

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of)
Ohio Power Company for Authority to)
Establish a Standard Service Offer) Case No. 13-2385-EL-SSO
Pursuant to Section 4928.143, Ohio Rev.)
Code, in the Form of an Electric Security)
Plan.)

In the Matter of the Application of)
Ohio Power Company for Approval of) Case No. 13-2386-EL-AAM
Certain Accounting Authority.)

**DIRECT TESTIMONY
OF
JONATHAN WALLACH**

On Behalf of
The Office of the Ohio Consumers' Counsel
10 West Broad Street, Suite 1800
Columbus, Ohio 43215-3485

MAY 6, 2014

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ATTACHMENTS:

Attachment Wallach-1

Attachment Wallach-2

1 **I. INTRODUCTION**

2

3 **Q1. PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS ADDRESS.**

4 **A1.** I am Jonathan F. Wallach. I am Vice President of Resource Insight, Inc., 5 Water
5 Street, Arlington, Massachusetts.

6

7 **Q2. PLEASE SUMMARIZE YOUR PROFESSIONAL EDUCATION AND**
8 **EXPERIENCE.**

9 **A2.** I have worked as a consultant to the electric-power industry since 1981. From
10 1981 to 1986, I was a research associate at Energy Systems Research Group. In
11 1987 and 1988, I was an independent consultant. From 1989 to 1990, I was a
12 senior analyst at Komanoff Energy Associates. I have been in my current position
13 at Resource Insight since September of 1990.

14

15 Over the past thirty years, I have advised and testified on behalf of clients on a
16 wide range of economic, planning, and policy issues relating to the regulation of
17 electric utilities, including: electric-utility restructuring; wholesale-power market
18 design and operations; transmission pricing and policy; market-price forecasting;
19 market valuation of generating assets and purchase contracts; power-procurement
20 strategies; risk assessment and mitigation; integrated resource planning; mergers
21 and acquisitions; cost allocation and rate design; and energy-efficiency program
22 design and planning. My resume is attached as Attachment Wallach-1.

1 **Q3. HAVE YOU TESTIFIED PREVIOUSLY IN UTILITY REGULATORY**
2 **PROCEEDINGS?**

3 **A3.** Yes. I have sponsored expert testimony in more than sixty state, provincial, or
4 federal proceedings in the U.S. and Canada, including in PUCO Case Nos. 09-
5 906-EL-SSO, 10-338-EL-SSO, and 11-346-EL-SSO. Attachment WALLACH-1
6 includes a detailed list of my previous testimony.

7

8 **Q4. ON WHOSE BEHALF ARE YOU TESTIFYING?**

9 **A4.** I am testifying on behalf of the Office of the Ohio Consumers' Counsel ("OCC").

10

11 **Q5. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

12 **A5.** On December 20, 2013, Ohio Power Company ("AEP Ohio" or "the Utility")
13 filed an application and supporting testimony seeking approval of its proposal for
14 an electric security plan that would be in effect from June of 2015 through May of
15 2018 ("ESP III"). As part of the proposed ESP III, AEP Ohio proposes
16 continuation of a number of existing distribution rate riders and implementation
17 of several new riders. This testimony addresses AEP Ohio's proposals for
18 allocating to customer classes the costs to be collected through four proposed
19 riders: (1) Distribution Investment Rider ("DIR"); (2) Enhanced Service
20 Reliability Rider ("ESRR"); (3) Storm Damage Recovery Rider ("SDRR"); and
21 (4) Sustained and Skilled Workforce Rider ("SSWR").

1 **Q6. DOES YOUR TESTIMONY ADDRESS WHETHER AEP OHIO'S PROPOSAL**
2 **TO COLLECT COSTS FROM CUSTOMERS THROUGH THESE FOUR**
3 **RIDERS, RATHER THAN THROUGH BASE DISTRIBUTION RATES, IS**
4 **REASONABLE OR WHETHER THE AMOUNTS TO BE COLLECTED**
5 **THROUGH THESE RIDERS IS APPROPRIATE?**

6 **A6.** No. Other OCC witnesses provide testimony on those issues.

7

8 **II. THE COST-ALLOCATION PROCESS**

9

10 **Q7. WHAT IS THE ROLE OF THE COST-ALLOCATION PROCESS IN THE**
11 **SETTING OF RATES FOR DISTRIBUTION SERVICE?**

12 **A7.** In general, distribution rates are designed to collect a utility's total cost of service
13 from all customer classes in a manner that reasonably reflects the actual cost to
14 provide distribution service to each customer class. The cost-allocation process
15 can facilitate rate design by apportioning a utility's total cost of service among
16 customer classes based on "cost causation," i.e., how the cost to provide service to
17 each customer class contributed to the total cost of service.

