BEFORE THE
PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of The Dayton Power and Light Company for Approval of its Electric Security Plan.	)))	Case No: 16-395-EL-SSO
In the Matter of the Application of The Dayton Power and Light Company for Approval of Revised Tariffs.	)))	Case No. 16-396-EL-ATA
In the Matter of the Application of The Dayton Power and Light Company for Approval of Certain Accounting Authority.	)))	Case No. 16-397-EL-AAM

DIRECT TESTIMONY OF BRUCE BURCAT ON BEHALF OF THE MID-ATLANTIC RENEWABLE ENERGY COALITION IN SUPPORT OF THE JANUARY 30, 2017 STIPULATION

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February 6, 2017

Q. Please state your name and business address.

A. My name is Bruce Burcat. My business address is 29 North State Street, Dover, Delaware.

Q. By whom are you employed and in what capacity?

A. I am employed by the Mid-Atlantic Renewable Energy Coalition ("MAREC") as its Executive Director.

Q. Please provide a description of the Mid-Atlantic Renewable Energy Coalition.

A. MAREC is a nonprofit organization that was formed to help advance the opportunities for renewable energy development primarily in the region where the Regional Transmission Organization, PJM Interconnection, LLC ("PJM"), operates. MAREC's footprint includes the District of Columbia, Maryland, New Jersey, Delaware, Pennsylvania, Ohio, Virginia, West Virginia, and North Carolina. MAREC's membership consists of wind developers, wind turbine manufacturers, service companies, nonprofit organizations, and a transmission company dedicated to the growth of renewable energy technologies to improve our environment, boost economic development in the region, and diversify our electric generation portfolio, thereby enhancing energy security. The primary areas of focus of MAREC are to: work with state regulators to develop rules and supportive policies for renewable energy; provide education and expertise on the environmental sustainability of wind energy; and offer technical expertise and advice on integrating variable wind energy resources into the electric grid.

Q. Please describe your professional background.

A. I am an attorney with over twenty-five years' experience in the utility and energy regulatory fields. I am responsible for MAREC's efforts to promote the growth and development of renewable energy in its nine jurisdictions. I joined MAREC as its Executive Director in 2010 after serving for nearly fifteen years as the Executive Director of the Delaware

Public Service Commission. In that capacity, I was responsible for the major policy and technical positions taken by Commission staff in proceedings before the Delaware Commission. I was involved in all facets of utility regulation, including the restructuring of Delaware's electricity market and the reintroduction of integrated resource planning for Delaware's major electric utility. As part of the integrated planning process, Delaware's major electric utility was required to incorporate electricity generated from renewable resources into its long-term procurement plan. My office supervised the compliance by electric suppliers with the state's renewable portfolio standard. I was intricately involved in the two-year process that resulted in the first purchase power agreement in the United States for the energy generated from an offshore wind farm that will be located off the coast of Delaware. Prior to coming to the Delaware Commission, I was an attorney for the New Jersey Division of Rate Counsel. Before that position I served as a Senior Rate Attorney for General Waterworks Management and Service Company.

Q. Have you previously provided testimony in regulatory proceedings or testified before a legislative body?

A. In my position as Executive Director of MAREC, I provided pre-filed written testimony and stood for cross-examination before the Public Utilities Commission of Ohio ("Ohio Commission") in *In re Ohio Edison Co., et al., for Authority to Provide for a Standard Service Offer Pursuant to R.C. 4928.143 in the Form of an Electric Security Plan* (Case No. 14-1297-EL-SSO) and *In re Ohio Power Co.'s Proposal to Enter into an Affiliate Power Purchase Agreement for Inclusion in the Power Purchase Agreement Rider* (Case No. 14-1693-EL-RDR, et al.). I have also provided written testimony related to the procurement of renewable energy through long-term contracts in *In re the 2010 Long-Term Forecast Report of Duke Energy Ohio, Inc.* (Case No. 10-503-EL-FOR). In another proceeding before the Ohio Commission, I

provided testimony on the cost cap provision of Ohio's Alternative Energy Portfolio Standard in *In re Review of the Alternative Energy Rider of Ohio Edison Co., et al.* (Case No. 11-5201-EL-RDR). I have also testified before the Maryland Public Service Commission in its proceeding to approve the merger of Exelon Corporation and Constellation Energy Group, Inc. I also testified as a witness in two of the Exelon/Pepco merger proceedings; one before the District of Columbia Public Service Commission and the other before the Maryland Public Service Commission having submitted pre-filed written testimony and stood for cross-examination on behalf of MAREC in both matters.

