

BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application Seeking)	
Approval of Ohio Power Company's)	
Proposal to Enter into an Affiliate)	
Power Purchase Agreement)	Case No. 14-1693-EL-RDR
for Inclusion in the Power Purchase)	
Agreement Rider)	

In the Matter of the Application of)	
Ohio Power Company for Approval of)	Case No. 14-1694-EL-AAM
Certain Accounting Authority)	

DIRECT TESTIMONY OF

KARL R. RÁBAGO

ON BEHALF OF

ENVIRONMENTAL LAW & POLICY CENTER,

OHIO ENVIRONMENTAL COUNCIL,

AND ENVIRONMENTAL DEFENSE FUND

Filed: 28 December 2015

INTRODUCTION

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

A. My name is Karl R. Rábago. I am the principal and sole member of Rábago Energy Limited Liability Company, a New York limited liability company with an office at 62 Prospect Street, White Plains, New York.

Q. ON WHOSE BEHALF ARE YOU APPEARING IN THIS CASE?

A. I am appearing on behalf of the Environmental Law & Policy Center, Ohio Environmental Council, and Environmental Defense Fund.

Q. WHAT IS YOUR RELEVANT BACKGROUND AND EXPERIENCE IN THE FIELD OF ELECTRIC UTILITY REGULATION?

A. I have more than 25 years' experience in the electric utility industry, including as a Public Utility Commissioner for the State of Texas, as a Deputy Assistant Secretary with the U.S. Department of Energy, as a utility executive and director of regulatory affairs, as an academic, and as an advocate. Through my position as Executive Director of the Pace Energy and Climate Center, I am active in all aspects of the groundbreaking New York Reforming the Energy Vision process, which seeks to develop and implement a blueprint for electric utility transformation. I am an attorney with degrees from Texas A&M University and the University of Texas School of Law, and post-doctorate degrees in military and environmental law from the U.S. Army Judge Advocate General's School and Pace School of Law, respectively. A detailed resume is attached as Exhibit KRR-1.

Q. HAVE YOU EVER TESTIFIED BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO ("PUCO") OR ANY OTHER STATE REGULATORY AUTHORITY IN THE PAST?

A. I have never appeared before the PUCO in the past. Over the course of my career I have testified before a wide range of legislative, judicial, and administrative bodies, as all levels of government, and in dozens of states. A list of my prior testimony over the past three years is attached as Exhibit KRR-2.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?

A. I am testifying in order to raise important issues raised in the application by the Ohio Power Company (the “Company”) for approval of its application relating to an Affiliate Purchase Power Agreement (“PPA”) and PPA Rider as regards the settlement process, the Joint Stipulation and Recommendation (the “Stipulation”) filed on 14 December 2015, and the policy implications of Commission action on the Stipulation.

Q. DID YOU PARTICIPATE IN THE NEGOTIATIONS WHICH LED TO THE STIPULATION?

A. No. Other than my compensation as an expert witness, I do not have a financial stake in the outcome of this proceeding.

Q. WHAT MATERIALS DID YOU REVIEW IN PREPARING THIS TESTIMONY?

A. I reviewed the Stipulation, relevant testimony and discovery, the Company’s application, and relevant provisions of Ohio law and regulation.

Q. WHAT IS YOUR UNDERSTANDING OF THE PUCO’S STANDARD OF REVIEW FOR THE STIPULATION?

A. My understanding is that the PUCO reviews a stipulation to determine whether it is reasonable, applying three criteria:

- (1) Is the settlement a product of serious bargaining among capable, knowledgeable parties?

(2) Does the settlement, as a package, benefit ratepayers and the public interest?

(3) Does the settlement package violate any important regulatory principle or practice?¹

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Q. PLEASE SUMMARIZE YOUR FINDINGS IN THIS MATTER RELATING TO THE STIPULATION.

A. The Stipulation is a complex assembly of many interrelated and interlocking parts, each of which has significant potential impact to the public interest inherent in electric rates and services for Company's customers and ratepayers. The Stipulation is the product of extensive negotiations by several parties and reflects commitments and contingent commitments that the Company is willing to offer in order to secure support for the underlying application to gain approval of its PPA proposal. The Stipulation is not, however, an adjudicated outcome that weighs the facts of the various proposals and strikes a balance that best serves the public interest.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS IN THIS CASE.

A. First, I conclude that the underlying application in this case has been somewhat lost in the settlement process. The concept of a PPA between a regulated utility and its unregulated generation affiliate, without any kind of competitive bidding process, raises profound public policy questions. Ohio has a competitive generation market, but this PPA essentially attempts to insulate AEP from some market forces via an order from the Commission. Many of the settlement terms proposed in the Stipulation bear little direct

¹ *Indus. Energy Consumers of Ohio Power Co. v. Pub. Util. Comm.*, 68 Ohio St.3d 559, 629 N.E.2d 423 (1994).

1 relationship to the fundamental underlying questions regarding AEP purchasing power at
2 out-of-market and potentially inflated prices from its unregulated affiliate.

3 **Q. WHAT OTHER CONCLUSIONS DO YOU REACH?**

4 A. Second, I conclude that in spite of, and in no small measure because of the negotiation
5 process that produced it, the Stipulation cannot be found to be in the public interest
6 absent a careful review of each of its terms—individually, in addition to as an interactive
7 whole. The Stipulation appears to be a deal to allow the Company to recover costs for the
8 proposed PPA in return for the many elements of the deal unrelated to the core PPA. To
9 date the record lacks testimony that fleshes out the elements of the settlement in a way
10 that allows the Commission to reach a decision about whether this package is in the
11 public interest based on the merits.

12 **Q. WHY IS THIS STIPULATION THE WRONG PROCEEDING FOR**
13 **ADDRESSING THE DEAL TERMS NOT DIRECTLY RELATED TO THE**
14 **PROPOSED PPA ARRANGEMENT?**

15 A. Many of the issues presented in the proposed Stipulation and Recommendation, such as
16 those relating to grid modernization, should be addressed in the context of a broad, open,
17 and over-arching proceeding that carefully addressed the full range of utility
18 transformation issues that are before this Commission and, in fact, are before all
19 regulatory commissions in the United States. These are non-core issues that do not relate
20 to the PPA. These issues have not been fairly addressed through the negotiation process
21 aimed at reaching a settlement in a proceeding about the terms of an affiliate generation
22 PPA.

1 **Q. HOW DO THESE STIPULATION TERMS IMPACT THE EVALUATION OF**
2 **THE MERITS OF THE AFFILIATE PPA PROPOSAL?**

3 A. The non-core issues have little or no effect on the merits of the affiliate PPA proposal.
4 Whether the non-core commitments relating to energy efficiency, grid modernization,
5 renewable energy development, and other issues are themselves good or bad ideas tells us
6 nothing about whether the affiliate PPA proposal is prudent. AEP and the signatory
7 parties fail to address such non-core settlement terms in the record, nor do they present
8 any evidence that these issues are germane to the issues raised by the affiliate PPA
9 proposal.

10 **Q. ARE THERE OTHER RISKS ASSOCIATED WITH USING THE SETTLEMENT**
11 **PROCESS TO ADDRESS THE NON-CORE ISSUES LIKE GRID**
12 **MODERNIZATION, ENERGY EFFICIENCY, AND OTHERS?**

13 A. Yes. First, the issues of grid modernization, carbon emissions reductions, advancing
14 energy efficiency, and development of renewable energy generation are much bigger
15 issues than a deal to provide regulatory support to out-of-market generation resources. To
16 the extent that the Stipulation creates boundaries around consideration of these issues—in
17 time, budget, or scope—the public interest is not served. Second, at the other end of the
18 spectrum is the risk that the Stipulation will have the effect of pre-deciding or pre-
19 approving aspects of the non-core proposals. The administrative record associated with a
20 settlement agreement is simply too sparse to pre-judge the merits of any of these
21 proposals. That record is factually and legally inadequate to support a public interest
22 determination by the Commission.

23 **Q. WHAT ARE YOUR RECOMMENDATIONS TO THE COMMISSION?**

1 A. First, I recommend that the Commission narrowly review the subject matter of the PPA
2 and reach its own conclusions regarding the propriety of the Company proposal, as
3 modified, but not as supplemented by the settlement terms unless those settlement terms
4 directly apply to the PPA proposal. Because so many of the Stipulation terms have no
5 direct relationship to the PPA proposal itself, the Commission must separately weigh
6 whether the PPA proposal is prudent and in the public interest before, and separately
7 from, consideration of the value of the other elements of the settlement package.

8 **Q. WHAT FURTHER RECOMMENDATIONS DO YOU MAKE TO THE**
9 **COMMISSION?**

10 A. I further recommend that the Commission reject the Stipulation until such time as the
11 parties to the Stipulation and other appropriate parties submit or at least have an
12 opportunity to submit testimony on each substantive issue addressed in the Stipulation.
13 That testimony and evidence must be tested against the standard that the form and
14 substance of each proposal is fully evaluated and that the settlement terms benefit
15 Company customers as a whole, both individually and as a package. This testimony
16 should address three key questions:

- 17 (1) What commitment is actually being made by the Company on that issue, and what
18 value or burden (including costs and benefits) does that commitment have for
19 ratepayers and the public interest?
- 20 (2) What subsequent filings, review, and decisions must be made in order to realize
21 the commitment, and what is the risk that these processes will reduce or
22 significantly alter the value proposition associated with the commitment?

(3) Does realization of the commitment advance (and not merely “not violate”) public policy goals of the State of Ohio relating to the provision of electric services? Without such evidence, the Commission should not give any weight to the Stipulation terms in evaluating whether the settlement package will benefit ratepayers and the public interest.

**REVIEW OF TERMS OF THE PROPOSED
STIPULATION AND RECOMMENDATION**

Q. DID YOU REVIEW THE PROPOSED STIPULATION AND THE SUPPORTING TESTIMONY OF COMPANY WITNESS ALLEN?

A. Yes.

Q. WHAT ARE YOUR FINDINGS BASED ON REVIEW OF THE STIPULATION AND SUPPORTING TESTIMONY?

A. Not surprisingly, given the magnitude and import of the underlying application, the Stipulation is a complex document reflecting many issues and topics, only a few of which are directly related to the PPA and PPA Rider.

Q. WHAT IS YOUR OPINION REGARDING THE COMPANY’S APPLICATION?

A. I do not have an ultimate opinion on whether the Commission should or should not approve the Application for Approval of the Purchased Power Agreement, with or without conditions. I was not a witness in the initial phase of the case, and I do not have a deep enough understanding of the record. I do note that the application is of profound importance in the greater scheme of electric utility and electricity market regulation. The

1 trade media has described this case as a petition for re-regulation.² My understanding of
 2 the application is this:

- 3 • Energy markets increasingly declare that several Company generation facilities are
 4 uneconomic. That is, they are not currently operating at the necessary level to earn
 5 sufficient revenues to be profitable for shareholders.
- 6 • If these generation facilities close, for any reason, economic disruption and
 7 environmental improvements are anticipated as a result.
- 8 • The Company seeks regulatory treatment that will result in these plants operating
 9 through what may be above-market contract prices under PPA agreements, for which
 10 customers may bear above-market costs.
- 11 • The PPAs are also expected to insulate generation revenues from some amount of
 12 market price volatility, which AEP asserts may provide a benefit to customers.

