BEFORE THE

PUBLIC SERVICE COMMISSION

OF MARYLAND

IN THE MATTER OF THE APPLICATION OF ONEENERGY DORCHESTER, LLC FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A 15.5 MW SOLAR PHOTOVOLTAIC GENERATING FACILITY IN DORCHESTER COUNTY, MARYLAND.	* * * *	**CASE NO: 9370**

DIRECT TESTIMONY AND EXHIBITS

OF

RALPH DE GEETER

ON BEHALF OF THE STAFF

OF THE

PUBLIC SERVICE COMMISSION OF MARYLAND

PUBLIC VERSION

APRIL 3, 2015

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INTRODUCTION

Q. Please state your name and business address.

A. My name is Ralph De Geeter. My business address is 6 St. Paul Street, Baltimore, Maryland 21202.

Q. What is your occupation?

A. I am employed by the Public Service Commission of Maryland ("Commission") as PSC Generation & Transmission Engineer.

Q. Please describe your educational background and professional experience.

A. My educational background includes a Bachelor of Science Degree in Civil Engineering from the University of Oklahoma, Norman, Oklahoma, a Master's Degree in Business Administration from Loyola University, Chicago, Illinois, and a post-graduate certificate in corporate finance from the University of Hartford, West Hartford, Connecticut. I worked in various managerial and senior management positions for Connecticut Natural Gas Corporation for fifteen years, during which time I was responsible for planning, acquisition, and operational control of the Company's natural gas supply portfolio. My responsibilities included testifying before state regulatory commissions, and I participated in over two hundred natural gas and electric dockets before the Federal Energy Commission in Washington, D.C. From 1989 until 2009 I was Managing Director of an energy consulting firm providing services to clients on regulatory issues, management audits of regulated utilities, project development and finance of natural gas and electric generation projects. I joined the Commission in December 2009.

Q. Have you previously testified before the Commission?

A. Yes. I have testified and been subject to cross examination before this Commission and regulatory commissions in the states of Connecticut, Massachusetts and New York.

Q. What is the purpose of your testimony?

A. The purpose of this testimony is to make a recommendation regarding the effect that the proposed project will have on the reliability and stability of the electric system in the State of Maryland. Reliability and stability are two factors the Commission is required to consider prior to issuing a Certificate of Public Convenience and Necessity ("CPCN") pursuant to §§ 7-207 and 7-208 of the Public Utilities Article of the Annotated Code of Maryland.

CONCLUSIONS AND RECOMMENDATIONS

Q. Please summarize your conclusions and recommendations in this proceeding.

A. After reading the testimony of the Company's witnesses and performing my own analysis, I am recommending:[1]

(i) The Commission issue the requested CPCN to OneEnergy Dorchester, LLC for a 15.5 MW solar generating facility and that any generation capacity in excess of 15.5 MW require the filing of a new CPCN application with the Commission;

(ii) The CPCN require filing with the Commission the signed Interconnection Service Agreement and Construction Service Agreement; and

(iii) The Commission includes any proposed conditions presented by the other State agencies having jurisdiction in this proceeding.

[1] The Responses of OneEnergy Dorchester, LLC to Staff Data Request No. 1 are attached to this testimony as Exhibit RDG-1and incorporated by reference.

TESTIMONY

Q. Please describe the Maryland process for approval of a generation project.

A. The Code of Maryland Regulations ("COMAR") 20.79 describes the filing requirements for the interconnection of generation to the grid. The application is reviewed by several State agencies, each of which presents its findings during hearings. After the conclusion of the hearing process, the Hearing Examiner will issue a proposed order granting or denying a CPCN. If granted, the CPCN may be conditioned on certain requirements. If no one files an appeal within the appeal period, the proposed order automatically becomes a final Commission order.

Q. Who is the applicant in this case?

A. OneEnergy Dorchester, LLC ("OED" or "the Project") is the applicant requesting issuance of a CPCN in this proceeding and is a wholly-owned subsidiary of OneEnergy, Inc. d/b/a OneEnergy Renewables ("OneEnergy Renewables" with offices located in Seattle, Washington and Portland, Oregon. OneEnergy Renewables is engaged in the development of utility-scale renewable energy projects.