18

19 **Q8. PLEASE DESCRIBE THE TYPICAL PROCESS FOR ALLOCATING A**
20 **UTILITY'S COST OF SERVICE TO CUSTOMER CLASSES.**

21 **A8.** Cost of service is typically allocated on the basis of the results of a class cost of
22 service study ("COSS"). The COSS allocates the total cost of service to customer
23 classes in three stages: (1) functionalization; (2) classification; and (3) allocation.

1 First, the total cost of service is separated into either generation, transmission, or
2 distribution categories. Second, functionalized costs are classified as either
3 demand-related, energy-related, or customer-related depending on whether such
4 costs vary with changes in demand, energy, or number of customers, respectively.
5 Finally, demand-, energy-, or customer-related costs are allocated to customer
6 classes on the basis of each class's contribution to a utility's total demand, energy
7 requirements, or number of customers, respectively.

8

9 ***Q9. HAS AEP OHIO RELIED ON CLASS COST OF SERVICE STUDIES TO***
10 ***ALLOCATE DISTRIBUTION COSTS OF SERVICE IN THE PAST?***

11 ***A9.*** Yes. The Utility most recently relied on cost of service studies to allocate base
12 distribution costs in PUCO Case Nos. 11-351-EL-AIR and 11-352-EL-AIR.¹

¹ *In the Matter of the Application of Columbus Southern Power Company and Ohio Power Company, Individually and, if their Proposed Merger is Approved, as a Merged Company (collectively, AEP Ohio) for an Increase in Electric Distribution Rates, PUCO Case Nos. 11-351-EL-AIR and 11-352-EL-AIR, Columbus Southern Power Company Schedule E-3.2 and Ohio Power Company Schedule E-3.2 (February 28, 2011).*

1 **III. PROPOSED ALLOCATION OF DISTRIBUTION RIDER COSTS**

2
3 ***Q10. WHAT TYPES OF COSTS DOES AEP OHIO PROPOSE TO COLLECT***
4 ***FROM CUSTOMERS THROUGH THE DISTRIBUTION INVESTMENT***
5 ***RIDER, ENHANCED SERVICE RELIABILITY RIDER, STORM DAMAGE***
6 ***RECOVERY RIDER, AND THE SUSTAINED AND SKILLED WORKFORCE***
7 ***RIDER?***

8 ***A10.*** According to AEP Ohio witness Andrea E. Moore, the Utility proposes to collect
9 from customers through the DIR the revenue requirements associated with capital
10 investments in distribution and general plant over and above those revenue
11 requirements already collected through base distribution rates. The Utility further
12 proposes to cap the annual amount of revenue requirements collected through the
13 DIR.²

14
15 According to AEP Ohio witness Selwyn J. Dias, the Utility proposes to collect
16 through the ESRR the revenue requirements associated with capital investments
17 and O&M spending for AEP Ohio's vegetation management program. Mr. Dias
18 also indicates that the SDRR is designed to collect all Operation and Maintenance
19 ("O&M") expenditures associated with major storm events above a \$5 million
20 baseline. Finally, according to Mr. Dias, the SSWR is designed to collect
21 incremental O&M labor costs associated with the hiring of new employees.

² See page 2 of Exhibit AEM-2 for the proposed annual caps.

1 **Q11. HOW DOES AEP OHIO PROPOSE TO ALLOCATE THE COSTS**
2 **COLLECTED THROUGH THESE FOUR DISTRIBUTION RATE RIDERS?**

3 **A11.** The Utility proposes to allocate these costs to customer classes on the basis of
4 each class's contribution to total base distribution revenues.³ Specifically, for
5 each of these four riders, AEP Ohio proposes to calculate the percentage ratio of
6 costs to be collected through the rider to total base distribution revenues. This
7 percentage ratio will then be applied uniformly to each class's base distribution
8 revenues to derive the share of the total rider cost to be collected from each class.
9 By applying this percentage ratio uniformly, the Utility's proposed approach
10 would allocate total costs collected through each rider to customer classes in
11 proportion to each class's contribution to total base distribution revenues.

12
13 **Q12. IS AEP OHIO'S PROPOSAL FOR ALLOCATING THE COSTS COLLECTED**
14 **FROM CUSTOMERS THROUGH THESE FOUR RIDERS CONSISTENT**
15 **WITH THE WAY SUCH TYPES OF COSTS ARE ALLOCATED IN THE**
16 **UTILITY'S MOST-RECENT COST OF SERVICE STUDY?**

17 **A12.** No. As AEP Ohio acknowledges, its proposal for allocating costs collected
18 through these four riders in the ESP III is inconsistent with the approach used to
19 allocate the same types of costs currently collected through base distribution
20 rates.⁴ For example, the Utility proposes to allocate net plant costs associated

³ For the Utility's cost-allocation proposals for costs collected through the DIR, ESRR, SDRR, and SSWR, see AEP Ohio's responses to OCC Int. 122, 126, 116, and 119, respectively.