13 These are the core aspects of the underlying application as I understand them.

14 **Q. WHY IS THE COMMISSION DECISION ON THIS APPLICATION OF**
 15 **PROFOUND IMPORTANCE?**

16 A. Obviously, there are huge economic benefits to AEP's shareholders if the application is
 17 granted. The magnitude of the collateral commitments offered in the Stipulation is
 18 evidence of that value. Moreover, the very notion of the protective PPA arrangements
 19 marks an important step in electricity market policy. The application can be viewed
 20 simultaneously as a "bailout" for utility investors relating to uneconomic generation
 21 plants like the stranded cost payments that accompanied electric utility restructuring in

² See, e.g., "Dynegy slams AEP and FirstEnergy in Ohio re-regulation battle," Utility Dive, 10 August 2015. Available at <http://www.utilitydive.com/news/dynegy-slams-aep-and-firstenergy-in-ohio-re-regulation-battle/403737/>.

the 1990s and 2000s, and as a potential mechanism for obtaining a measure of economic and price security for citizens and electricity customers in Ohio.

Q. HOW ARE THOSE ISSUES REFLECTED IN THE PROPOSED STIPULATION?

A. As weighty as the core issues are, the Commission's task in this proceeding has been greatly complicated by the fact that the Company's economic desire to obtain approval of the PPA arrangement for its affiliated generation has opened bargaining around a potential settlement that has now expanded the range of issues far beyond the manageable scope of the original application. My ultimate concern is that the settlement process is not the appropriate policy and regulatory forum for addressing these non-core issues, and that addressing them through the Stipulation could engender suboptimal results for everyone. AEP and the parties signing on to the stipulation have failed to justify the elements of the stipulation with fact-based testimony that would allow the Commission to reach a conclusion based on the merits.

Q. WHICH PROVISIONS ARE DIRECTLY RELATED TO THE PPA AND THE PPA RIDER?

A. Directly relevant provisions are addressed in Section III.A. of the Stipulation. These include:

- Inclusion of a revised affiliate PPA in the PPA Rider (§ III.A.1.)
- Inclusion of OVEC entitlement in the PPA Rider (§ III.A.2.)
- Additional PPA Rider credit commitments by AEP Ohio (§ III.A.3.)
- PPA Rider mechanism terms and structure (§ III.A.4.)
- Contingencies and conditions relating to the PPA Rider (§ III.A.5.)
- Provisions relating to future modification of the PPA Rider (§ III.A.6.)

The Stipulation also includes Federal advocacy commitments relating to market changes that might create customer benefits relating to generation from the affiliated generation (§ III.B). All other terms of the Stipulation are less directly related to the PPA or not germane to the PPA issues at all.

Q. WHAT ARE THE ISSUES LESS DIRECTLY RELATED OR NOT GERMANE TO THE PPA ISSUES?

A. The range of non-core issues raises in the Stipulation is long and varied. It includes commitments and contingent commitments in two broad categories. First, there are terms associated with a planned filing of an extension to the Company’s Energy Security Plan III (“ESP III”) on or about 30 April 2016. (§ III.C.) This filing will reflect the Company’s yet-unspecified proposals for various riders, tariffs, credits, and pilots over the current ESP III term (through 31 May 2018) and through the proposed extended ESP III term through 31 May 2024. Second, the Stipulation reflects a wide range of “Additional AEP Ohio Commitments” in § III.D. These commitments and contingent commitments relate to:

- Research and development
- Energy efficiency efforts with the Ohio Hospital Association
- Funding for the Community Assistance Program
- Cost shifting provisions relating to the Energy Efficiency and Peak Demand Reduction (“EE/PDR”) and Interruptible Rates Program (“IRP”) riders
- Future filing of a proposal to develop a limited Pilot Consolidated Billing Program for Competitive Retail Electric Service providers that sign on to the Stipulation

- Timelines for submission of proposals relating to repowering coal-fired generation to utilize natural gas as fuel
- Future filing of a proposal to establish a “Retirement Readiness” docket and a “Generation Transition” docket relating to coal-fired plant retirements and repowering
- Future filing of a proposal to implement an expanded Volt/VAR Optimization deployment plan that will count toward EE/PDR accomplishment but not impact shared savings, and proposals to evaluate further expansion of the plan
- Future filing of a proposal to seek recommitment to the existing demand reduction target and an increase in the energy saving target under the EE/PDR plan, subject to several application, approval, and funding contingencies
- A commitment to implement an as-yet unspecified Fuel Diversification programs
- Commitments to explore, evaluate, and submit a plan addressing a wide-ranging menu of grid modernization technologies and programs, and battery technology
- Highly contingent commitments to develop utility scale wind and solar generation resources

While these are interesting and potentially positive outcomes, they are not really core to the underlying PPA application. There is little or no explanation in the record as to why or how they became part of the Stipulation—they are, by definition, the product of negotiation. In fact, there is some potential that approval of the PPA application will frustrate the goals of many of these plans.

Q. HOW COULD THE PPA PROPOSAL FRUSTRATE EFFICIENCY, LOW INCOME, GRID MODERNIZATION, AND OTHER COMMITMENTS?

1 A. I have not performed a comprehensive study of the interactions of the Stipulation
2 elements. Such as study does not accompany the Stipulation, and is highly contingent on
3 plans and proposals yet to be developed. Indeed, ELPC submitted extensive discovery
4 requests aimed at assessing the various non-core commitments and the impacts of the
5 PPA proposals, but the responses from the Company do not provide a clear answer. As
6 previously discussed, the Stipulation may simultaneously constrain and give preliminary
7 approval to these proposals without the Commission having opportunity to properly
8 scrutinize them and judge them on their merits. AEP and the parties signing the
9 Stipulation have failed to make a record supporting such an outcome.

10 **Q. HOW COULD THE PPA PROPOSALS IMPACT THE POTENTIAL BENEFITS**
11 **OF EFFICIENCY, LOW INCOME, GRID MODERNIZATION, AND OTHER**
12 **COMMITMENTS?**

13 A. The PPA proposals create an above-market revenue stream for the affiliated generators
14 that will be passed through to customers via a non-bypassable PPA Rider. It is my
15 understanding that generally high wholesale prices will likely result in lower PPA Rider
16 charges, and vice versa. As a result, the wholesale price suppression benefits (sometimes
17 called Demand Reduction Induced Price Effects, or “DRIPE”) of energy efficiency and
18 distributed energy resource investments could be offset in rates paid by customers. That
19 is, energy efficiency, distributed generation, smart grid technologies, and other
20 distributed energy resources can reduce wholesale prices, especially if targeted at peak
21 demand. These same price reductions could lead to higher PPA Rider charges. As I
22 discuss later, there are also several changes proposed for energy efficiency rates and
23 tariffs as well in the Stipulation for which the impacts and costs are unknown. Large scale

1 renewable energy generation, which would have to operate under competitive market
2 conditions, would be disadvantaged relative to the affiliated generators. Low income
3 customers could face higher bills as a result of the PPA Rider. These are some of the
4 ways the Stipulation provisions could individually or collectively impact opportunities
5 and benefits of energy efficiency, grid modernization, and other efforts.

6 **Q. WHAT ARE SOME OF THE OTHER KEY UNCERTAINTIES REMAINING**
7 **REGARDING THE PPA PROPOSALS AND THE NON-CORE COMMITMENTS**
8 **RELATING TO EFFICIENCY, RENEWABLE ENERGY, TARIFF**
9 **MODIFICATION, AND GRID MODERNIZATION?**

10 A. Most of the details regarding these commitments will not be known until the Company
11 develops plans and proposals, and until the Commission has acted on specific Company
12 proposals.

13 **Q. WHAT ARE THE CUSTOMER CREDIT PROVISIONS AND HOW WERE**
14 **THEY SET?**

15 A. The customer credits in § III.A.3 are commitments aimed at reducing electric bill impacts
16 for customers during the term of the ESP III and its extension. The customer credit
17 commitments were determined through negotiation, so no details are available on how
18 they were set. There is no evidence in the Stipulation or supporting testimony that the
19 Commission can weigh to judge their reasonableness. (Exhibit KRR-3, ELPC-INT-S4-
20 001)

21 **Q. HOW WILL THE DISTRIBUTION INVESTMENT RIDER BE IMPACTED BY**
22 **THE STIPULATION?**

A. Cost impacts on customers that will be realized through the Distribution Investment Rider cannot be estimated until the Company files a plan in 2016, and the Commission subsequently approves a plan. (Exhibit KRR-3, ELPC-INT-S4-012)

Q. WHAT ARE THE COST AND REVENUE IMPACTS OF THE PROPOSED CHANGES IN THE INTERRUPTIBLE RATE PROGRAM?

A. Cost and revenue impacts of IRP rate changes are not known at this time. (Exhibit KRR-3, ELPC-INT-S4-014)

Q. WILL THE STIPULATION PROVIDE ECONOMIC DEVELOPMENT IMPACTS?

A. In spite of a great deal of discussion about the economic benefits of the generation plants impacted by the affiliate PPA proposal, the economic benefits of other provisions of the Stipulation have not been detailed or quantified. (Exhibit KRR-3, ELPC-INT-S4-015)

Q. WHERE AND HOW WILL THE SHAREHOLDER-FUNDED DONATION OF \$500,000 BE USED FOR RESEARCH AND DEVELOPMENT?

A. The Stipulation states that \$500,000 will be donated to a “Ohio public higher educational institution.” No other details are provided. (Exhibit KRR-3, ELPC-INT-S4-016)

Q. WHAT DOES THE STIPULATION COMMIT IN REGARDS THE OHIO HOSPITAL ASSOCIATION?

A. The Stipulation identifies a number of collaborative and supportive activities that will benefit the Ohio Hospital Association and its members, primarily in energy efficiency.

§ III.D.2. All of these commitments are contingent on regulatory approvals not included in and subsequent to approval of this Stipulation. (Exhibit KRR-3, ELPC-INT-S4-017)

The Stipulation commitment to prioritize Volt/VAR Optimization program efforts on

circuits serving OHA members has no metrics or supporting cost-benefit analysis.

(Exhibit KRR-3, ELPC-INT-S4-019)

Q. DOES THE STIPULATION QUANTIFY THE COSTS OR CARBON EMISSIONS BENEFITS ASSOCIATED WITH CONVERTING THE CONESVILLE 5 & 6 UNITS TO NATURAL GAS CO-FIRING?

A. No estimation of costs (Exhibit KRR-4, OCC-INT-S1-048) or emissions benefits (Exhibit KRR-3, ELPC-INT-S4-022) associated with conversion of the Conesville 5 & 6 units is included in the Stipulation.

