

March 26, 2024

BY EMAIL ONLY

Town of Antrim
Attention: Russel McAllister
P.O. Box 517, 66 Main St.
Antrim, NH
03440

**Re: Docket No. 2015-02 – Antrim Wind Energy – 2023 Annual Report to
The Town of Antrim**

Dear Sir/Madam,

TransAlta is pleased to present the Antrim Wind Energy – 2023 Annual Report to The Town of Antrim.

We trust that you will find this submission satisfactory. Should you require any additional information please contact the undersigned.

Yours truly,

TRANSALTA CORPORATION



Gavin MacPhee
Specialist, Environment | Wind & Solar Operations

Antrim Wind Energy, LLC Annual Report (2023)

March 26, 2024



Contents

- 1. INTRODUCTION AND CONTEXT 1
- 2. ADDITIONAL CONSTRUCTION ACTIVITIES 1
- 3. CALLS FOR EMERGENCY, POLICE OR FIRE ASSISTANCE..... 1
- 4. LOCATION OF ON-SITE FIRE SUPPRESSION EQUIPMENT 1
- 5. HAZARDOUS MATERIAL AND EPCRA REPORT 1
- 6. SHADOW FLICKER CONTROL SYSTEM FAILURE..... 1
 - 6.1. Shadow flicker control coding error 1
 - 6.2. Shadow flicker control system computer failure 2
 - 6.3. Corrective actions 3
- 7. COMPLAINT STATUS 3
 - 7.1. Sound..... 3
 - 7.2. Aerial Detection Lighting System (ADLS) 3

1. Introduction and context

This report has been prepared by TransAlta Corporation on the behalf of Antrim Wind Energy, LLC for the Antrim Wind Energy facility ("AWE"). The facility is located on the Tuttle Hill ridgeline in the Town of Antrim in Hillsborough County, New Hampshire. The facility comprises 9 Siemens-Gamesa Renewable Energy SWT-3.2-113, 3.2 megawatt ("MW") wind turbine generators ("WTG"). These WTG have a 113 meter (m) blade diameter with a hub height of 92.5 m for turbines 1 to 8, and 79.5 m hub height for turbine 9.

This report is intended to provide a periodic report/update as required in the Town Agreement¹.

2. Additional construction activities

No construction projects are currently planned for the 2024 calendar year. The site is currently operating without issue and plans to follow regular and preventative maintenance schedules in 2024.

3. Calls for emergency, police or fire assistance

No calls for emergency, police or fire assistance were made by AWE in 2023.

4. Location of on-site fire suppression equipment

Turbines at the AWE facility are equipped with a fire suppression system which has been approved for service by the State Fire Marshal, and Town of Antrim Fire Department. Details related to the system cannot be shared at this time as they contain confidential information, please refer to:

https://www.nhsec.nh.gov/projects/2015-02/post-certificate-filings/2015-02_2019-07-23_redacted_app_fire_suppression_turbine_nacelles.pdf.

5. Hazardous material and EPCRA report

The annual Tier II hazardous material report related to the Emergency Planning and Community Right-to-Know Act ("EPCRA") is located in Appendix A.

6. Shadow flicker control system failure

6.1. Shadow flicker control coding error

While compiling the AWE semi-annual shadow flicker report on July 19, 2023, it was determined that Shadow Flicker Control System ("SFCS") operation had been interrupted sometime between January 1, 2023 and January 3, 2023 with no

¹ Amended Agreement Between the Town of Antrim New Hampshire and Antrim Wind Energy LLC, Developer/Owner of Antrim Wind Power Project Dated as of March 8th, 2012, amended on January 16, 2018.

automated component or logic failure notification alarm being issued. It was also determined that the logic controls designed to provide fail safe operation had not functioned properly when the SFCS interruption occurred.

An investigation into the failure method for the SFCS was conducted and determined the following:

- The installed Siemens Gamesa SCADA server hardware did not have sufficient storage to provide the SFCS database updates, resulting in a SFCS operation interruption.
- Due to a coding error, the SFCS is assumed to have not entered a safe failure status for the duration of the data collection interruption resulting in shadow flicker curtailment not occurring. This is a conservative assumption based on the absence of shadow flicker stoppage codes in TransAlta's operational production logs from January 3, 2023 to July 19, 2023.

TransAlta and Siemens Gamesa worked in collaboration to resolve the database storage issue by installing additional database storage on the SFCS SCADA server. Corrective actions the help avoid future occurrences included a system functionality alarm being added to the Siemens Gamesa SCADA system to notify if and when future SFCS interruptions occur.

