

Q. **Reference: Application**

Provide a table that consolidates for each of the St. Lawrence and Fermeuse wind facilities for each year from the 2017 approved GRA through 2025: i) installed capacity; ii) the annual capacity factor; iii) the output at the annual Island Interconnected System peak; iv) the output during each of the ten highest Island Interconnected System load hours; v) the average output during those ten hours; and vi) the frequency with which output during those hours was below 10%, 20%, 30% and 43% of installed capacity. As part of the response, explain how the historical results support the proposed 43% demand classification.

- A. **i)** The combined installed capacity of the St. Lawrence and Fermeuse wind facilities has been 54 MW from 2017 through 2025.
- ii)** The annual generation and capacity factor, as well as the average over the period from 2017 to 2025, can be seen in Table 1.

Table 1: Annual Generation and Capacity Factor

	2017	2018	2019	2020	2021	2022	2023	2024	2025	Average
Generation (GWh)	182.6	202.5	179.1	172.9	183.4	182.7	170.5	169.3	175.4	179.8
Capacity Factor	39%	43%	38%	37%	39%	39%	36%	36%	37%	38%

iii) to v) The wind output during the ten peak hours for each year from 2017 to 2025 can be seen in Table 2.

The average across all hours is 28.5 MW or 53% of the installed capacity.

Table 2: Wind Output during the Ten Peak Hours (MW)

Hour	2017	2018	2019	2020	2021	2022	2023	2024	2025
Peak	1.2	40.7	22.9	20.7	46.8	36.8	3.7	45.9	23.5
2	4.5	30.7	31.1	11.6	44.3	0.1	9.7	49.4	23.0
3	0.1	45.0	37.8	0.3	38.2	33.1	5.4	49.1	16.6
4	36.1	35.7	41.9	26.0	44.4	37.1	4.4	51.6	33.7
5	36.1	38.0	29.0	37.0	33.9	29.3	13.8	53.3	21.6
6	36.0	37.5	21.4	22.8	2.9	0.0	8.3	50.3	38.1
7	49.7	37.9	46.3	35.0	38.2	36.7	35.4	43.3	26.5
8	35.9	5.9	32.1	1.9	44.0	0.1	8.0	52.3	37.8
9	29.8	39.3	39.9	25.1	34.5	38.7	37.9	22.6	26.2
10	14.5	9.6	32.4	35.5	0.7	3.4	41.2	37.9	34.3
Average	24.4	32.0	33.5	21.6	32.8	21.5	16.8	45.6	28.1

vi) Identified in Table 3, there is a correlation between periods of high wind generation and high loads. The average capacity factor of the wind generation is 38% across all hours and 53% during the top ten annual hours. Correlation between load and wind generation tends to increase the Effective Load Carrying Capability (“ELCC”) of the resource.

Table 3: Capacity Factor of Wind Generation

Percentage of Installed Capacity	Probability of Exceedance
10%	86%
20%	79%
30%	76%
43%	67%

While there are 14% of hours where generation is less than 10% of installed capacity, in 67% of the top ten annual hours generation is in excess of 43% of installed capacity. This result provides strong support for an ELCC for wind of 43%.