Q. WHAT COMMITMENTS AND COST ESTIMATES ACCOMPANY THE GRID MODERNIZATION COMMITMENTS IN THE STIPULATION?

A. The Company has not yet developed a grid modernization plan and the Stipulation does not address costs or commitments beyond submission of a plan in 2016. (Exhibit KRR-3, ELPC-INT-S4-030)

Q. HOW MUCH WILL THE ENERGY SAVINGS AND DEMAND REDUCTION COMMITMENTS COST CUSTOMERS?

A. No cost estimates are provided or available. (Exhibit KRR-4, OCC-INT-S1-057)

Q. HOW WILL RIDERS AND TARIFFS BE CHANGED UNDER THE ESP III EXTENSION?

A. Changes to riders and tariffs have not been proposed or determined. (Exhibit KRR-4, OCC-INT-S1-042)

Q. ARE YOU ASSERTING THAT THE NON-CORE COMMITMENTS AND CONTINGENT COMMITMENTS ARE BAD IDEAS?

1 A. Absolutely not. Many of these ideas could lead to substantial benefits for Ohioans. My
2 testimony is that much of the potential economic consequence of the Stipulation is yet
3 undetermined, and the Commission cannot evaluate the interactive effects of the various
4 proposals.

5 **Q. WHAT DO YOU CONCLUDE?**

6 A. I conclude that there is too much uncertainty and too little understanding about the
7 potential impacts of the Stipulation as a whole to support a finding that its approval
8 would be in the public interest.

9 **Q. DOESN'T THE STIPULATION OFFER THE POTENTIAL OPPORTUNITY TO**
10 **SECURE MANY POSITIVE OUTCOMES FOR THE PARTIES, THE PUBLIC,**
11 **AND ELECTRIC SERVICE CUSTOMERS?**

12 A. Yes, it does. I personally support aggressive energy efficiency efforts in all customer
13 sectors, grid modernization, removal of barriers to distributed generation, low income
14 access to clean and affordable energy, and other potentially positive outcomes. And I
15 recognize that sometimes, a negotiated settlement can be faster and more efficacious in
16 producing these outcomes than often ponderous regulatory processes.

17 **Q. THEN WHAT ARE YOUR CONCERNS?**

18 A. I have major concerns. First, almost all of the commitments in these areas are contingent
19 upon one or more subsequent applications and regulatory decisions. That is, in a sense the
20 Stipulation doesn't really guarantee any of these outcomes to any greater extent than the
21 ordinary processes of oversight and regulation. The ambiguity associated with many
22 terms in the Stipulations could give rise to claims in future proceedings that some issues
23 have been resolved. I would characterize the Stipulation, therefore, as piece-meal

1 ratemaking. For example, the Stipulation can be interpreted to mean that the Commission
2 is giving preliminary approval to such initiatives such as Smart Grid and battery
3 technology before it sees any details on such initiatives.

4 Second, it is my conviction and it is a principle of market-oriented regulation that more
5 durable and efficient outcomes will result from the maximization of the effects of market
6 forces in every possible aspect of commerce in our nation. The core of the so-called
7 regulatory compact is that regulation serves as a substitute and complement for
8 competitive market forces.

9 **Q. ULTIMATELY, WHAT IS YOUR CONCERN ABOUT THE VARIOUS**
10 **ELEMENTS OF THE STIPULATION?**

11 A. The premise of the PPA proposal and the settlement commitments regarding non-core
12 issues like efficiency, repowering, research and development, and grid modernization
13 could all produce economically sub-optimal outcomes not in tune with market forces.
14 The settlement and stipulation process does not adequately test the merits of each element
15 of the Stipulation and Recommendation. The guaranteed revenue protection mechanisms
16 for affiliated generation in the Stipulation could well disincentivize or weaken many of
17 the initiatives relating to efficiency, grid modernization, low income customer support,
18 and distributed energy resources—ultimately giving rise to the contingencies that could
19 prevent their implementation. A major benefit of energy efficiency and other distributed
20 energy resources relating to wholesale market price suppression could be offset by
21 resulting increases in PPA Rider charges. The potentially deleterious effects of the
22 interaction of the various Stipulation components have not been examined. Simply stated,

1 this Stipulation could be a poor and less effective way to accomplish even desirable
2 regulatory outcomes.

3 RECOMMENDATIONS

4 **Q. BASED ON YOUR FINDINGS AND CONCLUSIONS, WHAT DO YOU**
5 **RECOMMEND TO THE COMMISSION?**

6 A. First, I recommend that the Commission narrowly review the main subject matter of the
7 Application—the PPA proposal—and reach its own conclusions regarding the propriety
8 of the Company proposal, as modified, but *not* as supplemented by the settlement terms
9 unless those settlement terms directly apply to the PPA proposal.

10 **Q. WHAT FURTHER RECOMMENDATIONS DO YOU MAKE TO THE**
11 **COMMISSION?**

12 A. I further recommend that the Commission reject the Stipulation until AEP and the parties
13 submit sufficient evidence on the substantive issues addressed in the settlement to allow
14 the Commission to determine whether the Stipulation as a whole will benefit ratepayers
15 and the public interest, considering both the individual elements of the settlement and
16 their potential interactive effects. This testimony should address three key questions:

- 17 (1) What commitment is actually being made by the Company on that issue, and what
18 value or burden (including costs and benefits) does that commitment have for
19 ratepayers and the public interest?
- 20 (2) What subsequent filings, review, and decisions must be made in order to realize
21 the commitment, and what is the risk that these processes will reduce or
22 significantly alter the value proposition associated with the commitment?

1 (3) Does realization of the commitment advance (and not merely “not violate”) public
2 policy goals of the State of Ohio relating to the provision of electric services?

3 Absent such testimony, the Commission should not give any weight to the Stipulation
4 provisions in its consideration of whether the settlement serves ratepayers and the public
5 interest.

6 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

7 A. Yes.

CERTIFICATE OF SERVICE

The Public Utilities Commission of Ohio's e-filing system will electronically serve notice of the filing of this document on the parties referenced on the service list of the docket card who have electronically subscribed to the case. In addition, the undersigned certifies that a courtesy copy of the foregoing document is also being served (via electronic mail) on December 28, 2015 upon all persons/entities listed below.

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DIRECT TESTIMONY OF KARL R. RÁBAGO ON BEHALF OF ENVIRONMENTAL LAW
& POLICY CENTER, OHIO ENVIRONMENTAL COUNCIL, AND ENVIRONMENTAL
DEFENSE FUND

28 December 2015

Exhibit KRR-1

Karl R. Rábago

Rábago Energy Limited Liability Company
62 Prospect Street, White Plains, New York 10606

c: +1.512.968.7543 e: karl@rabagoenergy.com

Summary

Nationally recognized leader and innovator in electricity and energy law, policy, and regulation. Experienced as a public utility regulatory commissioner, educator, research and development program manager, utility executive, business builder, federal executive, corporate sustainability leader, consultant, and advocate. Highly proficient in advising, managing, and interacting with government agencies and committees, the media, citizen groups, and business associations. Successful track record of working with US Congress, state legislatures, governors, regulators, city councils, business leaders, researchers, academia, and community groups. National and international contacts through experience with Pace Energy and Climate Center, Austin Energy, AES Corporation, US Department of Energy, Texas Public Utility Commission, Jicarilla Apache Tribal Utility Authority, Cargill Dow LLC (now NatureWorks, LLC), Rocky Mountain Institute, CH2M HILL, Houston Advanced Research Center, Environmental Defense Fund, and others. Skilled attorney, negotiator, and advisor with more than twenty-five years of experience working with diverse stakeholder communities in electricity policy and regulation, emerging energy markets development, clean energy technology development, electric utility restructuring, smart grid development, and the implementation of sustainability principles. Extensive regulatory practice experience. Nationally recognized speaker on energy, environment and sustainable development matters. Managed staff as large as 250; responsible for operations of research facilities with staff in excess of 600. Developed and managed budgets in excess of \$300 million. Law teaching experience at Pace University School of Law, University of Houston Law Center, and U.S. Military Academy at West Point. Post-doctorate degrees in environmental and military law. Military veteran.

Employment**PACE ENERGY AND CLIMATE CENTER, PACE UNIVERSITY SCHOOL OF LAW**

Executive Director: May 2014—Present.

Leader of a team of professional and technical experts in energy and climate law, policy, and regulation. Secure funding for and manage execution of research, market development support, and advisory services for a wide range of funders, clients, and stakeholders with the overall goal of advancing clean energy deployment, climate responsibility, and market efficiency. Supervise a team of employees, consultants, and adjunct researchers. Provide learning and development opportunities for law students. Coordinate efforts of the Center with and support the environmental law faculty. Additional activities:

- Co-Director and Principal Investigator, Northeast Solar Energy Market Coalition (2015-present). The NESEMC is a US Department of Energy's SunShot Initiative Solar Market Pathways project. Funded under a cooperative agreement between the US DOE and Pace University, the NESEMC seeks to harmonize solar market policy and advance best policy and regulatory practices in the northeast United States.
- Chairman of the Board, Center for Resource Solutions (1997-present). CRS is a not-for-profit organization based at the Presidio in California. CRS developed and manages the Green-e Renewable Electricity Brand, a nationally and internationally recognized branding program for green power and green pricing products and programs. Past chair of the Green-e Governance Board (formerly the Green Power Board).

Karl R. Rábago

- Director, Interstate Renewable Energy Council (IREC) (2012-present). IREC focuses on issues impacting expanded renewable energy use such as rules that support renewable energy and distributed resources in a restructured market, connecting small-scale renewables to the utility grid, developing quality credentials that indicate a level of knowledge and skills competency for renewable energy professionals.

RÁBAGO ENERGY LLC

Principal: July 2012—Present. Consulting practice dedicated to providing expert witness and policy formulation advice and services to organizations in the clean and advanced energy sectors. Recognized national leader in development and implementation of award-winning “Value of Solar” alternative to traditional net metering. Additional information at www.rabagoenergy.com.

AUSTIN ENERGY – THE CITY OF AUSTIN, TEXAS

Vice President, Distributed Energy Services: April 2009—June 2012. Executive in 8th largest public power electric utility serving more than one million people in central Texas. Responsible for management and oversight of energy efficiency, demand response, and conservation programs; low-income weatherization; distributed solar and other renewable energy technologies; green buildings program; key accounts relationships; electric vehicle infrastructure; and market research and product development. Executive sponsor of Austin Energy’s participation in an innovative federally-funded smart grid demonstration project led by the Pecan Street Project. Led teams that successfully secured over \$39 million in federal stimulus funds for energy efficiency, smart grid, and advanced electric transportation initiatives. Additional activities included:

- Director, Renewable Energy Markets Association. REMA is a trade association dedicated to maintaining and strengthening renewable energy markets in the United States.
- Membership on Pedernales Electric Cooperative Member Advisory Board. Invited by the Board of Directors to sit on first-ever board to provide formal input and guidance on energy efficiency and renewable energy issues for the nation’s largest electric cooperative.