I have also appeared before legislative committees in Ohio, Pennsylvania, New Jersey, and Maryland to testify regarding legislation and issues concerning renewable energy policy. In my role as the Executive Director of the Delaware Commission, I testified before the Federal Energy Regulatory Commission on the impact of electric transmission congestion on the Delmarva Peninsula and appeared numerous times before the Delaware House and Senate to respond to questions on proposed energy legislation and major energy issues facing the State.

Q. Please describe your educational background.

A. I am a graduate of the University of Delaware. I received my Juris Doctor degree from Rutgers University School of Law – Camden and a Masters in Law (LL.M) in Taxation from the Villanova University School of Law.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to support the proposed Stipulation and Recommendation filed January 30, 2017 ("Stipulation") by Dayton Power and Light Company ("DP&L" or "Company") and the signatory parties regarding DP&L's pending electric security plan ("ESP") application. MAREC is a signatory to the Stipulation. Specifically, MAREC will address in this testimony Section VI of the Stipulation titled Renewable Investment.

Q. Does the Stipulation fully resolve DP&L's ESP application?

A. Yes. It is a full resolution of the issues presented by the application.

Q. Do you believe the Stipulation is in the public interest?

A. Yes. As the Stipulation states at pages 1-2:

> This Stipulation is a product of lengthy, serious, arm's-length bargaining among the Signatory Parties (who are capable, knowledgeable, and represented by counsel) with the participation of the Commission's Staff, which negotiations were undertaken by the Signatory Parties to settle this proceeding. This Stipulation was negotiated among all parties to the proceedings and no party was excluded from negotiations. This Stipulation is supported by adequate data and information; as a package, the Stipulation benefits customers and the public interest; promotes effective competition and the development of a competitive marketplace; represents a just and reasonable resolution of all issues in this proceeding; violates no regulatory principle or practice; and complies with and promotes the policies and requirements of Chapter 4928, Revised Code. Although this Stipulation is not binding on the Commission, it is entitled to careful consideration by the Commission, where, as here, it is sponsored by Signatory Parties representing a wide range of interests.

Q. Please summarize Section VI of the Stipulation related to renewable energy investment.

A. Under this provision of the Stipulation, DP&L and/or its affiliates are required to procure a minimum of 300 megawatts (MW) of nameplate capacity of wind and/or solar energy projects sourced in Ohio. DP&L affiliates can own up to 50% of such projects; ownership details to be determined on a project-by-project basis. The projects must be competitively bid. Projects utilizing the Ohio supply chain will be given preference. An independent third party will manage the bidding process if DP&L or its affiliate plans to submit projects for consideration for any particular bid. A key term of the Stipulation is that DP&L will be the purchaser of long-term

power purchase agreements ("PPAs") that will have a duration of 15 years or longer for each project. The PPAs will include all capacity, energy, ancillary services, and renewable energy credits produced by each project. DP&L will fully recover its costs for the PPAs through a Renewable Energy Rider ("RER"). The Company will need to file EL-RDR applications to initiate approval for retail cost recovery associated with each project. The Commission may consider the economics and PPA pricing, as well other relevant matters, as part of its review of such projects. The RER shall be nonbypassable. The RFP process will begin within 45 days of Commission approval of the Stipulation. Projects will be proposed over the course of the three-year period following the approval of the Stipulation. The projects approved pursuant to this provision must commence commercial operation by 2022.

Q. What is the basis of MAREC's support for Section VI of the Stipulation?

A. MAREC believes that long-term PPAs through competitive procurements are vital components of well-functioning energy markets. These contracts serve two essential functions in energy markets: (1) they enable project finance for new projects and assist in ensuring revenue adequacy for existing large generators; and (2) they provide a hedge against volatile energy prices. Section VI of the agreement contemplates hedging benefits, and will enable financing for wind and/or solar projects to be constructed. Importantly, the Stipulation will ensure that Ohio will benefit economically as these projects will be developed in the state and preference will be given to projects utilizing the Ohio supply chain. Moreover, the Stipulation calls for competitive procurements, ensuring that ratepayers will benefit from the lowest prices offered from a competitive marketplace.

Q. Can you explain how long-term power purchase agreements enable project finance and assist in ensuring revenue adequacy for existing large generators?