Q. Please describe the Project identified in the application.

A. OED has proposed a 15.5 MW solar powered generating facility to be located in Dorchester County, Maryland. The proposed generation facility would provide approximately 5.89[2] MW of peak capacity for inclusion in PJM Interconnection, LLC's ("PJM") annual Base Residual Auction.

[2] PJM's planning criteria recognizes 38% of the equipment nameplate as the peak hour capacity generation capability of solar facilities. In this case, 15.5 MW times 38% provides approximately 5.89 MW of peak capacity to the PJM system.

PJM studied the interconnection request as a 19.5 MW injection into the Delmarva Power and Light Company ("DPL") system and evaluated it for compliance with reliability criteria for summer peak conditions in 2015. The estimated in-service date of the Project is currently May 2016.

The requested interconnection capacity of 19.5 MW into the PJM transmission system exceeds the CPCN requested project capacity of 15.5 MW identified in this proceeding. This difference in capacity of approximately 4 MW may provide an incentive to increase the size of the proposed solar generating facility after issuance of any CPCN. For this reason, I recommend that a condition be included in any CPCN issued in this proceeding to require a new CPCN application be filed for any generating capacity in excess of 15.5 MW.

The Project would be located on approximately one-hundred sixteen (116) acres of agricultural farm land in Dorchester County, Maryland. The Project would lease the necessary acreage pursuant to a long-term lease with the property owner.

Q. Please describe the process by which generators as connected to the regional transmission system.

A. The Regional Transmission Organization responsible for assessing transmission system reliability and stability in Maryland is PJM. A potential interconnection customer, such as the Project, must comply with the PJM Open Access Transmission Tariff ("OATT"), as approved by the Federal Energy Regulatory Commission ("FERC"), and must become a PJM member.

PJM organizes generation interconnection requests into clusters, or queues, for the purpose of identifying required transmission system improvements. Upon the receipt of an interconnection request, PJM conducts sequential studies, provided the potential customer meets certain requirements to retain its queue position. The studies are dependent on other projects within the geographical area. The studies performed by PJM are the Feasibility Study, the Impact Study, and the Facilities Study. The studies are intended to determine what system enhancements are

necessary to accommodate the interconnecting generator and maintain the reliability and stability of the transmission system.

Q. Please describe the Feasibility study.

A. Computer modeling of the electric system is used by PJM to evaluate the feasibility of new generation with respect to compliance with the Regional Reliability Council, Reliability First, of the North American Electric Reliability Council ("NERC") reliability and stability criteria. Short circuit calculations are performed to ensure that circuit breaker capacities are not exceeded. This report identifies direct connection requirements and network impacts. Once the Feasibility Study is completed, a Feasibility Report is issued. In order to maintain its queue position, the applicant must then execute an Impact Study Agreement.

Q. Please describe the Impact study.

A. The Impact Study is a continuation of the Feasibility Study with the inclusion of more detailed analysis. Capacity Resources are evaluated for load deliverability and generation deliverability. Load deliverability is a measure of the ability to transfer power to the load in a particular sub-area. Generator deliverability is a measure of the ability to export generation from a sub-area. Stability is evaluated for critical contingencies. Short circuit calculations are performed, taking into consideration all elements of the regional plan, to ensure that circuit breaker capacities are not exceeded. In order to maintain the queue position, the applicant then must execute a Facilities Study Agreement. By executing the Facilities Study Agreement the potential interconnection customer retains the assigned priority in the PJM queues.

Q. Are any other studies or agreements required?

A. In general any generator seeking to interconnect to the PJM transmission system would be required to complete three additional studies and execute additional study agreements. These agreements are the Facilities Study, Interconnection

Service, and Construction Service Agreements. The Facilities Study Agreement further defines the construction details and responsibilities of the Project, PJM, and the transmission owner, in this case, DPL.