THE AES CORPORATION

Director, Government & Regulatory Affairs: June 2006—December 2008. Government and regulatory affairs manager for AES Wind Generation, one of the largest wind companies in the country. Manage a portfolio of regulatory and legislative initiatives to support wind energy market development in Texas, across the United States, and in many international markets. Active in national policy and the wind industry through work with the American Wind Energy Association as a participant on the organization’s leadership council. Also served as Managing Director, Standards and Practices, for Greenhouse Gas Services, LLC, a GE and AES venture committed to generating and marketing greenhouse gas credits to the U.S. voluntary market. Authored and implemented a standard of practice based on ISO 14064 and industry best practices. Commissioned the development of a suite of methodologies and tools for various greenhouse gas credit-producing technologies. Also served as Director, Global Regulatory Affairs, providing regulatory support and group management to AES’s international electric utility operations on five continents. Additional activities:

- Director and past Chair, Jicarilla Apache Nation Utility Authority (1998 to 2008). Located in New Mexico, the JAUA is an independent utility developing profitable and autonomous utility services that provides natural gas, water utility services, low income housing, and energy planning for the Nation. Authored “First Steps” renewable energy and energy efficiency strategic plan.

Karl R. Rábago

HOUSTON ADVANCED RESEARCH CENTER

Group Director, Energy and Buildings Solutions: December 2003—May 2006. Leader of energy and building science staff at a mission-driven not-for-profit contract research organization based in The Woodlands, Texas. Responsible for developing, maintaining and expanding upon technology development, application, and commercialization support programmatic activities, including the Center for Fuel Cell Research and Applications, an industry-driven testing and evaluation center for near-commercial fuel cell generators; the Gulf Coast Combined Heat and Power Application Center, a state and federally funded initiative; and the High Performance Green Buildings Practice, a consulting and outreach initiative. Secured funding for major new initiative in carbon nanotechnology applications in the energy sector. Developed and launched new and integrated program activities relating to hydrogen energy technologies, combined heat and power, distributed energy resources, renewable energy, energy efficiency, green buildings, and regional clean energy development. Active participant in policy development and regulatory implementation in Texas, the Southwest, and national venues. Frequently engaged with policy, regulatory, and market leaders in the region and internationally. Additional activities:

- President, Texas Renewable Energy Industries Association. As elected president of the statewide business association, leader and manager of successful efforts to secure and implement significant expansion of the state's renewable portfolio standard as well as other policy, regulatory, and market development activities.
- Director, Southwest Biofuels Initiative. Established the Initiative acts as an umbrella structure for a number of biofuels related projects, including emissions evaluation for a stationary biodiesel pilot project, feedstock development, and others.
- Member, Committee to Study the Environmental Impacts of Windpower, National Academies of Science National Research Council. The Committee was chartered by Congress and the Council on Environmental Quality to assess the impacts of wind power on the environment.
- Advisory Board Member, Environmental & Energy Law & Policy Journal, University of Houston Law Center.

CARGILL DOW LLC (NOW NATUREWORKS, LLC)

Sustainability Alliances Leader: April 2002—December 2003. Founded in 1997, NatureWorks, LLC is based in Minnetonka, Minnesota. Integrated sustainability principles into all aspects of a ground-breaking biobased polymer manufacturing venture. Responsible for maintaining, enhancing and building relationships with stakeholders in the worldwide sustainability community, as well as managing corporate and external sustainability initiatives. NatureWorks is the first company to offer its customers a family of polymers (polylactide – “PLA”) derived entirely from annually renewable resources with the cost and performance necessary to compete with packaging materials and traditional fibers; now marketed under the brand name “Ingeo.”

- Successfully completed Minnesota Management Institute at University of Minnesota Carlson School of Management, an alternative to an executive MBA program that surveyed fundamentals and new developments in finance, accounting, operations management, strategic planning, and human resource management.

ROCKY MOUNTAIN INSTITUTE

Managing Director/Principal: October 1999–April 2002. In two years, co-led the team and grew annual revenues from approximately \$300,000 to more than \$2 million in annual grant and consulting income. Co-authored “Small Is Profitable,” a comprehensive analysis of the benefits of distributed energy resources. Worked to increase market opportunities for clean and distributed

Karl R. Rábago

energy resources through consulting, research, and publication activities. Provided consulting and advisory services to help business and government clients achieve sustainability through application and incorporation of Natural Capitalism principles. Frequent appearance in media at international, national, regional and local levels.

- President of the Board, Texas Ratepayers Organization to Save Energy. Texas R.O.S.E. is a non-profit organization advocating low-income consumer issues and energy efficiency programs.
- Co-Founder and Chair of the Advisory Board, Renewable Energy Policy Project-Center for Renewable Energy and Sustainable Technology. REPP-CREST was a national non-profit research and internet services organization.

CH2M HILL

Vice President, Energy, Environment and Systems Group: July 1998–August 1999. Responsible for providing consulting services to a wide range of energy-related businesses and organizations, and for creating new business opportunities in the energy industry for an established engineering and consulting firm. Completed comprehensive electric utility restructuring studies for the states of Colorado and Alaska.

PLANERGY

Vice President, New Energy Markets: January 1998–July 1998. Responsible for developing and managing new business opportunities for the energy services market. Provided consulting and advisory services to utility and energy service companies.

ENVIRONMENTAL DEFENSE FUND

Energy Program Manager: March 1996–January 1998. Managed renewable energy, energy efficiency, and electric utility restructuring programs for a not-for-profit environmental group with a staff of 160 and over 300,000 members. Led regulatory intervention activities in Texas and California. In Texas, played a key role in crafting Deliberative Polling processes. Initiated and managed nationwide collaborative activities aimed at increasing use of renewable energy and energy efficiency technologies in the electric utility industry, including the Green-e Certification Program, Power Scorecard, and others. Participated in national environmental and energy advocacy networks, including the Energy Advocates Network, the National Wind Coordinating Committee, the NCSL Advisory Committee on Energy, and the PV-COMPACT Coordinating Council. Frequently appeared before the Texas Legislature, Austin City Council, and regulatory commissions on electric restructuring issues.

UNITED STATES DEPARTMENT OF ENERGY

Deputy Assistant Secretary, Utility Technologies: January 1995–March 1996. Manager of the Department's programs in renewable energy technologies and systems, electric energy systems, energy efficiency, and integrated resource planning. Supervised technology research, development and deployment activities in photovoltaics, wind energy, geothermal energy, solar thermal energy, biomass energy, high-temperature superconductivity, transmission and distribution, hydrogen, and electric and magnetic fields. Developed, coordinated, and advised on legislation, policy, and renewable energy technology development within the Department, among other agencies, and with Congress. Managed, coordinated, and developed international agreements for cooperative activities in renewable energy and utility sector policy, regulation, and market development between the Department and counterpart foreign national entities. Established and enhanced partnerships with stakeholder groups, including technology firms, electric utility companies, state and local governments, and associations. Supervised development

Karl R. Rábago

and deployment support activities at national laboratories. Developed, advocated and managed a Congressional budget appropriation of approximately \$300 million.

STATE OF TEXAS

Commissioner, Public Utility Commission of Texas. May 1992–December 1994. Appointed by Governor Ann W. Richards. Regulated electric and telephone utilities in Texas. Laid the groundwork for legislative and regulatory adoption of integrated resource planning, electric utility restructuring, and significantly increased use of renewable energy and energy efficiency resources. Co-chair and organizer of the Texas Sustainable Energy Development Council. Vice-Chair of the National Association of Regulatory Utility Commissioners (NARUC) Committee on Energy Conservation. Member and co-creator of the Photovoltaic Collaborative Market Project to Accelerate Commercial Technology (PV-COMPACT). Member, Southern States Energy Board Integrated Resource Planning Task Force. Member of the University of Houston Environmental Institute Board of Advisors.

LAW TEACHING

Professor for a Designated Service: Pace University Law School, 2014-present. Non-tenured member of faculty. Courses taught: Energy Law. Supervise a student clinical effort that engages in a wide range of advocacy, analysis, and research activities in support of the mission of the Pace Energy and Climate Center.

Associate Professor of Law: University of Houston Law Center, 1990–1992. Full time, tenure track member of faculty. Courses taught: Criminal Law, Environmental Law, Criminal Procedure, Environmental Crimes Seminar, Wildlife Protection Law. Provided *pro bono* legal services in administrative proceedings and filings at the Texas Public Utility Commission.

Assistant Professor: United States Military Academy, West Point, New York, 1988–1990. Member of the faculty in the Department of Law. Honorably discharged in August 1990, as Major in the Regular Army. Courses taught: Constitutional Law, Military Law, and Environmental Law Seminar. Greatly expanded the environmental law curriculum and laid foundation for the concentration program in law. While carrying a full time teaching load, earned a Master of Laws degree in Environmental Law. Established a program for subsequent environmental law professors to obtain an LL.M. prior to joining the faculty.

LITIGATION

Trial Defense Attorney and Prosecutor, U.S. Army Judge Advocate General's Corps, Fort Polk, Louisiana, January 1985–July 1987. Assigned to Trial Defense Service and Office of the Staff Judge Advocate. Prosecuted and defended more than 150 felony-level courts-martial. As prosecutor, served as legal officer for two brigade-sized units (approximately 5,000 soldiers), advising commanders on appropriate judicial, non-judicial, separation, and other actions. Pioneered use of some forms of psychiatric and scientific testimony in administrative and judicial proceedings.

NON-LEGAL MILITARY SERVICE

Armored Cavalry Officer, 2d Squadron 9th Armored Cavalry, Fort Stewart, Georgia, May 1978–August 1981. Served as Logistics Staff Officer (S-4). Managed budget, supplies, fuel, ammunition, and other support for an Armored Cavalry Squadron. Served as Support Platoon Leader for the Squadron (logistical support), and as line Platoon Leader in an Armored Cavalry Troop. Graduate of Airborne and Ranger Schools. Special training in Air Mobilization Planning and Nuclear, Biological and Chemical Warfare.

Karl R. Rábago**Formal Education**

LL.M., Environmental Law, Pace University School of Law, 1990: Curriculum designed to provide breadth and depth in study of theoretical and practical aspects of environmental law. Courses included: International and Comparative Environmental Law, Conservation Law, Land Use Law, Seminar in Electric Utility Regulation, Scientific and Technical Issues Affecting Environmental Law, Environmental Regulation of Real Estate, Hazardous Wastes Law. Individual research with Hudson Riverkeeper Fund, Garrison, New York.

LL.M., Military Law, U.S. Army Judge Advocate General's School, 1988: Curriculum designed to prepare Judge Advocates for senior level staff service. Courses included: Administrative Law, Defensive Federal Litigation, Government Information Practices, Advanced Federal Litigation, Federal Tort Claims Act Seminar, Legal Writing and Communications, Comparative International Law.

J.D. with Honors, University of Texas School of Law, 1984: Attended law school under the U.S. Army Funded Legal Education Program, a fully funded scholarship awarded to 25 or fewer officers each year. Served as Editor-in-Chief (1983–84); Articles Editor (1982–83); Member (1982) of the Review of Litigation. Moot Court, Mock Trial, Board of Advocates. Summer internship at Staff Judge Advocate's offices. Prosecuted first cases prior to entering law school.

B.B.A., Business Management, Texas A&M University, 1977: ROTC Scholarship (3–yr). Member: Corps of Cadets, Parson's Mounted Cavalry, Wings & Sabers Scholarship Society, Rudder's Rangers, Town Hall Society, Freshman Honor Society, Alpha Phi Omega service fraternity.

