Synapse
Energy Economics, Inc.

July 18, 2025

Cheryl Bradley
Island Regulatory & Appeals Commission
PO Box 577
Charlottetown PE C1A 7L1

RE: Synapse Comments regarding PEIFA Evidence in UE22503 – Application for an Order to Approve Stage 1 Rate Design Changes

Dear Ms. Bradley:

Pursuant to the schedule established by the Prince Edward Island Regulatory and Appeals Commission ("the Commission") in its June 13, 2025 procedural letter, Synapse Energy Economics, Inc. ("Synapse") respectfully submits these written comments in response to the pre-filed evidence submitted on June 27, 2025 by the Prince Edward Island Federation of Agriculture ("PEIFA").

In preparing these comments, Synapse reviewed the evidence prepared by PEIFA's experts, Melissa Davies and Patrick Bowman, filed on June 27, 2025, as well as Maritime Electric Company Limited's (MECL) responses to interrogatories from PEIFA dated December 12, 2023 and additional responses dated August 15, 2024.

Synapse's comments address key elements of the PEIFA submission, with a focus on:

- The appropriateness of establishing a separate rate class for large farms;
- The appropriate treatment of Cohort 7 customers during Stage 1 of the rate design process;
- The merits of MECL's shift from a 1 CP to a 3 CP allocator for demand-related costs;
- The appropriate revenue-to-cost (RTC) ratio for large farm customers under the 2023 Cost Allocation Study (CAS); and
- The classification of distribution system costs and the proposed changes to the monthly service charge.

Each of these issues is addressed in the following sections.

Separate Rate Class for Large Farms

PEIFA recommends creating a new rate class for approximately 500 large farm customers (i.e., those with average usage above 2,000 kWh per month).[1] Synapse supports this recommendation, consistent with our 2022 findings.[2] Based on the load research data analyzed in 2022, large farms have load characteristics that are materially different from residential and small industrial customers.[3] The results of Maritime Electric's 2023 Cost Allocation Study bear this out further. The 2023 CAS shows that small industrial customers use approximately 3.5 times more energy than farm customers, while large farm customers use approximately 8 times more energy than residential customers. The coincident peak (CP) load factor also varies across customer types, with farm customers having a substantially higher load factor than small industrial and residential customers (regardless of whether measured on a single CP or three CP basis).[4]

Table 1. Load characteristics from MECL's 2023 cost allocation study

	Residential	Farm	General Service	Small Industrial
Avg Monthly Energy (kWh) per site	990	8,299	4,558	28,711
1 CP Load Factor @ Input	39.0%	74.2%	70.1%	47.8%
3 CP Load Factor @ Input	48.5%	63.9%	72.7%	50.8%

Given farm customers' different usage characteristics, transferring large farm customers to the small industrial class would likely introduce new mismatches. Creating a new class for large farms provides a more accurate and equitable allocation of costs.

We note that in 2022, Synapse raised concerns regarding creating a new rate class given the limited availability of load data for large farms. These concerns appear to be less pertinent now, given that MECL has collected additional load research data over the intervening years.

[1] Prince Edward Island Federation of Agriculture. Evidence of Melissa Davies and Patrick Bowman ("PEIFA Evidence"), UE22503. June 27, 2025, at 6.

[2] Synapse Energy Economics, Review of Maritime Electric's Proposed Rate Changes, May 13, 2022. Filed as Exhibit C-4 in UE22503. Available at https://irac.pe.ca/wp-content/uploads/Exhibit-C-4-Synapse-Report-MECL-Rate-Application-May-13-2022.pdf.

[3] *Id,* at 19.

[4] Calculated based on data provided in Maritime Electric's 2023 Cost Allocation Study filed in UE21232, produced by Chymko Consulting Limited, September 23, 2024, Appendix B, page 21 of 74. Available at https://irac.pe.ca/wp-content/uploads/CCL-Cost-Allocation-Study-filed-October-31-2024.pdf.

