ATTACHMENT 1

From: Paylor, David (DEQ)
Sent: Friday, March 18, 2016 11:36 AM
To: Franklin, Elsie (DEQ)
Subject: FW: Apex project item

From: Paylor, David (DEQ)
Sent: Tuesday, March 15, 2016 12:55 PM
To: 'Bryant, L. Preston Jr.'
Subject: RE: Apex project item

Odd, because we had conferred.

From: Bryant, L. Preston Jr. [mailto:pbryant@mwcllc.com]
Sent: Monday, March 14, 2016 3:39 PM
To: Paylor, David (DEQ)
Subject: Apex project item

Hey. You will recall that you and I discussed flexibility in the required public hearing for the Apex wind project (Botetourt Co.). The question was whether, for critical timing purposes, we could have the hearing after the PBR was submitted.

You checked with staff (don't recall who). You advised that, yes, we could have the public hearing after the PBR was submitted, but while DEQ staff was in application review process -- but stipulated that should the public hearing reveal any legitimate, substantive comment or issue, DEQ would expect Apex to address those issues before the DEQ PBR application was complete. You said that the public hearing was "to inform the application," so it would be OK to do the hearing while staff review was ongoing.

Anyway, I am presently in a pre-application meeting at DEQ with Beth Major and reps from DCR, DHR, and DGIF.

When discussing the fact that the public hearing would be after the application was submitted, but while staff review was underway, Beth seemed to slightly raise her brow. I told her of our query to you and your determination and stipulation. That you'd so opined seemed to be news to her.

So ... Just FYI. She may ask you about this.

PB.

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ATTACHMENT 2

COMMONWEALTH of VIRGINIA

Office of the Governor

Molly Joseph Ward
Secretary of Natural Resources

January 21, 2016

The Honorable Donald M. Scothorn, Chair
Botetourt County Board of Supervisors
1 West Main Street
Fincastle, Virginia 24090

Dear Chairman Scothorn and Members of the Board:

I am writing in support of Apex Clean Energy's application for permit and a special exception permit for Rocky Forge wind farm.

If approved, this site would be home to the first wind farm in Virginia and would mark a huge step towards the Commonwealth's renewable energy goals. Additionally, Jerry Fraley is currently in discussion with the U.S. Forest Service and Virginia Department of Conservation and Recreation to preserve his 9,800 acre property in perpetuity. This conservation easement would be the second largest in the state, a considerable accomplishment in its own right.

I have personally visited the proposed site and met with Mr. Fraley. Having toured his property, I can attest to both its beauty and ecological significance. We are grateful for Mr. Fraley's vision, his devotion to his land, and his commitment to stewardship.

Sincerely,

Molly Ward

Molly Joseph Ward

ATTACHMENT 3

Proposed Rocky Forge Wind Project

In its proposal, Apex reported they plan to use a Nordex 131/3000 turbine. The data sheet on this turbine reports that the turbine cut-in speed is 3 meters per second (m/s) (6.7 mph), optimum speed is 11.1 m/s (24.8 mph), and cutoff speed is 20 m/s (44.7 mph). Apex's wind study map show the wind speeds vary from 5 m/s to 7.5 m/s on the portion of North Mountain where they plan to construct the wind project. The Apex wind study does not report percent calm winds, winds below the cut-in speed.

More specifically:

Number of turbines	**Reported mean wind speed (m/s)**	**Reported wind speed (mph)**
10	7 to 7.5	15.6 to 16.7
2	6.5 to 7	14.5 to 15.6
6	6 to 6.5	13.4 to 14.5
4	5.5 to 6	12.3 to 13.4
3	5 to 5.5	11.2 to 12.3

This information suggests that, for all the turbines, the mean wind speed is below the optimum speed needed to produce the rated 3 MW per turbine. Three of the turbines are located in areas where their study shows a mean speed of 5 to 5.5 m/s, so much of the time the turbines will be in winds below the cut-in speed.