Selected Publications

- “The Value of Solar Tariff: Net Metering 2.0,” The ICER Chronicle, Ed. 1, p. 46 [International Confederation of Energy Regulators] (December 2013)
- “A Regulator’s Guidebook: Calculating the Benefits and Costs of Distributed Solar Generation,” co-author, Interstate Renewable Energy Council (October 2013)
- “The ‘Value of Solar’ Rate: Designing an Improved Residential Solar Tariff,” Solar Industry, Vol. 6, No. 1 (Feb. 2013)
- “A Review of Barriers to Biofuels Market Development in the United States,” 2 Environmental & Energy Law & Policy Journal 179 (2008)
- “A Strategy for Developing Stationary Biodiesel Generation,” Cumberland Law Review, Vol. 36, p.461 (2006)
- “Evaluating Fuel Cell Performance through Industry Collaboration,” co-author, Fuel Cell Magazine (2005)
- “Applications of Life Cycle Assessment to NatureWorks™ Polylactide (PLA) Production,” co-author, Polymer Degradation and Stability 80, 403-19 (2003)
- “An Energy Resource Investment Strategy for the City of San Francisco: Scenario Analysis of Alternative Electric Resource Options,” contributing author, Prepared for the San Francisco Public Utilities Commission, Rocky Mountain Institute (2002)
- “Small Is Profitable: The Hidden Economic Benefits of Making Electrical Resources the Right Size,” co-author, Rocky Mountain Institute (2002)
- “Socio-Economic and Legal Issues Related to an Evaluation of the Regulatory Structure of the Retail Electric Industry in the State of Colorado,” with Thomas E. Feiler, Colorado Public Utilities Commission and Colorado Electricity Advisory Panel (April 1, 1999)
- “Study of Electric Utility Restructuring in Alaska,” with Thomas E. Feiler, Legislative Joint Committee on electric Restructuring and the Alaska Public Utilities Commission (April 1, 1999)
- “New Markets and New Opportunities: Competition in the Electric Industry Opens the Way for Renewables and Empowers Customers,” EEBA Excellence (Journal of the Energy Efficient Building Association) (Summer 1998)
- “Building a Better Future: Why Public Support for Renewable Energy Makes Sense,” Spectrum: The Journal of State Government (Spring 1998)
- “The Green-e Program: An Opportunity for Customers,” with Ryan Wiser and Jan Hamrin, Electricity Journal, Vol. 11, No. 1 (January/February 1998)
- “Being Virtual: Beyond Restructuring and How We Get There,” Proceedings of the First Symposium on the Virtual Utility, Kluwer Press (1997)
- “Information Technology,” Public Utilities Fortnightly (March 15, 1996)
- “Better Decisions with Better Information: The Promise of GIS,” with James P. Spiers, Public Utilities Fortnightly (November 1, 1993)
- “The Regulatory Environment for Utility Energy Efficiency Programs,” Proceedings of the Meeting on the Efficient Use of Electric Energy, Inter-American Development Bank (May 1993)

Karl R. Rábago

“An Alternative Framework for Low-Income Electric Ratepayer Services,” with Danielle Jaussaud and Stephen Benenson, Proceedings of the Fourth National Conference on Integrated Resource Planning, National Association of Regulatory Utility Commissioners (September 1992)

“What Comes Out Must Go In: The Federal Non-Regulation of Cooling Water Intakes Under Section 316 of the Clean Water Act,” Harvard Environmental Law Review, Vol. 16, p. 429 (1992)

“Least Cost Electricity for Texas,” State Bar of Texas Environmental Law Journal, Vol. 22, p. 93 (1992)

“Environmental Costs of Electricity,” Pace University School of Law, Contributor–Impingement and Entrainment Impacts, Oceana Publications, Inc. (1990)

DIRECT TESTIMONY OF KARL R. RÁBAGO ON BEHALF OF ENVIRONMENTAL LAW
& POLICY CENTER, OHIO ENVIRONMENTAL COUNCIL, AND ENVIRONMENTAL
DEFENSE FUND

28 December 2015

Exhibit KRR-2

Table of Testimony Submitted by Karl R. Rábago, Rábago Energy LLC
(as of 23 December 2015)

Date	Proceeding	Case/Docket #	On Behalf Of:
Dec. 21, 2012	VA Electric & Power Special Solar Power Tariff	Virginia SCC Case # PUE-2012-00064	Southern Environmental Law Center
May 10, 2013	Georgia Power Company 2013 IRP	Georgia PSC Docket # 36498	Georgia Solar Energy Industries Association
Jun. 23, 2013	Louisiana Public Service Commission Re-examination of Net Metering Rules	Louisiana PSC Docket # R-31417	Gulf States Solar Energy Industries Association
Aug. 29, 2013	DTE (Detroit Edison) 2013 Renewable Energy Plan Review (Michigan)	Michigan PUC Case # U-17302	Environmental Law and Policy Center
Sep. 5, 2013	CE (Consumers Energy) 2013 Renewable Energy Plan Review (Michigan)	Michigan PUC Case # U-17301	Environmental Law and Policy Center
Sep. 27, 2013	North Carolina Utilities Commission 2012 Avoided Cost Case	North Carolina Utilities Commission Docket # E-100, Sub. 136	North Carolina Sustainable Energy Association
Oct. 18, 2013	Georgia Power Company 2013 Rate Case	Georgia PSC Docket # 36989	Georgia Solar Energy Industries Association
Nov. 4, 2013	PEPCO Rate Case (District of Columbia)	District of Columbia PSC Formal Case # 1103	Grid 2.0 Working Group & Sierra Club of Washington, D.C.
Apr. 24, 2014	Dominion Virginia Electric Power 2013 IRP	Virginia SCC Case # PUE-2013-00088	Environmental Respondents
May 7, 2014	Arizona Corporation Commission Investigation on the Value and Cost of Distributed Generation	Arizona Corporation Commission Docket # E-00000J-14-0023	Rábago Energy LLC (invited presentation and workshop participation)
Jul. 10, 2014	North Carolina Utilities Commission 2014 Avoided Cost Case	North Carolina Utilities Commission Docket # E-100, Sub. 140	Southern Alliance for Clean Energy

Jul. 23, 2014	Florida Energy Efficiency and Conservation Act, Goal Setting – FPL, Duke, TECO, Gulf	Florida PSC Docket # 130199-EI, 130200-EI, 130201-EI, 130202-EI	Southern Alliance for Clean Energy
Sep. 19, 2014	Ameren Missouri's Application for Authorization to Suspend Payment of Solar Rebates	Missouri PSC File No. ET-2014-0350, Tariff # YE-2014-0494	Missouri Solar Energy Industries Association
Aug. 6, 2014	Appalachian Power Company 2014 Biennial Rate Review	Virginia SCC Case # PUE-2014-00026	Southern Environmental Law Center (Environmental Respondents)
Aug. 13, 2014	Wisconsin Public Service Corp. 2014 Rate Application	Wisconsin PSC Docket # 6690-UR-123	RENEW Wisconsin and Environmental Law & Policy Center
Aug. 28, 2014	WE Energies 2014 Rate Application	Wisconsin PSC Docket # 05-UR-107	RENEW Wisconsin and Environmental Law & Policy Center
Sep. 18, 2014	Madison Gas & Electric Company 2014 Rate Application	Wisconsin PSC Docket # 3720-UR-120	RENEW Wisconsin and Environmental Law & Policy Center
Sep. 29, 2014	SOLAR, LLC v. Missouri Public Service Commission	Missouri District Court Case # 14AC-CC00316	SOLAR, LLC
Ongoing	Order Instituting Rulemaking to Develop a Successor to Existing Net Energy Metering Tariffs, etc.	California PUC Rulemaking 14-07-002	The Utility Reform Network (TURN)
Mar. 20, 2015	Orange and Rockland Utilities 2015 Rate Application	New York PSC Case # 14-E-0493	Pace Energy and Climate Center
May 22, 2015	DTE Electric Company Rate Application	Michigan PSC Case # U-17767	Michigan Environmental Council, NRDC, Sierra Club, and ELPC
Jul. 20, 2015	Hawaiian Electric Company and NextEra Application for Change of Control	Hawai'i PUC Docket # 2015-0022	Hawai'i Department of Business, Economic Development, and Tourism
Sep. 2, 2015	Wisc. PSCo Rate Application	Wisconsin PSC Case # 6690-UR-124	Environmental Law and Policy Center

Sep. 15, 2015	Dominion Virginia Electric Power 2015 IRP	VA SCC Case # PUE-2015-00035	Environmental Respondents
Sep. 16, 2015	NYSEG & RGE Rate Cases	New York PSC Cases 15-E-0283, -0285	Pace Energy and Climate Center
Oct. 14, 2015	Florida Power & Light Application for CCPN for Lake Okeechobee Plant	Florida PSC Case 150196-EI	Environmental Confederation of Southwest Florida
Oct. 27, 2015	Appalachian Power Company 2015 IRP	VA SCC Case # PUE-2015-00036	Environmental Respondents
Nov. 23, 2015	Narragansett Electric Power/National Grid Rate Design Application	Rhode Island PUC Docket No. 4568	Wind Energy Development, LLC

DIRECT TESTIMONY OF KARL R. RÁBAGO ON BEHALF OF ENVIRONMENTAL LAW
& POLICY CENTER, OHIO ENVIRONMENTAL COUNCIL, AND ENVIRONMENTAL
DEFENSE FUND

28 December 2015

Exhibit KRR-3

**OHIO POWER COMPANY'S RESPONSES TO
THE ENVIRONMENTAL LAW AND POLICY CENTER
DISCOVERY REQUESTS
PUCO CASE NO. 14-1693-EL-RDR
FIRST SET-JOINT STIPULATION AND RECOMMENDATION**

INTERROGATORY

INT-S4-001 Explain how AEP Ohio determined the appropriate amounts for each of the proposed credits in Section III.A.3 of the Stipulation.

RESPONSE

Objection - see the response to OCC INT S1-035. Without waiving the foregoing objection(s) or any general objection the Company may have, the Company states as follows. The proposed credits were determined as part of an overall settlement package.

Prepared by: William A. Allen/ Counsel

**OHIO POWER COMPANY'S RESPONSES TO
THE ENVIRONMENTAL LAW AND POLICY CENTER
DISCOVERY REQUESTS
PUCO CASE NO. 14-1693-EL-RDR
FIRST SET-JOINT STIPULATION AND RECOMMENDATION**

INTERROGATORY

INT-S4-002 Explain how AEP Ohio plans to treat any credits provided pursuant to Section III.A.3 of the Stipulation for purposes of the Significantly Excessive Earnings Test under Ohio Revised Code 4928.143(F).

RESPONSE

See Section III.J of the Stipulation.

Prepared by: William A. Allen

**OHIO POWER COMPANY'S RESPONSES TO
THE ENVIRONMENTAL LAW AND POLICY CENTER
DISCOVERY REQUESTS
PUCO CASE NO. 14-1693-EL-RDR
FIRST SET-JOINT STIPULATION AND RECOMMENDATION**

INTERROGATORY

INT-S4-003 Explain why AEP Ohio proposes starting the credits under Section III.A.3 of the Stipulation in Planning Year 2020/2021.