A. Yes. Energy markets require large-scale capital investments. Large-scale capital investments require large-scale financing. Large-scale financing requires some meaningful degree of certainty that adequate returns can be achieved. In fact, virtually the entire electricity system has been built based on government approved, long-term, guaranteed rates of return for just such reasons. This is still the case for the transmission and distribution system. However, electricity restructuring and wholesale regional power markets eliminated long-term, guaranteed rates of return for generation and introduced "electricity competition" at both the wholesale and retail levels. This fundamental change has not created a problem so long as new generation investments were not required and energy prices were high. However, the dearth of opportunities for long-term contracts and falling energy prices has created a lack of incentives both for new generation and concerns with revenue adequacy for existing generation. The latter problem is referred to as the "Missing Money" problem and has been attempted to be partly remedied by the creation of a wholesale capacity market by PJM.[1] The "Missing Money" problem arises, in short, because prices in energy markets reflect short-term variable costs, however, power generators must recover not only short-term variable costs, but long-term capital costs in order to achieve revenue adequacy. As a result, short-term energy prices can fail to ensure revenue adequacy for power generators. Long-term PPAs are a mechanism which enables project finance for large capital investments and which can help mitigate revenue adequacy challenges facing existing power generators.

Q. Can you explain how long-term power purchase agreements provide a hedge against energy price volatility?

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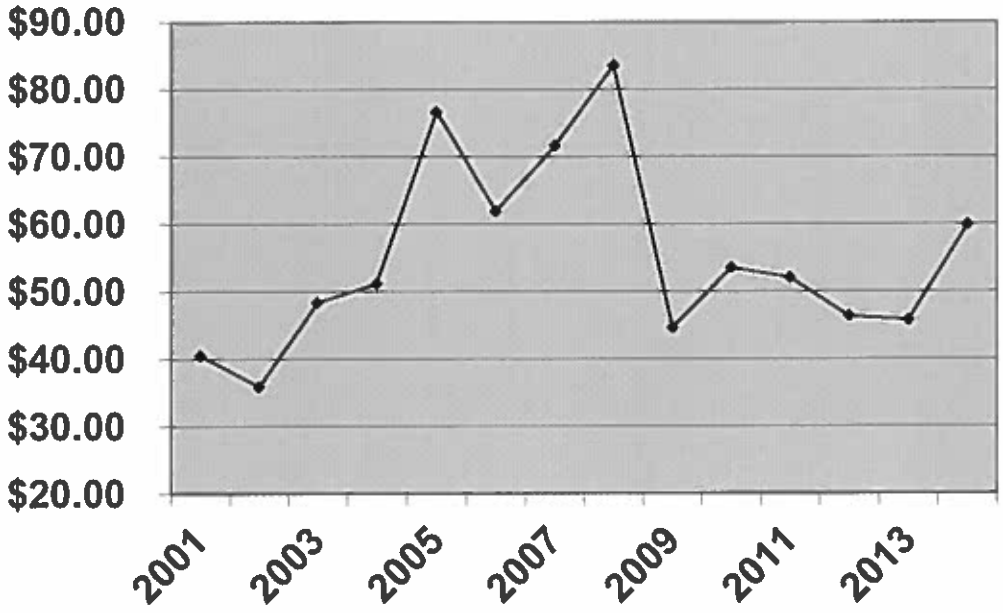
[1] Resource Adequacy Mandates and Scarcity Pricing ("Belts and Suspenders")(Feb. 23, 2006), Comments to the Federal Energy Regulatory Commission, Docket Nos. ER05-1410-000 and EL05-148-000. http://www.hks.harvard.edu/fs/whogan/Hogan_PJM_Energy_Market_022306.pdf

A. The following chart demonstrates wholesale power prices from 2001 until the middle of July 2014. The graph line represents the average annual price at the PJM West trading hub, the predominant wholesale trading hub for Ohio and other parts of PJM.[2]

PJM West Average Annual
Locational Marginal Pricing
2001-2014



As the graph demonstrates, wholesale energy prices are exceedingly volatile from year to year. Relying on short-term wholesale prices to set retail electricity rates will subject electricity consumers to significant price volatility. Long-term PPAs are an effective mechanism to protect electricity consumers from this phenomenon. As a matter of public policy, it seems prudent that some part of the energy portfolio should be based on stable, fixed rates to mitigate potential energy price shocks. The Stipulation wisely includes a reasonable procurement of Ohio sourced

[2] Data from the Energy Information Administration. http://www.eia.gov/electricity/wholesale/index.cfm

renewable energy capacity through long-term PPAs that will provide some hedge value to volatile short-term market prices.