The feasibility study by PJM, the owner of the transmission infrastructure in the area. PJM proposes to construct a connection to the project that will carry 10.1 MW. PJM's study suggests that based on conclusions either Apex's wind data or their own study they do not expect the Project to produce more than 10.1 MW, which is equivalent to 12.9% of the rated output of the facility (75MW). This confirms the notion that the wind farm is planned in an area where winds are marginal, and little and intermittent power will be generated.

Generation Interconnection Feasibility Study Report

For

PJM Generation Interconnection Request Queue Position AA1-038

Lexington – Low Moor 230kV 10.1MW Capacity / 78.2MW Energy

February / 2015

Introduction

This Feasibility Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 36.2, as well as the Feasibility Study Agreement between Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is Virginia Electric and Power Company (VEPCO).

Preface

The intent of the Feasibility Study is to determine a plan, with ballpark cost and construction time estimates, to connect the subject generation to the PJM network at a location specified by the IC. The IC may request the interconnection of generation as a capacity resource or as an energy-only resource. As a requirement for interconnection, the IC may be responsible for the cost of constructing: (1) Direct Connections, which are new facilities and/or facilities upgrades needed to connect the generator to the PJM network, and (2) Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system.

In some instances a generator interconnection may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection, may also contribute to the need for the same network reinforcement. The possibility of sharing the reinforcement costs with other projects may be identified in the Feasibility Study, but the actual allocation will be deferred until the Impact Study is performed.

The Feasibility Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The IC is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by ITO, the costs may be included in the study.

General

The Interconnection Customer (IC), has proposed a wind generating facility located south east of Daggers Springs, VA. The installed facilities will have a total capability of 78.2 MW with 10.1 MW of this output being recognized by PJM as capacity. The proposed in-service date for this project is 8/14/2021. **This study does not imply an ITO commitment to this in-service date.**

Point of Interconnection

AA1-038 will interconnect with the ITO transmission system via a new three breaker ring bus switching station that connects on to the Lexington – Low Moor 230kV transmission line.

Cost Summary

The AA1-038 project will be responsible for the following costs:

Description	Total Cost

Description	Total Cost
Attachment Facilities	$1,800,000
Direct Connection Network Upgrades	$5,300,000
Non Direct Connection Network Upgrades	$0
Total Cost	**$7,100,000**

Attachment Facilities

Transmission Line - facilities include one feed from the ITO's switching station to the IC's collector station. Since the IC's arrangement is unknown at this time, the estimate for this study includes an overhead line estimated at 1000' from ITO's switching station with one intermediate structure, a 230kV backbone structure at the IC collector station and 230kV backbone at the switching station. Once the IC's plant layout and proximity is determined, this can be reevaluated to better determine the most cost effective attachment arrangement. Estimated Cost $1,800,000 dollars (including metering). These costs do not include CIAC Tax Gross-up. It is estimated to take 24-30 months to complete this work. The single line is shown in Attachment 1.

Direct Connection Cost Estimate

Substation - The cost and scope for the direct connection network upgrades includes cutting the 2084 line between Lexington and Low Moor Substations and turning it into a newly constructed 230kV switching station with a three breaker ring. Since the arrangement and exact location of the IC collector station is not known, an assumption had been made that property for the switching station will need to be acquired and graded and these costs are included. Once the IC's plant layout is determined, this can be reevaluated to better determine the most cost effective attachment arrangement. Estimated cost to construct a three breaker 230 kV ring bus is $4,500,000 dollars and is estimated to take 24-30 months to permit and construct. See Attachment 1.

Transmission – Install transmission structure in-line with transmission line to allow the proposed interconnection substation to be interconnected with the transmission system. Estimated cost $800,000 dollars and is estimated to take 24-30 months to complete. See Attachment 1.