RESPONSE

Objection - see the response to OCC INT S1-035. Without waiving the foregoing objection(s) or any general objection the Company may have, the Company states as follows. The timing of the proposed credits was determined as part of an overall settlement package.

Prepared by: William A. Allen

**OHIO POWER COMPANY'S RESPONSES TO
THE ENVIRONMENTAL LAW AND POLICY CENTER
DISCOVERY REQUESTS
PUCO CASE NO. 14-1693-EL-RDR
FIRST SET-JOINT STIPULATION AND RECOMMENDATION**

INTERROGATORY

INT-S4-004 Explain how AEP Ohio determined the appropriate amounts for each of the proposed credits in Section III.A.3 of the Stipulation.

RESPONSE

See the Company's response to ELPC-INT-S4-001.

Prepared by: William A. Allen

**OHIO POWER COMPANY'S RESPONSES TO
THE ENVIRONMENTAL LAW AND POLICY CENTER
DISCOVERY REQUESTS
PUCO CASE NO. 14-1693-EL-RDR
FIRST SET-JOINT STIPULATION AND RECOMMENDATION**

INTERROGATORY

INT-S4-005 Provide the net present value of the credits under Section III.A.3 of the Stipulation.

RESPONSE

The Company has not performed the requested calculation. The net present value of a future payment can easily be calculated.

The following is the formula for calculating NPV:

$$NPV = \sum_{t=1}^T \frac{C_t}{(1+r)^t} - C_0$$

where

C_t = net cash inflow during the period t

C_0 = total initial investment costs

r = discount rate, and

t = number of time periods

In this case the initial investment cost is zero.

Prepared by: William A. Allen

**OHIO POWER COMPANY'S RESPONSES TO
THE ENVIRONMENTAL LAW AND POLICY CENTER
DISCOVERY REQUESTS
PUCO CASE NO. 14-1693-EL-RDR
FIRST SET-JOINT STIPULATION AND RECOMMENDATION**

INTERROGATORY

INT-S4-006 Refer to Section III.A.5.a of the Stipulation. For Commission review of costs related to capacity obligations for the PPA Units, would the review be based on “the facts and circumstances known at the time” that AEP Ohio bid into the capacity performance market, or at the time the Companies received capacity revenues? Please explain.

RESPONSE

The review would be based on the facts and circumstances known at the time such costs were committed and market revenues were received.

Prepared by: William A. Allen

**OHIO POWER COMPANY'S RESPONSES TO
THE ENVIRONMENTAL LAW AND POLICY CENTER
DISCOVERY REQUESTS
PUCO CASE NO. 14-1693-EL-RDR
FIRST SET-JOINT STIPULATION AND RECOMMENDATION**

INTERROGATORY

INT-S4-007 Refer to Section III.A.5.a of the Stipulation, stating that “the calculation of PPA Rider will be based on the sale of power into PJM.”

- a) Does this sentence restrict AEP Ohio from selling power from the PPA Units through bilateral contracts?
- b) If not, would the revenues from such contracts flow through the PPA Rider?
- c) Does the Company intend to explore the possibility of selling power from the PPA Units through bilateral contracts? If no, why not?

RESPONSE

- a) No.
- b) Yes.
- c) The Company's current intent is to sell the capacity and energy from the Affiliated PPA and the OVEC entitlement into the RPM auction and the PJM energy markets and not through bilateral contracts.

Prepared by: William A. Allen

**OHIO POWER COMPANY'S RESPONSES TO
THE ENVIRONMENTAL LAW AND POLICY CENTER
DISCOVERY REQUESTS
PUCO CASE NO. 14-1693-EL-RDR
FIRST SET-JOINT STIPULATION AND RECOMMENDATION**

INTERROGATORY

INT-S4-008 Refer to Section III.A.5.b of the Stipulation.

- a) What would be the Company's criteria be for determining what constitutes a reasonable Staff request?
- b) What would be the PUCO's process for determination of a reasonable Staff request?
- c) Would a Staff motion to compel be necessary to obtain a response from AEP Ohio if AEP Ohio believed a request was unreasonable?

RESPONSE

The Company objects to the form of the question and further objects because this request seeking the Company's expectations about a future data request based on unknown circumstances is vague, overbroad and requests information that is not presently known with certainty. Without waiving the foregoing objection(s) or any general objection the Company may have, the Company states as follows.

- a) A reasonable request would generally be viewed as a request that is focused on issues that are relevant to reviewing the cost component information and is not unduly burdensome.
- b) Generally, the Company would work with the Staff to determine if there is a better way to obtaining the information that the Staff ultimately needs to perform its review. To the extent that the Company and the Staff cannot come to agreement then there are procedures in place at the Commission to address such situations.
- c) If the company and the Staff were not able to resolve a disagreement over whether a request was reasonable then a Staff motion to compel would be one approach to resolving the disagreement.

Prepared by: William A. Allen/Counsel

**OHIO POWER COMPANY'S RESPONSES TO
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INTERROGATORY

INT-S4-009 Refer to Section III.A.5.b of the Stipulation.

- a) Will intervening parties have access to AEPGR fleet information provided to Staff pursuant to this provision?
- b) What treatment will be required for information provided by AEP Ohio under the Critical Energy Infrastructure Information designation?
- c) What types of information does AEP currently designate Critical Energy Infrastructure Information?

RESPONSE

The Company objects to the form of the question and further objects because this request seeking the Company's expectations about a future data request based on unknown circumstances is vague, overbroad and requests information that is not presently known with certainty. Without waiving the foregoing objection(s) or any general objection the Company may have, the Company states as follows.

- a) This provision only addresses the fact that AEPGR fleet information on any cost component will be provided to Staff based upon a reasonable request and does not address the question regarding intervenor access to information.
- b) The categories of legal protection listed in this provision are intended to show the level of protection that will apply to AEPGR fleet information and this will be done in accordance with federal and Ohio law, including the FERC rules applicable to CEII.
- c) The Company follows the FERC rules for designating Critical Energy Infrastructure Information. Information can be found at <http://www.ferc.gov/legal/ceii-foia/ceii.asp> Current FERC rules define CEII as follows:

CEII is specific engineering, vulnerability, or detailed design information about proposed or existing critical infrastructure (physical or virtual) that:

- 1. Relates details about the production, generation, transmission, or distribution of energy;
- 2. Could be useful to a person planning an attack on critical infrastructure;
- 3. Is exempt from mandatory disclosure under the Freedom of Information Act; and
- 4. Gives strategic information beyond the location of the critical infrastructure.

Prepared by: William A. Allen/Counsel

**OHIO POWER COMPANY'S RESPONSES TO
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INTERROGATORY

INT-S4-010 If retail recovery of the Revised Affiliate PPA and/or the OVEC PPA costs as contemplated in the Stipulation is invalidated, does the PUCO have the authority to order AEP Ohio to refund to customers the money collected under the PPA Rider to that point? If yes, under what statutory provision, rule, or legal precedent?

RESPONSE

The Company objects to this request as seeking a legal conclusion or opinion that is not attributable to a witness and is more appropriate for briefing and argument by counsel, and which the Company reserve the right to further address in those contexts. In any case, the Company's views, however, do not limit or restrict the Commission's authority or jurisdiction.

Prepared by: Counsel

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INTERROGATORY

INT-S4-011 Define "the State's long term resource adequacy needs" as used in Section III.B.3 of the Stipulation.

RESPONSE

Objection -- the document speaks for itself. Without waiving the foregoing objection(s) or any general objection the Company may have, the Company states as follows. The phrase "addressing the State's long term resource adequacy needs" as used in Section III.B.3 of the Stipulation can generally be defined as evaluating whether there is enough capacity and energy available to meet the needs of all consumers in the State across various time horizons and evaluating approaches to mitigate potential shortfalls.

Prepared by: William A. Allen/ Counsel

**OHIO POWER COMPANY'S RESPONSES TO
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INTERROGATORY

INT-S4-012 Refer to Section III.C.1. Explain what the “terms and conditions for extension of the Distribution Investment Rider (DIR)” will be.

RESPONSE

Terms and conditions for extension of the Distribution Investment Rider (DIR) will be included in the separate application that the Company will file by April 30, 2016.

Prepared by: William A. Allen

**OHIO POWER COMPANY'S RESPONSES TO
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INTERROGATORY

INT-S4-013 Refer to Section III.C.7-12 of the Stipulation. Does AEP Ohio believe that PUCO approval of these provisions of the Stipulation will bind the Commission in ruling on the proposed Electric Security Plan Application contemplated under Section III.C?

RESPONSE

No. The language referred to obligates the Company to include the provisions in its ESP filing.

Prepared by: William A. Allen/ Counsel

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INTERROGATORY

- INT-S4-014 Refer to Section III.C.7 of the Stipulation.
- a) What are the projected annual costs of the IRP tariff as proposed in this provision in each year from 2016 through 2024?
 - b) Will AEP Ohio bid any eligible demand response resources resulting from customer participation under the IRP tariff as proposed in this provision into the PJM capacity markets?
 - c) If the answer to subsection (c) is yes, provide any projection by AEP Ohio of the capacity revenues expected from those resources over the term of the proposed extended Electric Security Plan.

RESPONSE

- a) The Company has not performed the requested calculation. The costs of the IRP credits are dependent upon customer participation in the tariff. Each 50MW of additional participation in the IRP tariff at \$8.21/kW-month results in credits of approximately \$5 million annually. The credits are offset by any credits received from PJM.
- b) The Company expects to bid demand response resources into PJM capacity markets subject to eligibility, limitations related to timing and customer commitments.
- c) The Company has not performed the requested calculation. The calculation would be dependent upon customer participation in the program and the value that the IRP resources would have in the PJM capacity market.

Prepared by: William A. Allen

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INTERROGATORY

INT-S4-015 Refer to Section III.C.11 of the Stipulation. Explain the basis for allowing IRP tariff participants who opt out of AEP Ohio's EE/PDR Plan as provided in S.B. 310 to continue participating in the IRP tariff.

RESPONSE

The IRP tariff provides economic development benefits as well as reliability benefits.

Prepared by: William A. Allen

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INTERROGATORY

INT-S4-016 Refer to Section III.D.1 of the Stipulation. What research and development programs is AEP Ohio considering as recipients for this donation?

RESPONSE

Clean energy technology at an Ohio public higher educational institution.

Prepared by: William A. Allen

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INTERROGATORY

INT-S4-017 Refer to Section III.D.2.a of the Stipulation.

- a) Will this proposed funding be subject to approval as part of AEP Ohio's next EE/PDR Plan?
- b) Will the proposed funding be used solely for incentive payments for cost-effective energy savings that have been subject to appropriate evaluation, monitoring, and verification?
- c) If the answer to (b) is no, what specifically will the proposed funding be used for?

RESPONSE

a) Yes.

b-c) OHA's partnership and rights to administer the programs and receive funding under this clause will be contingent upon continued approval and existence of an AEP Ohio EE/PDR Plan, approved funding and any other necessary mechanism to ensure the continued recovery of net lost distribution revenues.

Prepared by: William A. Allen

**OHIO POWER COMPANY'S RESPONSES TO
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INTERROGATORY

- INT-S4-018 Refer to Section III.D.2.c of the Stipulation.
- a) Will this proposed funding be subject to approval as part of AEP Ohio's next EE/PDR Plan?
 - b) Provide any information or analysis available on the level of per kilowatt-hour incentive payments for OHA member EE/PDR projects under AEP Ohio's current EE/PDR Plan.

