



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Rhode Island Division of
Public Utilities and Carriers
89 Jefferson Blvd.
Warwick RI 02888
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September 4, 2015

Luly Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Blvd.
Warwick, RI 02888

RE: Docket No. 4574--National Grid-Review of Power Purchase Agreement-Copenhagen Wind, LLC Pursuant to R.I. Gen. Laws § 39-26.1-1 *et seq.*

Dear Luly,

Please find the Memorandum of Richard Hahn and Carrie Gilbert of La Capra Associates, Consultant for the Division of Public Utilities and Carriers with reference to the proposed Power Purchase Agreement between National Grid and Copenhagen Wind, LLC for review and consideration by the Public Utilities Commission in the above captioned matter.

Thank you for your attention in this matter.

Very truly yours,

A handwritten signature in black ink, appearing to read "Jon G. Hagopian".

Jon G. Hagopian
Senior Legal Counsel

cc: Thomas F. Ahern, Administrator
Stephen Scialabba, Chief Accountant

La Capra Associates

To: Rhode Island Public Utilities Commission
From: Richard Hahn and Carrie Gilbert, La Capra Associates, on behalf of the Division of Public Utilities and Carriers
Re: Purchased Power Agreement between National Grid and Copenhagen Wind Farm, LLC, Docket 4574
Date: September 4, 2015

On August 3, 2015, National Grid (“NGRID” or the “Company”) filed with the Rhode Island Public Utilities Commission (the “Commission”) a Purchased Power Agreement (“PPA”) with Copenhagen Wind Farm, LLC (“Copenhagen Wind”) for the bundled power output from the Copenhagen Wind Project (“Project”). The Rhode Island Division of Public Utilities and Carriers (“Division”) requested that La Capra Associates, Inc. review the PPA and provide comments for submission to the PUC, on behalf of the Division. This memorandum provides the results of La Capra Associates’ review of the PPA and associated analyses filed by NGRID.

Summary

Based upon our review of the proposed PPA and the analyses provided by NGRID, we offer the following conclusions.

- The PPA was selected via a Commission-approved long-term procurement process for renewable projects through a competitive solicitation.
- The project is located outside of the ISO-NE control area. The Company should only pay for energy and RECs that are physically delivered to the ISO-NE control area and credited to the Company in the ISO-NE Settlement Market System. The current definition of the Delivery Point in the PPA has the potential to create ambiguity, and it should be modified as discussed later in the memorandum to eliminate any potential ambiguity.
- The Project is not currently expected to participate in the ISO-NE Forward Capacity Market (“FCM”), and the Company is not purchasing capacity from the project. If the rules change so import intermittent resources have the same rules as New England

intermittent resources, the Project will participate in the FCM. In this case, these additional benefits should be passed on the NGRID's customers.

- The Company compared the cost of the Copenhagen wind project PPA over its 15-year term of the contract to the cost of market purchases for energy and RECs using a market price forecast prepared by ESAI. A power contract whose prices are lower than the cost of purchases from ISO-NE markets is considered to be below market, a favorable outcome from the perspective of buyers - in this case Rhode Island ratepayers. A power contract whose prices are higher than the cost of purchases from ISO-NE markets is considered to be above market. NGRID concluded that the Copenhagen Wind Farm PPA will cost less than market purchases over its term and therefore is expected to be below market. The ESAI energy price forecast used in this comparison appears to be out of date. However, using a lower, more current energy price forecast did not change this conclusion. Therefore, it is reasonable at this time to expect that this PPA will cost less than market purchases and be below market over its term.
- The terms and conditions in the PPA are reasonable.

Based upon the above, if the Delivery Point is clarified, we recommend that the proposed PPA be approved.

Overview of the Project

According to the testimony of Ms. DiDomenico, the Copenhagen Wind Project is a 79.9 MW (nameplate) land-based wind project to be located in Denmark, New York. The Copenhagen Wind Project will be interconnected to the Niagara Mohawk Black River to Lighthouse Hill 115 KV in New York Independent System Operator (NYISO) Zone E.

NGRID sought proposals for the purchase of capacity, energy, and RECs via an RFP for long-term renewable contracts. NGRID sought such proposals to achieve 100% of the 90 MW renewable energy capacity required under the Long-Term Contracting Standard. The Company expects that the Copenhagen Wind Project will have an annual capacity factor of 35%¹.

¹ La Capra Associates has not performed a detail wind study to determine an independent estimate of the capacity factor of the Copenhagen Wind Project, but based upon our experience, we find this estimate to be reasonable.

Allowing for curtailments of 15% between New York and New England per the Company's estimate, expected delivered energy is expected to be 208,015 MWh per year. This equates to a contribution of 23.7 MW towards the Long-Term Contracting Standard.

In its response to NGRID's long-term renewable RFP, Copenhagen Wind proposed a price of \$28.75 per MWh of scheduled energy and \$50 per renewable energy certificate (REC). Both prices escalate at 2 percent per year over the 15-year PPA term contract.

The PPA excuses the Project from participation in the FCM unless the rules change and the Project is able to participate in the FCM under the same rules as intermittent resources located within the ISO-NE control area. If the Project is able to participate in the future, any capacity revenues received from ISO-NE for participation in the FCM will be deducted from the energy price in the monthly settlement under the PPA.

It is also our understanding that NGRID will receive an incentive payment equivalent to 2.75% of all PPA payments, as provided for in Rhode Island state law.

Deliverability

§ 39-26-5(c) of the Rhode Island Statutes state that “a *generation unit located in an adjacent control area outside of the NEPOOL may qualify as an eligible renewable energy resource, but the associated generation attributes shall be applied to the renewable energy standard only to the extent that the energy produced by the generation unit is **actually delivered** into NEPOOL for consumption by New England customers*”. {Emphasis added}

Because the Project is located in New York in the NYISO control area (which is adjacent to the ISO-NE control area), the delivery of energy and RECs under the PPA are treated as imports into the ISO-NE control area.