6.2. Shadow flicker control system computer failure

Following the resolution of the SFCS coding error, a second interruption occurred beginning September 6, 2023.

A SFCS failure alarm was observed by Siemens Gamesa staff on September 7, 2023. A support ticket was opened at this time to begin troubleshooting steps. A remote connection was attempted by Siemens Gamesa on September 12, 2023 and determined remote access to the SFCS had been interrupted. A Siemens Gamesa field support ticket was created on September 12, 2023, followed by a Siemens Gamesa field support crew dispatch on September 22, 2023.

The Siemens Gamesa field support crew determined that the SFCS storage media had failed and was no longer capable of successfully booting the system. A ticket to replace both storage media in the two disk Redundant Array of Independent Disks ("RAID") configuration was made by Siemens Gamesa on September 22, 2023.

Two new like for like "MQ01ABD032" hard disk drives were ordered on September 25, 2023. Order fulfillment was scheduled for October 2, 2023. On October 9, 2023, after multiple delivery delays for the replacement storage media, the SFCS computer was shipped to the Siemens Gamesa support office in Oviedo, FL to attempt a storage media and system recovery. A replacement order for two model "MQ01ABD032" disks was placed with an alternative vendor on October 11, 2023.

On October 12, 2023 the Siemens Gamesa support team was able to successfully recover a SFCS configuration back-up dated September 5, 2023, however a return to service with the failed storage media was not possible. The new storage media was installed and the SFCS was returned to service at the AWE facility on October 18, 2023.

Due to the loss of 2023 data from the SFCS computer, historic shadow flicker data from 2021 and 2022 was used to determine which receptor dwellings would require full shadow flicker protection for the remainder of 2023. A total of 14 out of 47 receptor groups were reduced to 0.00 permissible shadow flicker minutes from October 18, 2023 until January 1, 2024.

6.3. Corrective actions

TransAlta has developed and deployed an automated alarm to notify personnel if no shadow flicker stoppage codes have been received by the TransAlta operational production logs for more than three days. This corrective action will identify if any potential SFCS failures that have occurred and minimize potential shadow flicker exposure hours. Also, a functional back-up state of the SFCS has been archived by Siemens Gamesa so that rapid reinstatement of the controller can be achieved in the event of future interruptions.

7. Complaint status

No direct complaints were received by AWE during the 2023 calendar year. However, AWE was informed of complaints received by either the NH Site Evaluation Committee (NHSEC), NHSEC subcommittee and/or the Town of Antrim.

7.1. Sound

As part of post-construction sound monitoring in accordance with the NHSEC Certificate², TransAlta contracted Acentech Incorporated to complete a sound level compliance evaluation in Q2 – 2021. Results from the evaluation determined that turbine-only sounds levels under maximum sound conditions were below the lower sound limits for the project.

7.2. Aerial Detection Lighting System (ADLS)

No direct ADLS related complaints were received by AWE during the 2023 calendar year. However, AWE was informed of complaints received by either the NHSEC, NHSEC subcommittee and/or the Town of Antrim.

² NHSEC Order and Certificate of Site and Facility with Conditions, Docket No. 2015-02, March 17, 2017.



Energizing the future.

Appendix A – EPCRA, Tier II Report, 2023

Facility: Antrim Wind Energy

FACILITY NAME AND LOCATION:

Antrim Wind Energy
Dept:
26 Tuttle Hill Trail
Antrim, New Hampshire 03440 USA
County: Hillsborough
Fire District:
Latitude: 43.075995
Longitude: -72.006742
MAILING ADDRESS:

All facility information (not including chemical information) is identical to last year's submission

IDENTIFICATION NUMBERS:

Dun & Bradstreet: 037363986
NAICS: 221115 (Wind Electric Power Generation)

Is the facility manned? Manned Unmanned
Maximum No. of Occupants: 4

REGULATORY INFORMATION:

Subject to Emergency Planning under Section 302 of EPCRA (40 CFR part 355)? Yes No
Subject to Chem. Accident Prevention under Section 112(r) of CAA (40 CFR part 68, Risk Mgmt. Pgm.)? Yes No

STATE-SPECIFIC FACILITY DATA FIELDS FOR NEW HAMPSHIRE:

Monitored Email Address: Ethan_Mollasalehi@transalta.com
 Safety Data Sheets (SDSs) attached for all reported chemicals

CONTACT INFORMATION:

MacPhee, Gavin

Title: Environmental Specialist
Contact Type(s): Tier II Information Contact
Address: 26 Tuttle Hill Trail, Antrim, NEW HAMPSHIRE 03440 USA
Phones: Work: 5877635099
Email: gavin_macphee@transalta.com

Mollasalehi, Ethan

Title: US Wind and Solar Supervisor
Contact Type(s): Owner / Operator, Emergency Contact
Address: 26 Tuttle Hill Trail, Antrim, NEW HAMPSHIRE 03440 USA
Phones: 24-hour: 4168074805 Emergency: 4036272742
Email: ethan_mollasalehi@transalta.com

Schwehr, Adam

Title: Site Supervisor
Contact Type(s): Owner / Operator, Tier II Information Contact
Address: 26 Tuttle Hill Trail, Antrim, NEW HAMPSHIRE 03440 USA
Phones: Mobile - Cell: 7015952540
Email: Adam.Schwehr@siemensgamesa.com

Facility: Antrim Wind Energy (continued)

TransAlta Wind Control Center - Emergency,

Title:

Contact Type(s): Other

Address:

Phones: Emergency: 4036272742

Email:

CHEMICAL INVENTORY INFORMATION:

Chemical Name: Mineral Oil

CAS #: 64742-53-6

Chemical Category: Pure Mixture

EHS: Yes No

Physical State: Solid Liquid Gas

Identical to previous year

Trade secret

PHYSICAL HAZARDS:

- Explosive
- Flammable (gases, aerosols, liquids, or solids)
- Oxidizer (liquid, solid, or gas)
- Self-reactive
- Pyrophoric (liquid or solid)
- Pyrophoric gas
- Self-heating
- Organic peroxide
- Corrosive to metal
- Gas under pressure (compressed gas)
- In contact with water emits flammable gas
- Combustible dust

HEALTH HAZARDS:

- Acute toxicity (any route of exposure)
- Skin corrosion or irritation
- Serious eye damage or eye irritation
- Respiratory or skin sensitization
- Germ cell mutagenicity
- Carcinogenicity
- Reproductive toxicity
- Specific target organ toxicity (single or repeated exposure)
- Aspiration hazard
- Simple asphyxiant

Hazard not otherwise classified

AMOUNTS:

Below Reporting Thresholds

Maximum Amount: 69,889 pounds Maximum Amount code: 08 (50,000-74,999 pounds)

Average Daily Amount: 69,889 pounds Average Daily Amount code: 08 (50,000-74,999 pounds)

Max amount in largest container: 23,717 pounds

Days on site: 365

STORAGE LOCATIONS:

Confidential

Location Description: Grounding transformer - substation

Container Type: Above ground tank Pressure: Ambient pressure Temperature: Ambient temperature

Amount: 4,252 pounds

Location Description: Main transformer - substation

Container Type: Above ground tank Pressure: Ambient pressure Temperature: Ambient temperature

Amount: 23,717 pounds

Location Description: Pad-mounted transformer - each turbine (9)

Container Type: Above ground tank Pressure: Ambient pressure Temperature: Ambient temperature

Facility: Antrim Wind Energy (continued)

Amount: 4,657 pounds

STATE-SPECIFIC CHEMICAL DATA FIELDS FOR NEW HAMPSHIRE:

- Ships via Trucks
- Ships via Tank Trucks
- Ships via Rail Car
- Ships via Tank Car
- Ships via Pipeline
- Ships via Barge
- Ships via Other Shipment Mode

Other shipment mode: Other shipment mode: There is no shipment of mineral oil to or from the site - the filled transformers were brought to the site when the project was constructed and no oil is added to or removed from the transformers.

Frequency of Shipment:

Shipment Frequency Period:

Maximum capacity per single vessel (lbs):

Maximum Shipment Qty (lbs):

Average Shipment Qty (lbs):

Physical State in Transit:

Carrier: Not applicable - the filled transformers were brought to the site upon construction and mineral oil is not transported to or from the site.

Comments (please provide both the primary and alternate routes of travel):

State/local fees: None

- I have attached a site plan
- I have attached a list of site coordinate abbreviations
- I have attached a description of dikes and other safeguard measures

Certification (Read and sign after completing all sections)

I certify under penalty of law that I have personally examined and am familiar with the information in pages 1 through 3, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.



Signature

02/23/2024

Date signed

Gavin MacPhee

Name and official title of owner/operator OR owner/operator's authorized representative