RESPONSE

- a) Yes.
- b) The Company has not performed the requested calculation.

Prepared by: William A. Allen

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INTERROGATORY

INT-S4-019 Refer to Section III.D.2.d of the Stipulation. Explain what “prioritize circuits with OHA members” means.

RESPONSE

When determining an implementation plan AEP Ohio give a higher priority to circuits with OHA members as compared to similar circuits without OHA members.

Prepared by: William A. Allen

**OHIO POWER COMPANY'S RESPONSES TO
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INTERROGATORY

INT-S4-020 Refer to Section III.D.2.f of the Stipulation. Will this program be subject to approval as part of AEP Ohio's next EE/PDR Plan?

RESPONSE

Yes.

Prepared by: William A. Allen

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INTERROGATORY

INT-S4-021 Refer to Section III.D.3.f of the Stipulation. Will the \$8 million annual budget for the Community Assistance Program be subject to approval as part of AEP Ohio's next EE/PDR Plan?

RESPONSE

OPAE's partnership and rights to administer the program and receive funding under this clause will be contingent upon continued approval and existence of an AEP Ohio EE/PDR Plan, approved cost recovery and any other necessary mechanism to ensure the continued recovery of net lost distribution revenues.

Prepared by: William A. Allen

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INTERROGATORY

INT-S4-022 Refer to Section III.D.9 of the Stipulation. What are the projected carbon dioxide emissions from Conesville Units 5 and 6 between December 31, 2017 through December 31, 2029, if they are converted to natural gas co-firing and operated subject to the coal heat input limit provided in Section III.D.9 b?

RESPONSE

The company has not performed the requested calculation.

Prepared by: William A. Allen

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INTERROGATORY

INT-S4-023 Does any provision of the Stipulation preclude AEP Ohio from seeking Commission approval to include a new or extended PPA with any of the the PPA Units in the PPA Rider beyond May 31, 2024?

RESPONSE

No.

Prepared by: William A. Allen

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INTERROGATORY

- INT-S4-024 Refer to Section III.D.12 of the Stipulation.
- a) What “barriers to retiring, repowering or refueling the co-owned [PPA] units” has AEP Ohio identified?
 - b) What steps does AEP plan to take to remove those barriers?
 - c) What standard does AEP Ohio believe the Commission should apply in reviewing its annual report under Section III.D.12.a?
 - d) Explain what AEP’s “best efforts to consolidate ownership” under Section III.D.12.i will involve.

RESPONSE

See the Company's responses to OCC-INT-S1-052 and OCC-INT-S1-055.

Prepared by: William A. Allen

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INTERROGATORY

INT-S4-025 Refer to Section III.D.13 of the Stipulation.

- a) Provide any available projections of potential annual energy savings and peak demand reduction that may result from deployment of 160 circuits of Volt/Var Optimization.
- b) Will energy savings resulting from Volt/Var Optimization be counted toward meeting AEP Ohio's energy efficiency target under Ohio Revised Code 4928.66 or the agreed savings benchmarks in Section III.D.16?
- c) With respect to cost recovery contemplated under Section III.D.13.a, what ROE does AEP Ohio plan to seek for the costs of Volt/Var Optimization?
- d) With respect to cost recovery contemplated under Section III.D.13.c, what ROE does AEP Ohio plan to seek for the costs of Volt/Var Optimization?
- e) Does AEP Ohio believe that approval of this provision of the Stipulation commits the Commission to approving a settlement in Case No. 13-1939-EL-RDR if the settlement is consistent with the terms of this provision?
- f) Explain the potential benefits of including Volt/Var optimization in the Stipulation.

RESPONSE

- a) As indicated in the Company's Application in Case No. 13-1939 (attachment A, Page 7), "AEP Ohio estimates that a 3 percent reduction in energy consumption and a 2 to 3 percent reduction in peak demand can be obtained on those circuits on which the technology is deployed." The benefits will be more fully described in the grid modernization business plan.
- b) Energy savings resulting from Volt/Var Optimization will be counted toward the Company's overall achievement of EE/PDR above and beyond the agreed upon savings benchmarks in Section III.D.15 of the Stipulation.
- c) The ROE has not yet been determined.
- d) The ROE has not yet been determined.
- e) No.
- f) Volt/VAR optimization can increase energy efficiency. The benefits will be more fully described in the grid modernization business plan.

Prepared by: William A. Allen

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INTERROGATORY

INT-S4-026

Refer to Section III.D.15 of the Stipulation.

- a) Will AEP Ohio's 2017-2019 EE/PDR Plan include any programs designed to count energy savings resulting from actions taken by customers pursuant to Ohio Revised Code 4928.662(A)?
- b) For purposes of meeting the 1.33% annual energy savings goal, will AEP Ohio:
 - i. Count energy savings on an as found or deemed basis?
 - ii. Count gross or net energy savings?
- c) In terms of megawatt-hours of energy savings, what is the difference between AEP Ohio's energy savings commitment under this provision and AEP Ohio's energy savings obligation under current Ohio law?
- d) In terms of megawatts, what is the difference between AEP Ohio's peak demand reduction commitment under this provision and AEP Ohio's peak demand reduction obligation under current Ohio law?
- e) What capacity revenues has AEP Ohio received from bidding peak demand reduction achievements into the PJM capacity auction:
 - i. From the auctions for each planning year from 2011/2012 through 2018/2019?
 - ii. In each calendar year from 2009 through 2014?
- f) Does AEP Ohio's commitment to bid peak demand reduction achievements into PJM capacity auctions include peak demand reduction resources resulting from AEP Ohio's IRP tariff?
- g) Are the peak demand reduction resources from AEP Ohio's current EE/PDR programs or IRP tariff currently eligible to be bid into the PJM capacity markets as Capacity Performance resources?
- h) Has AEP Ohio conducted any analysis of the amount of peak demand reduction resources from its EE/PDR programs or IRP tariff that will be eligible for bidding into the PJM capacity markets as either Base Capacity Resources or Capacity Performance Resources in 2016 through 2019?
- i) If the answer to subsection (h) is yes, how many megawatts of peak demand reduction resources does AEP Ohio project will be eligible for bidding into future PJM capacity auctions (differentiating between Base Capacity Resources and Capacity Performance

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INT-S4-026 Continued

Resources) for planning years:

- i. 2017/2018;
 - ii. 2018/2019;
 - iii. 2019/2020;
 - iv. 2020/2021;
 - v. 2021/2022; and
 - vi. 2022/2023?
- j) Does this provision commit AEP Ohio to bidding planned eligible energy efficiency resources from its 2017-2019 EE/PDR Plan into the PJM capacity auctions?

RESPONSE

- a) The 2017-2019 EE/PDR Plan should include any energy and demand savings allowed by law or regulation.
- b) i) Energy efficiency savings and peak demand reduction achieved on and after the effective date of S.B. 310 of the 130th general assembly shall be measured on the higher of an as found or deemed basis.
- ii) Gross savings.
- c) The additional 1% commitment over current Ohio law is approximately 425,000 MWs.
- d) The percentage and therefore MW commitment in the agreement is the same as current Ohio law.
- e) AEP Ohio began bidding EE/PDR Plan capacity achievements in the 2012/2013 PJM Base Residual Auction. AEP Ohio began receiving revenue from June 2015 through May 2016 of a total of \$10 million for that auction. AEP Ohio has not received revenues for any subsequent years to date.
- f) No, the commitment is for peak demand reductions from the EE/PDR Plan which have been primarily the demand reductions from energy efficiency projects completed through the various programs. The IRP tariff is not a direct part of the EE/PDR Plan, although the peak demand reductions (PDR) count toward the PDR benchmark requirements.
- g) Yes, for those resources that provide summer and winter capacity reductions.
- h) Yes, for 2016 only.
- i) Until AEP Ohio has an approved 2017-2019 EE/PDR Plan, no projection is available.
- j) Yes. Once AEP Ohio has an approved 2017-2019 EE/PDR Plan, planned MWs will be bid into PJM capacity auctions for those years as allowed under PJM market rules.

Prepared by: William A. Allen

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INTERROGATORY

- INT-S4-027 Refer to Section III.E of the Stipulation.
- a) What is the meaning of the term “fuel diversification” in this provision?
 - b) What is AEP Ohio’s current strategy for “promoting fuel diversification and carbon reduction”?
 - c) What is AEP’s current strategy for “promoting fuel diversification and carbon reduction”?
 - d) What criteria would the PUCO apply in reviewing a plan filed pursuant to this provision?
 - e) What action could the PUCO take if it is not satisfied with a plan filed pursuant to this provision?
 - f) Does this provision commit AEP Ohio or AEP to the specific quantitative goals described in this provision?
 - g) If the answer to (e) is yes, how would the PUCO enforce this provision?

RESPONSE

- a) "Fuel diversification" means having a variety of sources of power using different types of fuel or renewable resources.
- b) The Company will file a plan by December 31, 2016.
- c) The Company will file a plan by December 31, 2016.
- d) That is up to the Commission
- e) That is up to the Commission
- f) No
- g) N/A.

Prepared by: William A. Allen

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INTERROGATORY

INT-S4-028 Refer to Section III.F of the Stipulation. What is the meaning of the term "fuel diversification" in this provision?

RESPONSE

"Fuel diversification" means having a variety of sources of power using different types of fuel or renewable resources. AEP Ohio will explore programs including the conversion of fuel sources at the PPA Units, Energy Efficiency plans, the closure of PPA Units, and the siting of renewable energy generation.

Prepared by: William A. Allen

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INTERROGATORY

- INT-S4-029 Refer to Section III.G of the Stipulation. With respect to the proffered examples of Advanced Metering Infrastructure, Distribution Automation Circuit Reconfiguration, Volt-VAR optimization, removal of obstacles for distributed generation, and net metering tariffs, please answer the following:
- a) Identify the potential benefits of including each of these elements in the Stipulation.
 - b) Does AEP Ohio view all of these different elements as needing to be done together as part of grid modernization?
 - c) What does AEP Ohio view as the existing obstacles for distributed generation?
 - d) Is AEP Ohio currently making its best efforts to remove obstacles for distributed generation?
 - e) Does AEP Ohio believe it is currently obligated to remove obstacles for distributed generation? Please explain.
 - f) Is AEP Ohio currently consulting with PUCO Staff on net-metering? If not, why not? If yes, please describe those discussions.
 - g) How much does AEP Ohio project that the grid modernization plan will cost?
 - h) Please outline the benefits to customers from grid modernization, including dollar savings

RESPONSE

- a) The benefits will be described in the grid modernization business plan. Benefits would include (but not be limited to) increased energy efficiency, improved reliability, and increased customer usage data.
- b) Not necessarily.
- c) The Company has not yet identified what those obstacles may or may not be.
- d) The Company has not yet determined whether there are any obstacles for distributed generation.
- e) The Company's specific obligations regarding distributed generation are based upon Commission rules, orders and statutory requirements.
- f) The Company has previously provided comments to the Commission with regard to net-metering tariffs. This provision requires the Company to consult with the PUCO Staff on net-metering tariffs, specifically as it relates to the grid modernization plan. As an example, deployment of advanced metering infrastructure may allow for tariff options that don't currently exist.