Upon completion of the Facilities Study a project is tendered an Interconnection Service Agreement ("ISA") between the project, PJM, and the transmission owner that is filed with the FERC. The ISA describes the requirements for the physical and operational interconnection of the Project to the grid, direct connection requirements, and network upgrades and their cost. The document may also specify requirements related to the operation and maintenance of the system enhancements. The specifications are dependent upon the standards of the local transmission owner. However, most of the system enhancements have already been identified during the course of the PJM studies, since the local transmission owner participates in the PJM studies. It is important for the generation owner and the transmission owner to agree on how the interface should operate. This greatly reduces the risk of failure and, thereby, improves safety and reliability for the local area.

The Construction Service Agreement ("CSA") identifies terms and conditions, and coordinates construction activities for completion of identified attachment facilities and network transmission upgrades with the transmission owner, which in this instance is DPL. The cost of the attachment facilities and transmission system network upgrades are the responsibility of the project requesting to interconnect. This agreement completes the interconnection process for a new generator to participate in the PJM market.

Capacity Injection Rights ("CIRs") are awarded to a project based on satisfactory completion of milestones and requirements contained in the various agreements. CIRs quantify the power that a project is permitted to deliver into PJM at a specified location, enabling a project to participate in PJM's capacity market. CIRs are unit-specific and granted in a quantity commensurate with the megawatt ("MW") size identified in a generator's interconnection request and

Interconnection Service Agreement. CIRs allow the project to participate in PJM as a capacity resource.

Q. Can you explain what is meant by a capacity resource?

A. A capacity resource has the right to schedule both capacity and energy deliveries at a point of interconnection into PJM markets, pursuant to a bilateral contract or though participation in the PJM capacity market. A capacity resource can provide both capacity and energy to load serving entities to meet their load obligation, pursuant to the PJM Reliability Assurance Agreement that is binding on all PJM members.

Q. What is the current status and queue position of the Project?

A. OED has a generator interconnection queue number of Y3-015 having submitted an interconnection request to PJM on August 22, 2011. PJM's website indicates the initial proposed in-service date of December 31, 2012 from information contained in the interconnection request. However, OED now estimates a commercial in-service date of May 2016 assuming approval of this CPCN application to permit construction by early summer 2015. After the close of the X3 interconnection request queue, PJM initiated the interconnection study process and completed a Generation Interconnection Combined Feasibility and System Impact Study to permit interconnection to the transmission system. Based on information provided by the Project, the Feasibility and System Impact Studies were completed by July 2012 with the Facilities Study completed in September 2014.

As of the date of this testimony both the ISA and CSA are still in the process of being negotiated. OED has also elected to exercise the "Option to Build" pursuant to the provisions of PJM's approved OATT. The Option to Build will allow OED to incorporate a greater scope of work in order to expedite the timing of construction activities currently proposed by DPL. Negotiations on the exact scope of work, schedule, and cost are currently in discussion between OED and

DPL. Upon completion of the negotiations DPL will release a revised Facilities Study and sign an ISA to reflect the agreed upon scope of work.

Upon receipt of the ISA, the Project will have sixty days (60) to review and sign the agreement. Absent the Project's signature of the ISA within the sixty-day period, the interconnection request would lose its queue position and would be required to re-enter the generation interconnection queue and repeat the process as a new request, should it wish to re-apply. Assuming the Project signs the tendered ISA, the transmission owner (DPL) would sign the agreement and return it to PJM for its signature. At this point, the ISA would be binding on all parties and be filed at FERC.

Q. How will the Project be connected to the PJM transmission system?

A. The Project would interconnect to the PJM system through DPL transmission facilities. The point of interconnection into the DPL transmission system would be the West Cambridge-Vienna 69 kV substation. A new, on-site attachment facility containing a three-breaker ring bus substation will be constructed and new relay, protection and communications equipment will be installed at both the Vienna and West Cambridge substations to accommodate the proposed generation and to mitigate potential adverse impact on the stability and reliability of the electric system.

The design and construction of all facilities to complete the interconnection would be the responsibility of DPL with the cost borne by the Project. In addition, the Project will be required to install telemetering and telemetry equipment to provide revenue metering and real-time data to PJM in accordance with the OATT, and to design and install relaying and metering to comply with DPL transmission standards.