⁴ See AEP Ohio's responses to OCC Int. 117, 120, 123, 127, and 130.

1 with plant investments collected through the DIR in proportion to each customer
2 class's contribution to total base distribution revenues. In contrast, in AEP Ohio's
3 most-recent cost of service studies, net plant costs associated with plant
4 investments collected through base distribution rates were allocated generally in
5 proportion to each customer class's contribution to distribution-system peak
6 demand. In other words, AEP Ohio's proposal would allocate costs collected
7 through these four riders inconsistently with the way these costs would be
8 allocated if they were instead collected through base distribution rates.

9
10 ***Q13. IS THE UTILITY'S COST-ALLOCATION PROPOSAL FOR THE***
11 ***DISTRIBUTION INVESTMENT RIDER, ENHANCED SERVICE***
12 ***RELIABILITY RIDER, STORM DAMAGE RECOVERY RIDER, AND THE***
13 ***SUSTAINED AND SKILLED WORKFORCE RIDER REASONABLE?***

14 ***A13.*** No. The Utility's proposal would allocate rider costs inconsistently with the way
15 these same costs would be allocated if they were instead collected through base
16 distribution rates. As such, AEP Ohio's proposal would allocate rider costs to
17 customer classes disproportionately with each class's responsibility for those rider
18 costs and thus inconsistently with the cost-causation principles embodied in the
19 Utility's most-recent cost of service studies.

20
21 AEP Ohio has not reasonably justified allocating the costs collected through these
22 four riders disproportionately with each class's responsibility for such costs.
23 Instead, the Utility supports its proposal by noting that the proposed allocation of
24 rider costs in proportion to distribution revenues "is consistent with the *overall*

1 cost of each customer to support the distribution function of the Company.”⁵ AEP
2 Ohio’s logic in this regard is circular, because the *overall* allocation of base
3 distribution costs in total is simply the sum of a number of *specific* allocations of
4 different cost accounts, such as net plant costs or O&M expenses. Thus, for
5 example, the allocation of net plant costs collected through DIR under the
6 Utility’s proposal might be consistent with the overall allocation of base
7 distribution costs in total. However, the allocation of DIR net plant costs under
8 the Utility’s proposal would not be consistent with the allocation of net plant costs
9 that underlies the overall allocation of base distribution costs in total.

10

11 ***Q14. HOW SHOULD THE COSTS COLLECTED THROUGH THE***
12 ***DISTRIBUTION INVESTMENT RIDER, ENHANCED SERVICE***
13 ***RELIABILITY RIDER, STORM DAMAGE RECOVERY RIDER, AND THE***
14 ***SUSTAINED AND SKILLED WORKFORCE RIDER BE ALLOCATED TO***
15 ***CUSTOMER CLASSES?***

16 ***A14.*** As with costs collected through base distribution rates, the costs collected through
17 these four riders should be allocated to customer classes in a manner that reflects
18 cost causation. I therefore recommend that the net plant, O&M, or labor costs
19 collected through the DIR, ESRR, SDRR, and SSWR be allocated to customer
20 classes in proportion to the allocation of net plant, O&M, or labor costs in the cost

⁵ AEP Ohio’s response to OCC Int. 123 with respect to net plant costs collected through the DIR.
(Emphasis added.)

1 of service studies filed in Case Nos. 11-351-EL-AIR and 11-352-EL-AIR.

2 Specifically, I recommend that:

- 3 • DIR costs be allocated in proportion to the allocation of net
4 electric plant in service.
- 5 • ESRR capital costs be allocated in proportion to the
6 allocation of net electric plant in service.
- 7 • ESRR O&M costs be allocated in proportion to the
8 allocation of distribution O&M expenses.⁶
- 9 • SDRR costs be allocated in proportion to the allocation of
10 distribution O&M expenses.
- 11 • SSWR costs be allocated in proportion to the allocation of
12 distribution O&M labor expenses.