Q. Do you consider long-term contracts to be a "market-mechanism?"

A. Yes. In my experience, it appears that electricity sector regulators and policy-makers have associated "market prices" with short-term or spot market energy prices only. However, this thinking belies the reality that the long-term cost of capital investments, plus the marginal cost of fuel, set energy prices over the long-run. As a result, electricity customers are disadvantaged by focusing only on short-term or spot market mechanisms in setting prices.

Short-term and spot market energy prices result from the short-term or spot market supply and demand balance for the marginal fuel. This price completely ignores the long-term cost of a capital investment (as discussed above) and the risks inherent in marginal fuel price volatility in long-term electricity price formation. Undoubtedly, short-term and spot market prices can send a "false" signal to electricity sector regulators and policy-makers leading them to promote market structures which may select energy resources and fuels that, while cost effective today, will not be so in the future.

The best ways to mitigate this risk it to include some competitively sourced, fixed-price, long-term contracts in the energy portfolio, which the Stipulation provides. Comparing fixed, long-term prices over a given term is the only true apples-to-apples comparison of the true long-term costs of energy. A market mechanism for comparing the long-term costs of electricity associated both with the cost of capital investments and fuel price volatility risk does not truly exist in any restructured electricity market to my knowledge. A competitively sourced, fixed-priced, long-term market mechanism would be a major market innovation which could offer significant price protection for Ohio's electricity consumers. While the Stipulation only provides 300 MW of renewable energy to be sourced through long-term PPAs over the six-year term of

the ESP, I believe that this Stipulation will provide a roadmap for future renewable energy procurements through long-term PPAs.

Q. Do other long-term risks besides price volatility and potentially rising marginal fuel costs potentially threaten price stability for Ohio's electricity consumers?

A. Yes. There are several important U.S. Environmental Protection Agency ("EPA") rules which could substantially change the mix of electricity resources on which Ohio relies for its power. The most notable are the Mercury Air Toxics Standard ("MATS") and the Clean Power Plan ("CPP").

Q. Can you describe the Mercury Air Toxics Standard and its potential impact on Ohio?

A. MATS regulate mercury emissions from power plants. According to the U.S. Energy Information Administration, "between 2012 and 2020, about 60 gigawatts of coal-fired capacity is projected to retire in the AEO2014 Reference Case, which assumes implementation of the MATS standards, as well as other laws and regulations."[3] It is conceivable that some of these retirements will be in Ohio.

Q. Can you describe the Clean Power Plan and its potential impact on Ohio?

A. The Clean Power Plan regulates carbon dioxide emissions from coal plants. The Final Clean Power Plan sets interim targets for carbon dioxide reductions beginning in 2022 and a final target in 2030. To meet the goals, the EPA recommends that states use three different "building blocks:" (1) coal-plant efficiency uprates; (2) coal to natural gas conversions; and (3) renewable energy. States are given maximum flexibility, including using mechanisms not included in the building blocks, to achieve the targets set by the EPA in the CPP. Among many other possibilities, potential relevant implications for Ohio for this testimony include the need for additional renewable energy investments.

[3] http://www.eia.gov/todayinenergy/detail.cfm?id=15491

Q. What is the status of the CPP and does that rule provide a definitive role for renewable energy in Ohio?

A. Currently, the U.S. Supreme Court has stayed the implementation of the CPP. Given the results of the recent elections, MAREC believes there is great uncertainty surrounding the CPP being implemented in its current form. However, MAREC believes that the market has already and continues to play a major role moving forward in pivoting away from energy resources that are carbon intensive, like coal generation. MAREC thinks it would be ill-considered for any provider of standard offer service to rely extensively on such energy resources moving forward and the provider should develop plans to significantly reduce its carbon footprint. In this matter, DP&L has agreed to take very meaningful steps to reduce its reliance on carbon intensive generation and include more non-emitting resources in its generation mix.

Q. What are the implications of the MATS rules and the need for carbon reduction for the Application?

A. These efforts will certainly present a challenge for Ohio's electricity system. The Stipulation in this case is indicative of DP&L's willingness to address additional investments in renewable energy in order to reduce its carbon footprint and to provide additional replacement energy for any coal units retired under MATS. .

