equipment shall be tested by the owner at suitable intervals and its accuracy of registration maintained in accordance with good practice. On request of any Member, special tests shall be made at the expense of the Member requesting such special test.

8.6 If on any test of metering equipment, an inaccuracy shall be disclosed exceeding two percent, the account between the Members for service theretofore delivered shall be adjusted to correct for the inaccuracy disclosed over the shorter of the following two periods: (1) for the thirty-day period immediately preceding the day of the test or (2) for the period that such inaccuracy may be determined to have existed. Should the metering equipment as hereinabove provided for fail to register at any time, the electric power and energy delivered shall be determined from the check meters, if installed, or otherwise shall be determined from the best available data.

## ARTICLE 9

### RECORDS AND STATEMENTS

9.1 In addition to meter records to be kept by the Members as provided under Article 8, the Members shall keep in duplicate such log sheets and other records as may be needed to afford a clear history of the various deliveries of electric power and energy made pursuant to the provisions of this agreement. The

originals of log sheets and other records shall be retained by the Member keeping the records and the duplicates shall be delivered as determined and agreed upon by the Operating Committee.

## ARTICLE 10

### TAXES

10.1 If at any time during the duration of this agreement, there should be levied and/or assessed against any Member any tax by any taxing authority in respect of the electric power and energy generated, purchased, sold, imported, transmitted, interchanged, or exchanged by said Member in addition to or different from the forms of such taxes now being levied or assessed against said Member, or there should be any increase or decrease in the rate of such existing or future taxes, and such taxes or changes in such taxes should result in increasing or decreasing the cost to said Member in carrying out the provisions of this agreement, then in such event adjustments shall be made in the rates and charges for electric power and energy furnished hereunder to make allowance for such taxes and changes in such taxes in an equitable manner.

## ARTICLE 11

### BILLINGS AND PAYMENTS

11.1 All bills for amounts owed hereunder shall be due and payable on the twentieth day of the month next following the monthly or other period to which such bills are applicable, or on the fifteenth day following receipt of bill, whichever date be later. Interest on unpaid amounts shall accrue at the rate of six percent per annum from the date due until the date upon which payment is made. Unless otherwise agreed upon a

calendar month shall be the standard monthly period for the purpose of settlements under this agreement.

## ARTICLE 12

### MODIFICATION

12.1 Any Member, by written notice given to the other Members and Agent not less than ninety days prior to the beginning of any calendar year of the duration of this agreement, may call for a reconsideration of the terms and conditions herein provided. If such reconsideration is called for, there shall be taken into account any changed conditions, any results from the application of said terms and conditions, and any other factors that might cause said terms and conditions to result in an inequitable division of the benefits of interconnected operation or in an inadequate realization of such benefits. Any modification in terms and conditions agreed to by the Members following such reconsideration shall become effective the first day of January of the calendar year next following the aforesaid ninety-day notice period.

## ARTICLE 13

### DURATION OF AGREEMENT

13.1 This agreement shall become effective August 1, 1951, and shall continue in effect for an initial period expiring December 31, 1971, and thereafter for successive periods of one year each until terminated as provided under subdivision 13.2 below.

13.2 Any Member upon at least three years' prior written notice to the other Members and Agent may terminate this agreement at the expiration of said initial period or at the expiration of any successive period of one year.

## ARTICLE 14

### TERMINATION OF EXISTING AGREEMENTS

14.1 Upon their joint execution of this agreement Appalachian Company and Ohio Company agree that the interconnection agreements between them dated November 28, 1930, and September 1, 1936, respectively, and all supplements and amendments thereto, shall terminate as of July 31, 1951, and that all further obligations between them in respect thereof shall cease and terminate as of such date, except in respect of any payments or liabilities incurred in respect thereof prior to such termination date.

14.2 Upon their joint execution of this agreement Indiana Company and Ohio Company agree that the interconnection agreements between them, dated October 15, 1930, and September 1, 1936, respectively, and all supplements and amendments thereto, shall terminate as of July 31, 1951, and that all further obligations between them in respect thereof shall cease and terminate as of such date, except in respect of any payments or liabilities incurred in respect thereof prior to such termination date.

## ARTICLE 15

### REGULATORY AUTHORITIES

15.1 This agreement is made subject to the jurisdiction of any governmental authority or authorities having lawful jurisdiction in the premises.

## ARTICLE 16

### ASSIGNMENT

16.1 This agreement shall inure to the benefit of and be binding upon the successors and assigns of the respective parties.

16.2 IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed in their respective corporate names and on their behalf by their proper officers thereunto duly authorized as of the day and year first above written.

(The numerous pages of the various signatories to the original Agreement and subsequent modifications thereto, are omitted herein.)

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**Exhibit RF-3**  
**CSP's and OPCO's Response to**  
**STIP-FES-INT-25-030**

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**COLUMBUS SOUTHERN POWER COMPANY'S  
AND OHIO POWER COMPANY'S  
RESPONSE TO  
FIRST ENERGY SOLUTIONS DISCOVERY REQUEST  
IN PUCO CASE NOS. 11-346-EL-SSO AND 11-348-EL-SSO  
TWENTY-FIFTH SET**

**INTERROGATORY**

STIP-FES-INT-25-030: Does the AEP Pool Agreement preclude AEP Ohio from participating in a wholesale power procurement auction? If so, identify the relevant provisions of the AEP Pool Agreement.

**RESPONSE**

Not explicitly, but conducting an auction to support AEP Ohio's standard service offer is not contemplated by the Pool and doing so without amending or dissolving the Pool would expose AEP Ohio to extensive financial and regulatory risk.

Prepared By: Philip J. Nelson



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**Exhibit RF-4**  
**AEP Ohio's Response to FES-RPD-1-005**

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**OHIO POWER COMPANY'S RESPONSES  
TO FIRSTENERGY SOLUTIONS CORPORATION  
DISCOVERY REQUESTS  
PUCO CASE 11-346-EL-SSO and 11-348-EL-SSO - Modified ESP  
FIRST SET**

**REQUEST FOR PRODUCTION OF DOCUMENTS**

FES-RPD-1-005      Referring to the question and answer beginning a page 8, line 10 of Mr. Nelson's testimony, please provide any studies or analyses conducted by AEP or on its behalf that seek to quantify the potential harm to AEP Ohio and/or other AEP Pool members if an auction based SSO were established for AEP Ohio's non-shopping before the termination of the AEP Pool.

**RESPONSE**

The Company has no such studies.

Prepared by: Philip Nelson

## CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing *Direct Testimony of Rodney Frame on Behalf of FirstEnergy Solutions Corp.* was served this 4th day of May, 2012, via e-mail upon the parties below.

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One of the Attorneys for FirstEnergy Solutions Corp.

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Summary: Testimony of Rodney Frame electronically filed by Ms. Laura C. McBride on behalf of FirstEnergy Solutions Corp.