13
14 ***Q15. HAVE YOU ESTIMATED THE ALLOCATORS THAT SHOULD BE***
15 ***APPLIED TO COSTS COLLECTED THROUGH THE DISTRIBUTION***
16 ***INVESTMENT RIDER, ENHANCED SERVICE RELIABILITY RIDER,***
17 ***STORM DAMAGE RECOVERY RIDER, AND THE SUSTAINED AND***
18 ***SKILLED WORKFORCE RIDER?***

19 ***A15.*** Yes. In accordance with my recommended approach, I have estimated the
20 percentage allocators associated with the allocation of net electric plant in service,
21 distribution O&M expenses, and O&M labor costs in AEP Ohio's most-recent

⁶ Distribution O&M expenses include spending for distribution plant O&M, but excludes customer account expenses, customer services and sales expenses, and administrative and general expenses.

1 cost of service studies. Each allocator represents the average cost allocation
2 across the cost of service studies for Ohio Power Company (“OP”) and Columbus
3 Southern Power Company (“CSP”). For example, the percentage allocator for the
4 residential class for net electric plant in service is derived as the ratio of: (1) the
5 sum of OP and CSP allocated residential net electric plant in service; and (2) the
6 sum of OP and CSP total retail net electric plant in service. I provide my
7 estimated allocators in Table 1.⁷

8 **Table 1. Customer Class Allocators**

| | Net Plant | O&M | Labor |
|---------------------|----------------------|----------------|----------------|
| RS | 58.52% | 55.57% | 55.71% |
| GS-1 | 3.04% | 2.65% | 2.64% |
| GS-2 | 13.44% | 14.30% | 13.81% |
| GS-3 | 21.10% | 22.86% | 23.29% |
| GS-4 | 0.40% | 0.44% | 0.41% |
| EHG/EHS/SS | 0.21% | 0.23% | 0.21% |
| Lighting | 3.28% | 3.95% | 3.93% |
| Total Retail | 100.00% | 100.00% | 100.00% |

9

⁷ These allocators are derived from the cost allocations provided in the cost of service spreadsheet models provided by AEP Ohio in Case Nos. 11-351-EL-AIR and 11-352-EL-AIR. Specifically, the cost allocations are provided in Tab E-3.2 in the spreadsheet files ‘2011-02-24 CSP CCOS Sched. 3.1 and 3.2 (Final).xls’ and ‘2011-02-24 OPCo CCOS Sched 3.1 and 3.2 (Final).xls.’

1 **Q16. HAVE YOU ESTIMATED THE IMPACT OF YOUR RECOMMENDED**
2 **APPROACH FOR ALLOCATING THE COSTS COLLECTED THROUGH**
3 **THE DISTRIBUTION INVESTMENT RIDER, ENHANCED SERVICE**
4 **RELIABILITY RIDER, STORM DAMAGE RECOVERY RIDER, AND THE**
5 **SUSTAINED AND SKILLED WORKFORCE RIDER?**

6 **A16.** I have estimated the impact of my recommended approach for the DIR, ESRR,
7 and SSWR, but not the SDRR, because AEP Ohio has not forecast SDRR costs.
8 In Attachment Wallach-2, I show for each year of the proposed ESP III the
9 allocation to customer class of DIR, ESRR, and SSWR costs under both AEP
10 Ohio's proposed approach and my recommended approach. As indicated in
11 Attachment Wallach-2, the Utility's proposed approach would allocate to the
12 residential class between \$8.7 million and \$10.8 million more per year than would
13 be the case under my recommended approach. In other words, over the three-year
14 term of the proposed ESP III, AEP Ohio's proposed approach would allocate to
15 the residential class about \$29 million more in rider costs than would be the case
16 if rider costs were allocated in proportion to the residential class's contribution to
17 such costs.

18
19 In Table 2, I provide for each year of the proposed ESP III the reallocation of total
20 costs collected through the DIR, ESRR, and SSWR that would result by
21 substituting my recommended cost-allocation approach for AEP Ohio's proposed
22 approach.

1

Table 2. Rider Cost Reallocation under OCC Allocation Approach

| | June, 2015 – May, 2016 | June, 2016 – May, 2017 | June, 2017 – May, 2018 | Total |
|------------|-----------------------------------|-----------------------------------|-----------------------------------|--------------|
| RS | (8,745,684) | (9,620,497) | (10,774,811) | (29,140,992) |
| GS-1 | (529,785) | (582,034) | (648,642) | (1,760,461) |
| GS-2 | (2,183,224) | (2,420,232) | (2,741,146) | (7,344,602) |
| GS-3 | 9,306,807 | 10,256,546 | 11,515,031 | 31,078,384 |
| GS-4 | (222,517) | (246,193) | (278,067) | (746,776) |
| EHG/EHS/SS | 166,473 | 182,913 | 205,253 | 554,638 |
| Lighting | 2,207,929 | 2,429,497 | 2,722,382 | 7,359,809 |

2 ***Q17. DOES THIS COMPLETE YOUR DIRECT TESTIMONY?***

3 ***A17.*** Yes. However, I reserve the right to incorporate new information or supplement
4 my testimony with information that may subsequently be made available to OCC.