Q. What other benefits are presented by the renewable energy investment proposed in the Stipulation?

A. The renewable supply PPAs contemplated by the Stipulation will help further diversify DP&L's generation mix provide substantial economic development benefits, and provide consumers with fixed-priced resources over the terms of the PPAs. The costs of utility-scale wind and solar have dropped significantly in the past few years and consumers will benefit by locking in these prices over the long-term as a result of the Stipulation.

Q. Can you describe the general economic development benefits of adding approximately 300 MWs of Ohio wind and/or solar energy to the Application?

A. For example, adding 300 MWs of Ohio wind energy to the Application would have significant local economic benefits including approximately the following for rural host communities:

- $2.7 million in annual local tax payments ($40.5 million to $54 million over the projects' lifetime)
- $2 million per year in local landowner payments ($30 million to $40 million over the projects' lifetime)
- 500 temporary construction jobs
- 15 to 20 permanent jobs[4]

Q. Is it your contention 300 MWs of wind energy and/or solar energy could be added to the Application for less cost on a levelized per MWh basis, while providing additional economic development benefits Ohio wind and solar farms are the source of the renewable energy?

A. Yes.

Q. Do you believe that the Stipulation in this matter should be approved?

A. Yes.

Q. Does this conclude your testimony?

A. Yes.

[4] See Attachment A, Iberdrola Renewables, Blue Creek Wind Farm, Fact Sheet.

CERTIFICATE OF SERVICE

The Public Utilities Commission of Ohio e-filing system will electronically serve notice of the filing of this document on the parties referenced in the service list of the docket card who have electronically subscribed to this case. In addition, the undersigned certifies that a courtesy copy of the foregoing document is also being served upon the persons below via electronic mail this 6th day of February, 2017.

/s/ Christine M.T. Pirik
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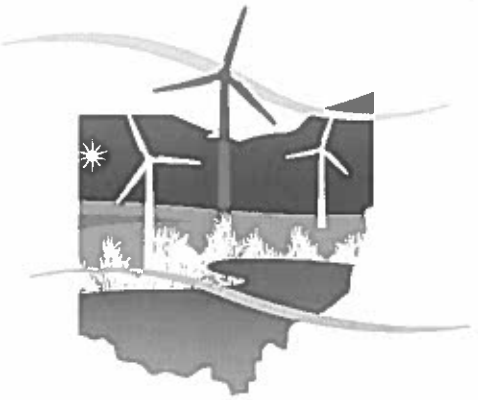
BLUE CREEK Wind Farm



Project Location: Tully, Union, and Hoaglin Townships of Van Wert County, Ohio and Benton, Blue Creek, and Latty Townships of Paulding County, Ohio

Project Status: Expected on-line in early 2012

Project Capacity: 304 Megawatts (MW)

Number of Wind Turbines: 152 Gamesa G90, 2.0 MW wind turbines on 100m towers, primarily made in Pennsylvania

Households Served: Each turbine can produce up to two megawatts or 2,700 horse-power, which is enough to power about 500 average Ohio houses. The total project will power approximately 76,000 homes annually. According to the 2000 census, there are 11,600 households in Van Wert County and 7,700 households in Paulding County.

Technology: The turbines are on a 328 foot (100 meter) tower for a total height of 476 feet. Each nacelle weighs 85 tons. Each foundation uses about 60 truck-loads of concrete and 60 tons of steel rebar.

Local Economic Benefits: Approximately $2 million in annual lease payments to local landowners, $2.7 million in annual PILOT payments to local taxing bodies, 15-20 new permanent jobs, over 500 construction jobs at peak, and local spending during construction of about $25 million.

Energy and Environmental Benefits: Relative to the rest of Ohio's generation fleet, Blue Creek offsets carbon dioxide emissions by approximately 1.6 billion pounds per year. That is the equivalent to the volume of 158 Ohio Stadiums and the equivalent to planting an estimated 138,000 acres of trees, taking 114,000 cars off the road, or not consuming over 2.1 million barrels of oil. If electric cars were widely available, this project would produce enough electricity to power 479,000 electric cars for a year. It also avoids the consumption of 408 million gallons of water per year.

For more information visit
www.iberdrolarenewables.us

IBERDROLA RENEWABLES

Summary: Testimony Direct Testimony of Bruce Burcat on Behalf of The Mid-Atlantic Renewable Energy Coalition in Support of the January 30, 2017 Stipulation electronically filed by Christine M.T. Pirik on behalf of The Mid-Atlantic Renewable Energy Coalition