Non-Direct Connection Cost Estimate

Remote Terminal Work: During the Facility Study, ITO's System Protection Engineering Department will review transmission line protection as well as anti-islanding required to accommodate the new generation and interconnection substation. System Protection Engineering will determine the minimal acceptable protection requirements to reliably interconnect the proposed generating facility with the transmission system. The review is based maintaining system reliability by reviewing ITO protection requirements with the known transmission system configuration which includes generating facilities in the area. This review may determine that transmission line protection and communication upgrades are required at remote substations.

Interconnection Customer Requirements

VEPCO Facility Connection Requirements as posted on PJM's website
http://www.pjm.com/~/media/planning/plan-standards/private-dominion/facility-connection-requirements1.ashx

Revenue Metering and SCADA Requirements

PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Sections 24.1 and 24.2.

Network Impacts

The Queue Project AA1-038 was studied as a 78.2 MW (Capacity 10.1 MW) injection as a tap of the Lexington – Lowmoor 230 kV line in the Dominion area. Project AA1-038 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners) for summer peak analysis in 2018. Project AA1-038 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Contingency Descriptions

The following contingencies resulted in overloads:

None

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

Multiple Facility Contingency

(Double Circuit Tower Line contingencies were studied for the full energy output. The contingencies of Line with Failed Breaker and Bus Fault will be performed for the Impact Study.)

None

Short Circuit

(Summary of impacted circuit breakers)

New circuit breakers found to be over-duty:

None

Contributions to previously identified circuit breakers found to be over-duty:

None

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None

Steady-State Voltage Requirements

(Summary of the VAR requirements based upon the results of the steady-state voltage studies)

To be determined during the System Impact Study

Stability and Reactive Power Requirement for Low Voltage Ride Through

(Summary of the VAR requirements based upon the results of the dynamic studies)

To be determined if required during the System Impact Study

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)

None

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

None

Potential Congestion due to Local Energy Deliverability

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

None

ITO Analysis

ITO assessed the impact of the proposed Queue Project #AA1- 038 interconnection of a 10.1 MW Capacity (78.2 MW Energy) injection into the ITO's Transmission System, for compliance with NERC Reliability Criteria on ITO Transmission System. The system was assessed using the summer 2018 RTEP case provided to ITO by PJM. When performing a generation analysis, ITO's main analysis will be load flow study results under single contingency (both normal and stressed system conditions). ITO's criteria considers a transmission facility overloaded if it exceeds 94% of its emergency rating under normal and stressed system conditions. A full listing of ITO's Planning Criteria and interconnection requirements can be found in the ITO's Facility Connection Requirements which are publicly available at: http://www.dom.com.

The results of these studies evaluate the system under a limited set of operating conditions and do not guarantee the full delivery of the capacity and associated energy of this proposed generation facility under all operating conditions. NERC Planning and Operating Reliability Criteria allow for the re-dispatch of generating units to resolve projected and actual deficiencies in real time and planning studies. Specifically NERC Category C Contingency Conditions (Bus Fault, Tower Line, N-1-1, and Stuck Breaker scenarios) allow for re-dispatch of generating units to resolve potential reliability deficiencies. For ITO's Planning Criteria the re-dispatch of generating units for these contingency conditions is allowed as long as the projected loading does not exceed 100% of a facility Load Dump Rating.

As part of its generation impact analysis, ITO routinely evaluates the impact that a proposed new generation resource will have under maximum generation conditions, stress system conditions and import/export system conditions. The results of these studies are discussed in more detail below.

Category B Analysis (Single Contingency):

1. System Normal – No deficiencies identified
2. Critical System Condition (No Surry 230 kV Unit) – No deficiencies identified.

Category C Analysis: (Multiple Facility Analysis)

1. Bus Fault - No deficiencies identified
2. Line Stuck Breaker - No deficiencies identified
3. Tower Line – No deficiencies identified

The import and export conditions into and out of the ITO's System are evaluated with any new interconnection greater than 20 MW, any new facility that is interconnected with the ITO's System should not significantly decrement FCITC between utilities. No studies are required since the proposed queue request is less than 20 MW Capacity.