CERTIFICATE OF SERVICE

It is hereby certified that a true copy of the foregoing *Direct Testimony of Jonathan Wallach on Behalf of The Ohio Consumers' Counsel* was served via electronic transmission this 6th day of May, 2014.

/s/ Maureen R. Grady
Maureen R. Grady
Assistant Consumers' Counsel

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Qualifications of
JONATHAN F. WALLACH

Resource Insight, Inc.
5 Water Street
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SUMMARY OF PROFESSIONAL EXPERIENCE

- 1990–Present* **Vice President, Resource Insight, Inc.** Provides research, technical assistance, and expert testimony on electric- and gas-utility planning, economics, regulation, and restructuring. Designs and assesses resource-planning strategies for regulated and competitive markets, including estimation of market prices and utility-plant stranded investment; negotiates restructuring strategies and implementation plans; assists in procurement of retail power supply.
- 1989–90* **Senior Analyst, Komanoff Energy Associates.** Conducted comprehensive cost-benefit assessments of electric-utility power-supply and demand-side conservation resources, economic and financial analyses of independent power facilities, and analyses of utility-system excess capacity and reliability. Provided expert testimony on statistical analysis of U.S. nuclear plant operating costs and performance. Co-wrote *The Power Analyst*, software developed under contract to the New York Energy Research and Development Authority for screening the economic and financial performance of non-utility power projects.
- 1987–88* **Independent Consultant.** Provided consulting services for Komanoff Energy Associates (New York, New York), Schlissel Engineering Associates (Belmont, Massachusetts), and Energy Systems Research Group (Boston, Massachusetts).
- 1981–86* **Research Associate, Energy Systems Research Group.** Performed analyses of electric utility power supply planning scenarios. Involved in analysis and design of electric and water utility conservation programs. Developed statistical analysis of U.S. nuclear plant operating costs and performance.

EDUCATION

BA, Political Science with honors and Phi Beta Kappa, University of California, Berkeley, 1980.

Massachusetts Institute of Technology, Cambridge, Massachusetts. Physics and Political Science, 1976–1979.

PUBLICATIONS

“The Future of Utility Resource Planning: Delivering Energy Efficiency through Distributed Utilities” (with Paul Chernick), *International Association for Energy Economics Seventeenth Annual North American Conference* (460–469). Cleveland, Ohio: USAEE. 1996.

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- 1994 **Vt. PSB** on behalf of the Vermont Department of Public Service. Docket No. 5270-CV-1 and 5270-CV-3. Testimony and rebuttal testimony discusses rate and bill effects from DSM spending and sponsors load shapes for measure- and program-screening analyses.
- 1996 **New Orleans City Council** on behalf of the Alliance for Affordable Energy. Docket Nos. UD-92-2A, UD-92-2B, and UD-95-1. Rates, charges, and integrated resource planning for Louisiana Power & Lights and New Orleans Public Service, Inc.
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- Support of proposed comprehensive restructuring settlement agreement
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- Evaluation of innovative rate proposal by PJM transmission owners.
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- Reasonableness of proposed fees for electricity-supplier services.
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- Costs and benefits to ratepayers. Assessment of public interest.
- Maryland PSC** Case No. 8796, Potomac Electric Power Company stranded costs and rates, Maryland Office of People's Counsel. December 2001; surrebuttal, February 2002.
- Allocation of benefits from sale of generation assets and power-purchase contracts.
- 2002 **Maryland PSC** Case No. 8908, Maryland electric utilities' standard offer and supply procurement, Maryland Office of People's Counsel. Direct, November 2002; Rebuttal December 2002.

- Benefits of proposed settlement to ratepayers. Standard-offer service. Procurement of supply.
- 2003 **Maryland PSC** Case No. 8980, adequacy of capacity in restructured electricity markets; Maryland Office of People’s Counsel. Direct, December 2003; Reply December 2003.
- Purpose of capacity-adequacy requirements. PJM capacity rules and practices. Implications of various restructuring proposals for system reliability.
- 2004 **Maryland PSC** Case No. 8995, Potomac Electric Power Company recovery of generation-related uncollectibles; Maryland Office of People’s Counsel. Direct, March 2004; Supplemental March 2004, Surrebuttal April 2004.
- Calculation and allocation of costs. Effect on administrative charge pursuant to settlement.
- Maryland PSC** Case No. 8994, Delmarva Power & Light recovery of generation-related uncollectibles; Maryland Office of People’s Counsel. Direct, March 2004; Supplemental April 2004.
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- Net-revenue offset to cost of new capacity. Winter-summer adjustment factor. Market power and in-City ICAP price trends.
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Assessment of proposals to modify default service for commercial and industrial customers.

