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State of Vermont
Public Utility Commission

July 26, 2017

TO ALL PARTIES IN PUC CASE NO. 17-2571-INV

RE: Investigation pursuant to 30 V.S.A. Sections 30 and 209 into whether Georgia Mountain Community Wind, LLC, operated its wind electric generation facility in Georgia, Vermont, during icing conditions on January 3, 2017

Dear Parties:

Pursuant to 30 V.S.A. Section 8 and 3 V.S.A. Section 811, I am enclosing my Hearing Officer Report and Recommendation in the above case.

If you have any comments, please file them on or before the close of the business day on August 9, 2017. Any comments will then be submitted to the Public Utility Commission along with the Hearing Officer Report and Recommendation for final determination. If you wish, you may request oral argument before the Commission by August 9, 2017.

It should be emphasized that the enclosed Hearing Officer Report and Recommendation is not a final decision of the Commission and may be subject to modification by the Commission.

Very truly yours,

A handwritten signature in blue ink, appearing to read "John J. Cotter".

John J. Cotter, Esq.
Hearing Officer

Enclosure

STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Case No. 17-2571-INV

Investigation pursuant to 30 V.S.A. Sections 30 and 209 into whether Georgia Mountain Community Wind, LLC, operated its wind electric generation facility in Georgia, Vermont, during icing conditions on January 3, 2017	
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Order entered:

HEARING OFFICER REPORT AND RECOMMENDATION

I. Introduction

The Vermont Public Utility Commission (“PUC” or “Commission”)¹ opened this investigation in response to a complaint received from Scott and Melodie McLane (the “McLanes”) alleging that Georgia Mountain Community Wind, LLC (“GMCW”) operated its wind turbines during icing conditions on January 3, 2017, in violation of GMCW’s winter operating protocol.

Today, I recommend that the Commission approve proposed modifications to GMCW’s winter operating protocol, subject to condition.

II. Procedural History

On January 9, 2017, the Commission received a complaint from the McLanes alleging that GMCW operated its wind turbines in icing conditions in violation of its winter operating protocol.

On January 13, 2017, the Commission issued an order directing GMCW to respond to the McLanes’ complaint.

On January 27, GMCW filed its response to the McLanes’ complaint.

¹ Pursuant to Section 9 of Act 53 of the 2017 legislative session, the Vermont Public Service Board’s name was changed to the Vermont Public Utility Commission, effective July 1, 2017. For clarity, activities of the Vermont Public Service Board that occurred before the name change will be referred to in Commission documents as activities of the Commission unless that would be confusing in the specific context.

On February 6, 2017, the Vermont Department of Public Service (“Department”) filed comments in response to both the complaint and GMCW’s response thereto, and recommended that the Commission open an investigation.

On March 10, 2017, the Commission issued an order opening this investigation.

On March 24, 2017, I convened a prehearing conference in this matter. During the prehearing conference, the parties expressed a willingness to exchange information in an attempt to facilitate this investigation, and agreed to file a status report on April 19, 2017.

On April 19, 2017, the Department filed a letter requesting, on behalf of all the parties, an extension of time to continue discussions and committing to file another status report by May 17, 2017.

On May 18, 2017, the Department filed a second status report noting that the parties were unable to reach a resolution of all issues in this investigation and proposed a schedule whereby GMCW would file proposed modifications intended to improve the effectiveness of its winter operating protocol, the other parties would file comments thereon, and GMCW would then respond to any such comments. After a Commission ruling on the proposed modifications, the parties are to submit scheduling proposals for the balance of this proceeding.

On May 24, 2017, GMCW filed its proposed modifications to its winter operating protocol.

On June 14, 2017, the Department filed comments that were generally supportive of the proposed modifications but also recommended the addition of an annual reporting requirement for at least the next five years, and recommended that GMCW “strongly consider” installing video monitoring equipment at each turbine to aid in the identification of icing conditions.

On June 28, 2017, GMCW responded to the Departments comments, stating that it had no objection to the recommended reporting requirement but opposing the recommendation to install the video monitoring equipment.

III. Discussion

Under the original protocol, the operating conditions of each wind turbine were analyzed by comparing its actual operations with its expected performance. These results would cause the turbines to enter pause mode only after ice formation was detected. GMCW’s revised protocol

is intended to detect the presence of conditions that are conducive to ice formation and to pause the turbines before ice forms on the turbine blades.