The CPCN application indicates that the proposed solar project would interconnect with the DPL transmission system through a "50%" tap of the West Cambridge-Vienna 69 kV circuit. New facilities and equipment to operate the

proposed "50% tap" will be constructed at the generation site to support the OED's generation facilities.[3] This substation will be built to the specifications of DPL and ultimately owned and operated by DPL. The substation will consist of a three-breaker ring bus and associated relaying, communications equipment, and a control house. OED shall supply adequate, build able high land with access for roads for the installation of the substation at no cost to DPL. OED will work with DPL to the extent required to secure all applicable permitting for the proposed substation.

Q. What are the interconnection and transmission network upgrade facilities and costs identified in the Facilities Interconnection Study?

A. The Feasibility, System Impact and Facilities studies did not identify a need for any new transmission system reinforcements or transmission network upgrades. The estimated cost of facilities required for attachment of the Project to the DPL system is approximately $4.2 million with construction contingencies[4] all of which will be paid by the Project.

Q. Why is the stability analysis important for new projects seeking to interconnect in PJM?

A. Stability is a measure of the transmission system's ability to recover from changes to its normal operation. Large or sudden changes in load or generation can have significant impacts on transmission system operations resulting in voltage collapse or cascading outages. Stability Analysis takes into consideration the

[3] A "50% tap" of the West Cambridge-Vienna 69kV circuit is the aggregated upper capacity limit allowed to be injected onto the system from distributed generation installation and would accommodate up to 20 MW of generation for injection into the transmission system. The application in this proceeding has proposed a 15.5 MW solar generation project which is less than the 20 injection limit.

[4] Facilities Study Report for PJM Generation Interconnection Request Queue Position X3-015, September 2014, page 5.

response of the generator to requests for changes in real (MWs) and reactive power (MVARs) output.[5].

Q. Have the effects of the Project on the reliability and stability of the electric system in Maryland been determined?

A. Prior to operation, the Project will be required to comply with DPL's and PJM's interconnection requirements and complete the requisite facility upgrades and milestones specified in the ISA and CSA. The Project's compliance with these agreements would assure no adverse impact to the reliability and stability of the electric transmission system. The additional generation capability of the Project would be of benefit to Maryland and the PJM system.

Q. Why are you recommending CPCN conditions regarding reliability and transmission system stability?

A. The ISA and CSA are crucial documents for maintaining the safety, reliability, and stability of the electric transmission system. PJM posts every ISA and CSA as a matter of public record on its website with the ISA filed with FERC. In this situation filing of the ISA and the CSA should be required as a condition of any issuance of a CPCN.

Verification that the required facilities have been completed provides a level of assurance to the Commission, and to the public, that the identified facilities were necessary and in place prior to operation of the Project. Certification of installed facilities and any upgrades at the time of generator start-up is requested because the requirements are subject to change, and some upgrades may not be required until after the generation becomes operational. Compliance with the conditions

[5] Reactive power (MVARs) is energy lost in an alternating current circuit when the voltage and current are not in phase. This energy loss can be recovered by supplying reactive power to the circuit. Reactive power is lost to loads such as motors, transformers, and long transmission lines. Reactive power losses reduce the ability of a transmission system to deliver power. Extreme losses in reactive power can lead to voltage collapse or blackouts.

also serves to notify the Commission when the Project begins commercial operation.

CONCLUSIONS

Q. What are your conclusions regarding this project?

A. Renewable energy projects, such as solar and wind farms, have been promoted and mandated by many states. State Renewable Portfolio Standards ("RPS") requires suppliers to utilize renewable resources to serve an increasing percentage of total demand or pay an alternative compliance fee. Maryland's RPS target is 20% by 2022, with 2% being supplied by solar generation. The Project would contribute toward meeting this goal.

Compliance with the ISA and CSA are critical for maintaining the reliability and stability of the electric system. Therefore, it has also been referenced in the proposed CPCN conditions for approval of the Project.

Q. What is your recommendation in this matter?

A. Staff recommends that the Commission issue a CPCN for the Project consistent with its recommendations and any proposed conditions presented by the other state agencies having jurisdiction in this proceeding.

Q. Does this conclude your testimony?

A. Yes.

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EXHIBIT RDG - 1

Case Number 9370