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Assessment of effects and risks of proposed merger on ratepayers.

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Procurement of standard-offer power. Structure and format of bidding. Risk and cost recovery.

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Distorting effects of proposed reliability-pricing model on clearing prices. Economically efficient alternative treatment.

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Maryland PSC Case No. 9073, stranded costs from electric-industry restructuring; Maryland Office of People's Counsel, Direct Testimony, December 2006.

Review of estimates of stranded costs for Baltimore Gas & Electric.

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Rate-stabilization plan.

Maryland PSC Case No. 9092, rates and rate mechanisms for the Potomac Electric Power Company; Maryland Office of People's Counsel, Direct Testimony, March 2007.

Cost allocation and rate design. Revenue decoupling mechanism.

Maryland PSC Case No. 9093, rates and rate mechanisms for Delmarva Power & Light; Maryland Office of People's Counsel, Direct Testimony, March 2007.

Cost allocation and rate design. Revenue decoupling mechanism.

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Review of standard-offer-service-procurement plan. Rate stabilization plan.

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Assessment of proposed capacity contracts.

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Benefits of long-term planning and procurement. Proposed aggregation of customers.

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Energy efficiency as part of standard-offer-service planning and procurement. Procurement of generation or long-term contracts to meet reliability needs.

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Assessment of proposed peaking projects. Valuation of peaking capacity. Modeling of energy margin, forward reserves, other project benefits.

Ontario EB-2007-0707, Ontario Power Authority integrated system plan; Green Energy Coalition, Penimba Institute, and Ontario Sustainable Energy Association. Evidence (with Paul Chernick and Richard Mazzini), August 2008.

Critique of integrated system plan. Resource cost and characteristics; finance cost. Development of least-cost green-energy portfolio.

- 2009 **Maryland PSC** Case No. 9192, Delmarva Power & Lights rates; Maryland Office of People's Counsel. Direct, August 2009; Rebuttal, Surrebuttal, September 2009.
Cost allocation and rate design.
- Wisconsin PSC** Docket No. 6630-CE-302, Glacier Hills Wind Park certificate; Citizens Utility Board of Wisconsin. Direct and Surrebuttal, October 2009.
Reasonableness of proposed wind facility.
- PUC of Ohio** Case No 09-906-EL-SSO, standard-service-offer bidding for three Ohio electric companies; Office of the Ohio Consumers' Counsel. Direct, December 2009.
Design of auctions for SSO power supply. Implications of migration of First-Energy from MISO to PJM.
- 2010 **PUC of Ohio** Case No 10-388-EL-SSO, standard-service offer for three Ohio electric companies; Office of the Ohio Consumers' Counsel. Direct, July 2010.
Design of auctions for SSO power supply.
- Maryland PSC** Case No. 9232, Potomac Electric Power Co. administrative charge for standard-offer service; Maryland Office of People's Counsel. Reply, Rebuttal, August 2010.
Proposed rates for components of the Administrative Charge for residential standard-offer service.
- Maryland PSC** Case No. 9226, Delmarva Power & Light administrative charge for standard-offer service; Maryland Office of People's Counsel. Reply, Rebuttal, August 2010.
Proposed rates for components of the Administrative Charge for residential standard-offer service.
- Maryland PSC** Case No. 9221, Baltimore Gas & Electric cost recovery; Maryland Office of People's Counsel. Reply, August 2010; Rebuttal, September 2010; Surrebuttal, November 2010
Proposed rates for components of the Administrative Charge for residential standard-offer service.
- Wisconsin PSC** Docket No. 3270-UR-117, Madison Gas & Electric gas and electric rates; Citizens Utility Board of Wisconsin. Direct, Rebuttal, Surrebuttal, September 2010.
Standby rate design. Treatment of uneconomic dispatch costs.

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Effectiveness of fuel-adjustment incentive mechanism.

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Assessment of drought-related financial risk.

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Merger and competitive markets. Competitively neutral recovery of utility investments in new generation.

Mass. DPU 11-5, -6, -7, NStar wind contracts; Cape Light Compact. Direct, May 2011.

Assessment of utility proposal for recovery of contract costs.

Wisc. PSC Docket No. 4220-UR-117, electric and gas rates of Northern States Power: Citizens Utility Board of Wisconsin. Direct, Rebuttals (2) October 2011; Surrebuttal, Oral Sur-Surrebutal November 2011;

Cost allocation and rate design. Allocation of DOE settlement payment.