Section 4.2 of the PPA covers the scheduling and delivery of energy by the project. Section 4.2 (a) requires the Project to schedule the energy in the ISO-NE Real-Time Energy Market in such a manner that the Company could resell the energy in the Real-Time Energy Market. Section 4.2

also states that the Buyer (or the Company) “has no obligation to pay for any energy that is not credited in the ISO-NE Settlement Market System”. {Emphasis added} This provision should allow the Copenhagen Wind Project to be an eligible renewal resource in Rhode Island. It will also cause Rhode Island ratepayers to pay only for energy and RECS that are delivered to New England.

However, in the definition section the PPA, the Delivery Point is defined as “*the specific Node on the Pool Transmission Facilities (“PTF”), as determined by ISO-NE, where Seller shall transmit its Energy to Buyer within the ISONE control area, as shown in Exhibit F*”. Exhibit F lists the Roseton 345KV bus as the Delivery Point. The Roseton 345KV is a physical bus at a substation in Newburgh, NY, which is on the New York side of the NY-NE AC interface. The Roseton 345KV bus is not a PTF facility listed in the ISO-NE PTF Catalog. Deliveries to the Roseton 345KV bus may or may not be delivered into New England. In developing this PPA with Copenhagen Wind, it appears that the Company used the standard form of its PPA, which has been used with previous projects, such as Black Bear Hydro, Orbit Energy, Champlain Wind, and Deepwater Wind. All of these projects were located within and internal to the ISO-NE control area. Transactions with external resources are different from transactions with internal resources, and those differences can affect how the contract is administrated. For example, each individual physical delivery point within the ISO-NE system is associated with a single ISO-NE pricing node. External transactions are priced at a Proxy Pricing Node, which are aggregated from several individual pricing nodes, and may not be readily associated with a single physical delivery point. External transactions need to be scheduled with two control areas, while internal transactions are scheduled by a single control area.

It is important to differentiate between the Roseton 345KV physical bus, and the Roseton Proxy Pricing Node, which is not a physical delivery point, but is used to price transaction between NYISO and ISO-NE. While it appears to be the intent of the parties that the Company only pay for deliveries that are settled in the Company’s statement from ISO-NE, the definition of the Delivery Point in the PPA forms a potential source of ambiguity. To eliminate the potential for ambiguity, we recommend that the definition of the Delivery Point in the PPA be changed. One possibility is to define the Delivery Point to be a physical bus located within the ISO-NE control

area PTF system, and specify that energy that that is settled in the ISO-NE Settlement Market System is deemed to be delivered. Another possibility is to modify the PPA to reflect a virtual delivery point, namely the Roseton Proxy Pricing Node. Undoubtedly, there are other alternatives that the Company could develop to resolve this issue. We believe that a simple fix can be implemented that is satisfactory to both the Company and the Copenhagen Wind Project.

RECs

In order for a renewable resource located in a control area adjacent to the New England Power Pool to generate RECs “the delivery of such energy from the Generation Unit into NEPOOL must be verified by:

- a) a unit-specific bilateral contract for the sale and delivery of such energy into NEPOOL; and
- b) confirmation from ISO that the renewable energy was actually settled in the ISO Market Settlement System; and
- c) (1) confirmation through the North American Reliability Council tagging system that the import of the energy into NEPOOL actually occurred; or
(2) any such other requirements as the Commission deems appropriate.”²

The PPA requires that the RECs generated by the project be transferred to the Company’s GIS account and should satisfy the above requirements. Page 13 line 19-21 of Ms. DiDomenico’s testimony says the Company reserves the right to defer payment of RECs until NEPOOL GIS certificates are actually created. We do not see language in the PPA that affords the Company this right.

Curtailement Risk

Ms. DiDomenico cites three types of curtailment risk: curtailment due to trouble predicting wind resource output when scheduling energy for delivery to ISO-NE, physical curtailment due to unavailability of transmission, and economic curtailment due to the cost of delivering energy to ISO-NE from NYISO. The Company has stated that curtailments are expected to occur 15% of the time and provided a study to support this estimate of curtailment. La Capra Associates has

² State of Rhode Island Public Utilities Commission. Rules and Regulations Governing the Implementation of the Renewable Energy Standard. Section 5.1 (ii).

not performed an independent analysis of the curtailment risk, but we have reviewed the Company's study and will accept it. Due to these curtailment risks, Copenhagen wind is only required to delivery 85 percent of its total metered output in a given year. Copenhagen Wind, not Rhode Island ratepayers, bear the risk of curtailment.

Comparison to Market Prices

The Company claims in its pre-filed testimony the Copenhagen Wind Farm PPA will be approximately \$62 million below the market prices on a net present value basis. The analysis it originally submitted as Exhibit 2 to the pre-filed testimony was for a fifteen year timeframe beginning in 2017, despite the fact that the project would not be online until December 31, 2017. In response to Division DR 1-8, the Company provided an updated Exhibit 2 with a timeframe consistent with the expected timeframe. This analysis showed that the project would be below market for the length of the contract on the basis of the REC and energy revenue alone.

The energy price forecast submitted by the Company was developed in August 2014 and is therefore a year out of date. We performed a sensitivity analysis using a current outlook for energy prices and retained the Company's REC price forecast. We found that the project is still expected to be \$32 million below the market prices for the life of the project on a net present value basis.

Terms and Conditions

We have reviewed the terms and conditions contained in the PPA and have no suggested changes at this time.