The amended protocol incorporates site-specific meteorological (“MET”) data from the on-site MET station and wind turbine data monitored by the System Control and Data Acquisition (SCADA) system. The MET station has sensors for measuring wind speed, wind direction, temperature, and relative humidity. When MET station temperature, relative humidity, or other meteorological conditions conducive to ice formation are received by the SCADA system, the wind turbines will be automatically placed in pause mode.²

The amended protocol will use three different tests to determine if icing conditions are present. The relative humidity test will place the turbines in pause mode when on site conditions meet or exceed identified thresholds of temperature and humidity. GMCW tested this approach in the winter of 2016-2017 using a temperature threshold of 1° C and a humidity threshold of 93%.

The wind speed sensor test compares wind speed readings from both heated and unheated anemometers. If the difference in speeds between the heated and unheated anemometers is “significant,” it indicates the likelihood of ice buildup on the unheated unit. Due to the relatively small mass and surface area of these sensors, ice will form on the anemometers before it does on objects with greater mass and surface area, such as wind turbine blades. Initial testing considered “significant” to be a wind speed difference greater than 2 meters per second for wind speeds at or below 8 meters per second, and a ratio of wind speeds (average heated anemometer wind speed/average unheated anemometer wind speed) greater than 1.3 for wind speeds above 8 meters per second.

The wind direction sensor (wind vane) test compares the average change in wind direction (standard deviation) against a test threshold when temperatures are at or below freezing. Like the anemometers, the formation of ice will occur on wind vanes before forming on objects with greater mass and surface area, such as wind turbine blades. In the initial testing, ice was considered likely forming on the wind vane when a wind direction standard deviation of 0 was present.

² When the wind turbines are in pause mode, they do not produce power, although they may rotate slowly at speeds below one rotation per minute.

If the facility's SCADA system determines that on-site conditions meet or exceed any of the test thresholds,³ the turbines will be placed in pause mode.

I recommend that the Commission approve the amendments to GMCW's winter operating protocol and direct GMCW to file a revised protocol incorporating the amendments. I also recommend that the Commission direct GMCW to file a report by June 1 for each of the next five years identifying any icing events and explaining any adjustments made to the thresholds used in the testing during the prior winter. Lastly, I recommend the Board require GMCW to install video monitoring equipment at the site to aid in the detection of icing in the event the turbines operate with ice on the blades in spite of the amendments to the protocol. GMCW should be required to consult with the Department regarding the installation of such equipment, should it become necessary, and file a proposal for Commission review and approval.

Dated at Montpelier, Vermont, this 26th day July, 2017.



John J. Cotter, Esq.
Hearing Officer

³ GMCW notes that implementing the amended protocol will be an iterative process and adjustments may be made to the various thresholds as experience is gained over time.

IV. Order

IT IS HEREBY ORDERED, ADJUDGED, AND DECREED by the Public Utility Commission of the State of Vermont that:

1. The findings, conclusions, and recommendations of the Hearing Officer are adopted.
2. Georgia Mountain Community Wind, LLC ("GMCW") shall file a revised winter operating protocol incorporating its proposed amendments thereto no later than August 30, 2017.
3. GMCW shall file a report no later than June 1 each year for the next five years identifying any icing events and explaining any adjustments made to the thresholds used in the testing during the prior winter.
4. In the event GMCW's turbines operate with ice on the blades subsequent to the implementation of the revised protocol, GMCW shall install video monitoring equipment at each turbine to aid in the detection of icing on the blades. GMCW shall consult with the Department on the installation of any such equipment and shall file an implementation proposal for Commission review and approval.
5. This matter is returned to the Hearing Officer for further proceedings. Consistent with the schedule adopted by the Hearing Officer in the May 22, 2017, order, the parties shall file further scheduling proposals no later than two weeks from the date of this order.

SO ORDERED.

Dated at Montpelier, Vermont this _____ day of _____, 2017.

_____	)	
Anthony Z. Roisman	)	PUBLIC UTILITY
	)	
	)	
_____	)	COMMISSION
Margaret Cheney	)	
	)	
	)	OF VERMONT
_____	)	
Sarah Hofmann	)	

OFFICE OF THE CLERK

Filed:

Attest: _____
Clerk of the Commission

Notice to Readers: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Commission (by e-mail, telephone, or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: puc.clerk@vermont.gov)

PSB Case No. 17-2571-INV - SERVICE LIST

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