Wisc. PSC Docket No. 6680-FR-104, fuel-cost-related rate adjustments for Wisconsin Power and Light Company: Citizens Utility Board of Wisconsin. Direct, October 2011; Rebuttal, Surrebuttal, November 2011

Costs to comply with Cross State Air Pollution Rule.

2012 **Maryland PSC** Case No. 9149, Maryland IOUs' development of RFPs for new generation; Maryland Office of People's Counsel. March 2012.

Failure of demand-response provider to perform per contract. Estimation of cost to ratepayers.

PUCO Cases Nos. 11-346-EL-SSO, 11-348-EL-SSO, 11-349-EL-AAM, 11-350-EL-AAM, transition to competitive markets for Columbus Southern Power Company and Ohio Power Company; Ohio Consumers' Counsel. May 2012

Structure of auctions, credits, and capacity pricing as part of transition to competitive electricity markets.

Wisconsin PSC Docket No. 3270-UR-118, Madison Gas & Electric rates, Wisconsin Citizens Utility Board. Direct, August 2012; Rebuttal, September 2012.

Cost allocation and rate design (electric).

Wisconsin PSC Docket No. 05-UR-106, We Energies rates, Wisconsin Citizens Utility Board. Direct, Rebuttal, September 2012.

Cost allocation and rate design (electric).

Wisconsin PSC Docket No. 4220-UR-118, Northern States Power rates, Wisconsin Citizens Utility Board. Direct, Rebuttal, October 2012; Surrebuttal, November 2012.

Recovery of environmental remediation costs at a manufactured gas plant. Cost allocation and rate design.

2013 **Corporation Commission of Oklahoma** Cause No. PUD 201200054, Public Service Company of Oklahoma environmental compliance and cost recovery, Sierra Club. Direct, January 2013; rebuttal, February 2013; surrebuttal, March 2013.

Economic evaluation of alternative environmental-compliance plans. Effects of energy efficiency and renewable resources on cost and risk.

Maryland PSC Case No. 9324, Starion Energy marketing, Maryland Office of People's Counsel. September 2013.

Estimation of retail costs of electricity supply.

Wisconsin PSC Docket No. 6690-UR-122, Wisconsin Public Service Corporation gas and electric rates, Wisconsin Citizens Utility Board. Direct, August 2013; Rebuttal, Surrebuttal September 2013.

Cost allocation and rate design; rate-stabilization mechanism.

Wisconsin PSC Docket No. 4220-UR-119, Northern States Power Company gas and electric rates, Wisconsin Citizens Utility Board. Direct, Rebuttal, Surrebuttal, October 2013.

Cost allocation and rate design.

Michigan PSC Case No. U-17429, Consumers Energy Company approval for new gas plant, Natural Resources Defense Council. Corrected Direct, October 2013.

Need for new capacity. Economic assessment of alternative resource options.

Rider Cost Allocation Under AEP Ohio Proposal and OCC Recommended Approach

June, 2015 - May, 2016

| | DIR | | | ESRR | | | SSWR | | | Total | | |
|--------------|-------------|-------------|---------|------------|------------|---------|-----------|-----------|-----------|-------------|-------------|-------------|
| | AEP Ohio | OCC | % Shift | AEP Ohio | OCC | % Shift | AEP Ohio | OCC | % Shift | AEP Ohio | OCC | % Shift |
| RS | 114,348,592 | 107,681,999 | -4% | 18,949,338 | 17,105,598 | -6% | 2,272,999 | 2,037,648 | (235,351) | 135,570,929 | 126,825,246 | (8,745,684) |
| GS-1 | 5,946,187 | 5,594,375 | 0% | 985,376 | 828,959 | -1% | 118,197 | 96,641 | (21,556) | 7,049,760 | 6,519,975 | (529,785) |
| GS-2 | 26,766,415 | 24,733,367 | -1% | 4,433,611 | 4,312,493 | 0% | 532,058 | 505,000 | (27,057) | 31,734,084 | 29,550,860 | (2,183,224) |
| GS-3 | 31,415,046 | 38,826,808 | 4% | 5,205,961 | 6,873,675 | 5% | 624,462 | 851,793 | 227,331 | 37,245,469 | 46,552,276 | 9,306,807 |
| GS-4 | 928,041 | 730,162 | 0% | 153,791 | 132,701 | 0% | 18,447 | 14,900 | (3,547) | 1,100,280 | 877,763 | (222,517) |
| EHG/EHS/SS | 257,364 | 393,803 | 0% | 42,649 | 70,063 | 0% | 5,116 | 7,735 | 2,619 | 305,129 | 471,601 | 166,473 |
| Lighting | 4,338,355 | 6,039,486 | 1% | 719,933 | 1,168,169 | 1% | 86,237 | 143,799 | 57,562 | 5,143,525 | 7,351,454 | 2,207,929 |
| Total Retail | 184,000,000 | 184,000,000 | | 30,491,658 | 30,491,658 | | 3,657,517 | 3,657,517 | | 218,149,175 | 218,149,175 | |