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INT-S4-029 Continued

g) Estimated costs and benefits for grid modernization will be presented in the June 1, 2016 grid modernization business plan filing. The estimated cost of the plan will determined after Commission review of the business plan.

h) See item g.

Prepared by: William A. Allen

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INTERROGATORY

INT-S4-030 Does Section III.G of the Stipulation obligate the Companies to propose any specific “future initiative” with respect to the examples identified in this provision?

RESPONSE

No. Section III.G of the Stipulation obligates the Company to address in its grid modernization business plan to be filed June 1, 2016 the following: installing advanced metering infrastructure, investing in distribution automation circuit reconfiguration, pursuing Volt-VAR optimization, removing obstacles for distributed generation, data sharing provisions (subject to customer consent), and full smart grid/meter deployment timelines.

Prepared by: William A. Allen

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INTERROGATORY

INT-S4-031 Refer to Section III.H of the Stipulation. What will AEP Ohio do to evaluate potential battery resource investments?

RESPONSE

As part of its evaluation of future investments in battery resources the Company will evaluate the costs and benefits associated with those investments. Benefits would include elements such as reliability enhancements and avoided investments. This evaluation could be included in the grid modernization business plan to be filed June 1, 2016.

Prepared by: William A. Allen

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INTERROGATORY

INT-S4-032 Refer to Section III.I.4 of the Stipulation. Explain AEP Ohio's view of what constitutes a "reasonable energy efficiency portfolio standard."

RESPONSE

A "reasonable energy efficiency portfolio standard" would be one that appropriately balances the costs and benefits associated with energy efficiency measures.

Prepared by: William A. Allen

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INTERROGATORY

INT-S4-033 Refer to Section III.J.b of the Stipulation. Explain the basis for exempting the PPA Rider and the Distribution Investment Rider from Commission review under R.C. 4928.143(E).

RESPONSE

The Company objects to this request as seeking a legal conclusion or opinion that is not attributable to a witness and is more appropriate for briefing and argument by counsel, and which the Company reserve the right to further address in those contexts. Further, the Company objects to the form of the question as this request is vague, overbroad and/or unduly burdensome. Without waiving the foregoing objection(s) or any general objection the Company may have, the Company states as follows. The question mischaracterizes the effect of Section III.J of the Stipulation. Subdivision (B)(1) of the ESP statute authorizes the Commission to establish a contingency plan for an ESP that lasts longer than three years, such that there can be a transition should the ESP be terminated under R.C. 4928.143(E) in the fourth year or some other later time. Section III.J of the Stipulation establishes a transition plan (to include the DIR and PPA Rider) that would apply from the time the larger plan is terminated under R.C. 4928.143(E) and for the remainder of the ESP term while at the same time an amended plan would be reformulated to address other issues.

Prepared by: Counsel

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INTERROGATORY

INT-S4-034 Refer to Section III.C.3 of the Stipulation. Explain whether the Company considered expanding the SSO auctions to include products longer than three years, and if so why such products are not included under this provision.

RESPONSE

SSO auction product offerings will be included in the separate application that the Company will file by April 30, 2016.

Prepared by: William A. Allen

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INTERROGATORY

INT-S4-035 Refer to Section III.L of the Stipulation. Explain the basis for the statement that “the Stipulation preserves and advances the positive results of the MRO v. ESP test under R.C. 4928.143(C) as found in the ESP III Order.

RESPONSE

See the Company's response to OCC-S1-RPD-019.

Prepared by: William A. Allen

**OHIO POWER COMPANY'S RESPONSES TO
THE ENVIRONMENTAL LAW AND POLICY CENTER
DISCOVERY REQUESTS
PUCO CASE NO. 14-1693-EL-RDR
FIRST SET-JOINT STIPULATION AND RECOMMENDATION**

REQUEST FOR PRODUCTION OF DOCUMENTS

RPD-S4-001 Please produce a copy of any document identified in the preceding interrogatories or relied upon in preparing the responses to the preceding interrogatories.

RESPONSE

Documents, if applicable, are provided in the identified interrogatories.

Prepared by: Counsel

**OHIO POWER COMPANY'S RESPONSES TO
THE ENVIRONMENTAL LAW AND POLICY CENTER
DISCOVERY REQUESTS
PUCO CASE NO. 14-1693-EL-RDR
FIRST SET-JOINT STIPULATION AND RECOMMENDATION**

REQUEST FOR PRODUCTION OF DOCUMENTS

- RPD-S4-002 Please produce any communications after Oct 1, 2015, between the Companies and any signatory party to the Stipulation (including Staff) relating to:
- a) The proposed PPA, including but not limited to its terms and duration;
 - b) the PPA Rider;
 - c) Potential "market enhancements" to PJM, as that term is used in Section III.B of the Stipulation;
 - d) Ohio's "long term resource adequacy needs," as that term is used in Section III.B.3 of the Stipulation;
 - e) Grid Modernization analyses and efforts as that term is used in Section III.G of the Stipulation, including potential future Grid Modernization initiatives;
 - f) Potential battery technology investments;
 - g) AEP Ohio's plans or analyses regarding the implementation of energy efficiency or peak demand reduction programs after December 31, 2016;
 - h) AEP Ohio's energy efficiency program shared savings mechanism;
 - i) The terms and duration of the IRP tariff;
 - j) Implementation of Company-funded energy efficiency and demand response programs by the Ohio Hospital Association;
 - k) The location of AEP's corporate headquarters;
 - l) The fourth-year review of the proposed Electric Security Plan under R.C. 4928.143(E).
 - m) A PUCO corporate separation audit of AEP Ohio as contemplated in Case No. 12-3151-EL-COI, Finding and Order (Mar. 26, 2014) at 12-13.

RESPONSE

The Company objects to this request seeking information that is confidential in connection with settlement discussions. The Company also objects to the extent this request seeks information that is neither relevant nor reasonably calculated to lead to the discovery of admissible evidence. Both of these objections are bolstered by the ELPC's agreement not to use information learned or exchanged through the settlement process in the evidentiary hearing, attached as ELPC-RPD-S4-02 Attachment 1, and is, therefore, prohibited from using in the evidentiary hearing any information from the settlement process in which it participated; thus, responding to this request cannot be calculated to lead to admissible evidence. Moreover, the Company objects to this request as being ambiguous, vague and overbroad. Without waiving these objection(s) or any general objection the Company may have, the Company states as follows. Communications

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RPD-S4-002 Continued

about the provisions in the final Stipulation occurred as part of a process undertaken by the parties to jointly develop and negotiate a settlement. Every provision that relates to specific parties are negotiated and bargained for by the parties generally. With each new version of the draft settlement, all parties had an opportunity to probe the potential pros and cons of a particular provision, and weigh specific provisions against each other and against the entire package of provision contained in that draft of the settlement. ELPC already has the communications relating to the all-party meetings and was present during those meetings to participate and hear the verbal discussion -- none of which is relevant to the upcoming evidentiary hearing. As a related matter, the controlling language in the Stipulation speaks for itself and the meaning is not affected by any such communications. For all these reasons, the requested communications are not subject to discovery as they are neither relevant nor reasonably calculated to lead to the discovery of admissible evidence.

Prepared by: Counsel

**OHIO POWER COMPANY'S RESPONSES TO
THE ENVIRONMENTAL LAW AND POLICY CENTER
DISCOVERY REQUESTS
PUCO CASE NO. 14-1693-EL-RDR
FIRST SET-JOINT STIPULATION AND RECOMMENDATION**

REQUEST FOR PRODUCTION OF DOCUMENTS

RPD-S4-003 Please produce any documents related to potential battery resource investments under Section III.H of the Stipulation.

RESPONSE

See the Company's response to ELPC-INT-S4-031. There are no responsive documents.

Prepared by: William A. Allen

DIRECT TESTIMONY OF KARL R. RÁBAGO ON BEHALF OF ENVIRONMENTAL LAW
& POLICY CENTER, OHIO ENVIRONMENTAL COUNCIL, AND ENVIRONMENTAL
DEFENSE FUND

28 December 2015

Exhibit KRR-4

**OHIO POWER COMPANY'S RESPONSES TO
OHIO CONSUMERS' COUNSEL'S DISCOVERY REQUESTS
PUCO CASE NO. 14-1693-EL-RDR
FIRST SET-JOINT STIPULATION AND RECOMMENDATION**

INTERROGATORIES

INT-S1-048 Referring to page 7, lines 7-8, of Allen's Direct Testimony, identify the cost of converting Conesville Units 5 and 6 to natural gas co-firing by December 31, 2017.

RESPONSE

The Company has not performed the requested calculation/study. As stated in the Stipulation, by July 1, 2016, AEP Ohio will make a cost recovery filing supporting the conversion of Conesville Units 5 and 6 to natural gas co-firing. These units will be converted by December 31, 2017, subject to approval for cost recovery for AEP Ohio through the PPA Rider and any other regulatory approvals.

Prepared by: William A. Allen.

INTERROGATORIES

INT-S1-057 Referring to page 8, lines 6-8, of Allen's Direct Testimony, identify the cost of the 2017-2019 EE/PDR plan to achieve an energy savings goal of 1.33% annually and a demand reduction goal of .75% annually.

RESPONSE

The Company has not performed the requested calculation. AEP Ohio agrees to develop and submit for Commission approval a 2017-2019 EE/PDR Plan designed to achieve an energy savings goal of 1.33% annually and a demand reduction goal of 0.75% annually of baseline energy and demand, respectively, by the end of the Plan period. As part of that filing, AEP Ohio agrees to continue its current practice of bidding eligible peak demand reduction achievements into PJM capacity auctions for the 2017-2019 EE/PDR Plan with any capacity revenues shared consistent with existing Commission policy (80% to customers and 20% retained by the Company). These commitments regarding the 2017-2019 EE/PDR Plan filing are contingent upon approval of the 2017-2019 AEP Ohio EE/PDR Plan, including funding and any other necessary mechanism to ensure the continued recovery of net lost distribution revenues.

Prepared by: William A. Allen

**OHIO POWER COMPANY'S RESPONSES TO
OHIO CONSUMERS' COUNSEL'S DISCOVERY REQUESTS
PUCO CASE NO. 14-1693-EL-RDR
FIRST SET-JOINT STIPULATION AND RECOMMENDATION**

INTERROGATORIES

INT-S1-042 For each a) rider and b) tariff that AEP Ohio will seek to extend in its filing to extend the current ESP, identify the charge that will be proposed.

RESPONSE

AEP Ohio will present evidence to support the riders and tariffs that it will seek to extend in the filing described in Section III.C of the Stipulation. AEP Ohio has not yet determined the charges that will be proposed in that filing.

Prepared by: William A. Allen

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Case No(s). 14-1693-EL-RDR, 14-1694-EL-AAM

Summary: Testimony of Karl R. Ra'bago electronically filed by Madeline Fleisher on behalf of Environmental Law and Policy Center and Ohio Environmental Council and Environmental Defense Fund