June, 2016 - May, 2017

| | DIR | | | ESRR | | | SSWR | | | Total | | |
|--------------|-------------|-------------|---------|------------|------------|---------|-----------|-----------|-----------|-------------|-------------|-------------|
| | AEP Ohio | OCC | % Shift | AEP Ohio | OCC | % Shift | AEP Ohio | OCC | % Shift | AEP Ohio | OCC | % Shift |
| RS | 126,570,633 | 119,191,488 | -4% | 19,044,359 | 17,195,080 | -6% | 3,786,599 | 3,394,526 | (392,073) | 149,401,591 | 139,781,094 | (9,620,497) |
| GS-1 | 6,581,740 | 6,192,324 | 0% | 990,317 | 833,608 | -1% | 196,905 | 160,995 | (35,910) | 7,768,962 | 7,186,928 | (582,034) |
| GS-2 | 29,627,318 | 27,376,969 | -1% | 4,457,853 | 4,333,045 | 0% | 886,357 | 841,282 | (45,075) | 34,971,528 | 32,551,297 | (2,420,232) |
| GS-3 | 34,772,813 | 42,976,775 | 4% | 5,232,066 | 6,905,939 | 5% | 1,040,294 | 1,419,005 | 378,711 | 41,045,174 | 51,301,720 | 10,256,546 |
| GS-4 | 1,027,234 | 808,204 | 0% | 154,562 | 133,308 | 0% | 30,732 | 24,823 | (5,909) | 1,212,528 | 966,335 | (246,193) |
| EHG/EHS/SS | 284,872 | 435,895 | 0% | 42,863 | 70,391 | 0% | 8,522 | 12,885 | 4,363 | 336,257 | 519,170 | 182,913 |
| Lighting | 4,802,056 | 6,685,011 | 1% | 722,538 | 1,173,187 | 1% | 143,663 | 239,555 | 95,893 | 5,668,257 | 8,097,754 | 2,429,497 |
| Total Retail | 203,666,667 | 203,666,667 | | 30,644,558 | 30,644,558 | | 6,093,072 | 6,093,072 | | 240,404,297 | 240,404,297 | |

June, 2017 - May, 2018

| | DIR | | | ESRR | | | SSWR | | | Total | | |
|--------------|-------------|-------------|---------|------------|------------|---------|-----------|-----------|-----------|-------------|-------------|--------------|
| | AEP Ohio | OCC | % Shift | AEP Ohio | OCC | % Shift | AEP Ohio | OCC | % Shift | AEP Ohio | OCC | % Shift |
| RS | 143,712,565 | 135,334,034 | -4% | 19,477,984 | 17,587,413 | -6% | 4,884,088 | 4,378,379 | (505,709) | 168,074,637 | 157,299,826 | (10,774,811) |
| GS-1 | 7,473,129 | 7,030,974 | 0% | 1,012,865 | 852,697 | -1% | 253,975 | 207,657 | (46,318) | 8,739,970 | 8,091,328 | (648,642) |
| GS-2 | 33,639,856 | 31,084,734 | -1% | 4,559,355 | 4,431,470 | 0% | 1,143,254 | 1,085,115 | (58,139) | 39,342,465 | 36,601,319 | (2,741,146) |
| GS-3 | 39,482,224 | 48,797,279 | 4% | 5,351,196 | 7,062,698 | 5% | 1,341,808 | 1,830,283 | 488,475 | 46,175,229 | 57,690,260 | 11,515,031 |
| GS-4 | 1,166,356 | 917,662 | 0% | 158,081 | 136,330 | 0% | 39,639 | 32,017 | (7,622) | 1,364,076 | 1,086,010 | (278,067) |
| EHG/EHS/SS | 323,453 | 494,929 | 0% | 43,839 | 71,988 | 0% | 10,993 | 16,620 | 5,627 | 378,285 | 583,537 | 205,253 |
| Lighting | 5,452,416 | 7,590,387 | 1% | 738,990 | 1,199,715 | 1% | 185,301 | 308,987 | 123,686 | 6,376,707 | 9,099,089 | 2,722,382 |
| Total Retail | 231,250,000 | 231,250,000 | | 31,342,310 | 31,342,310 | | 7,859,058 | 7,859,058 | | 270,451,368 | 270,451,368 | |