Treatment of Other Large Usage Customers in Cohort 7

Based on data analyzed in 2022, there were 45 non-farm customers in the residential class that used an average of 5,000 kWh or more per month. These customers (referred to as "Cohort 7") consist of 16 religious organizations, 11 miscellaneous commercial operations, 9 agricultural-related operations, 3 fish farms, and 2 cannabis operations. Synapse's 2022 report recommended that the cannabis operations, fish farms, and agricultural-related operations be categorized with other large farms based on MECL's Schedule of Rates and General Rules and Regulations definition of "farm," which is defined as "a holding on which agricultural operations are carried out. Agricultural operations include the production of field crops including grain, vegetables, seed and forage crops; animal and dairy products including milk, cream, eggs, meat and poultry products, poultry hatcheries, nurseries and greenhouses for the production of crops or bedding plants, fur farms, apiaries, fish hatcheries and fish farms."[5]

PEIFA opposes transferring cannabis and agricultural-related operations from the residential class to a new farm class, but appears open to fish farms being transferred to a new farm class.

Cannabis Operations

PEIFA notes that two cannabis operations each use approximately 500,000 kWh/month—about 25% of the usage of the entire large farm class—and argues that including these customers in the large farm class would cause distortions in cost allocation.[6] Instead, PEIFA argues that these customers require individualized consideration from MECL as part of the Stage 2 General Service rate redesign process.

In reviewing the load data and arguments presented by PEIFA, Synapse reconsiders our 2022 recommendation regarding cannabis farms. We agree with PEIFA that the cannabis operations do not resemble the load characteristics of other large farms and that including the cannabis operations in a new farm class would distort the class usage characteristics due to the cannabis operations' exceptionally high levels of energy consumption. While cannabis operations clearly do not belong within the residential class, their load only constitutes about 1% of the residential class's energy consumption, relative to 22% of the total energy consumed by large farms. Synapse agrees that cannabis operations should be addressed in Stage 2 of the General Service rate redesign process. Until then, these customers should remain in the residential class.

[5] Exhibit M-7, response to Synapse IR-1 (a), filed March 18, 2022.

[6] PEIFA Evidence, at 33.

Agricultural-Related Operations

PEIFA also opposes including the nine agricultural-related operations in a new farm class, given that some of these customers have substantial variability in their monthly energy usage, which PEIFA argues is "far outside the norm of the typical large farm customer," [7]and that one of the customers occasionally uses approximately 300,000 kWh per month.

We do not agree with PEIFA's recommendations for these agricultural-related customers. Some variability around "typical" usage characteristics is to be expected within a class, and the monthly variability in usage or average energy consumption by this group of customers does not appear to be so unusual as to warrant exclusion from a new large farm class. In fact, the ratio of maximum to minimum monthly usage for these 9 customers in 2021 was well within the range of that observed among the sample of 87 large farm customers in 2020. The ratio of maximum to minimum usage in 2021 for these 9 customers ranged from 2:1 to 26:1, excluding the customer with no usage in one month.[8] These ratios are shown in the table below. The rest of the large farm sample had an average ratio of maximum to minimum usage of 27:1, and a median ratio of 4:1.[9] Thus, these 9 customers are well within the range of normal monthly variability for large farm customers.

Table 2. Monthly variability for agricultural-related operations customers

	Max Monthly kWh	Min Monthly kWh	Ratio
Customer 1	22,080	840	26:1
Customer 2	16,520	1,560	11:1
Customer 3	12,540	0	N/A
Customer 4	310,320	36,840	8:1
Customer 5	8,960	2,320	4:1
Customer 6	5,699	2,486	2:1
Customer 7	9,130	3,400	3:1
Customer 8	3,513	1,097	3:1
Customer 9	17,360	7,520	2:1

[7] PEIFA Evidence, at 34.

[8] Exhibit M-7a, response to Synapse IR-2, Attachment 2.

[9] Exhibit M-3(c) – Synapse IR 10 – Farm Data 2019-2020.

Further, information provided by MECL suggests that the majority of these customers are correctly classified as "farm" customers based on MECL's definition. Specifically, MECL states that two customers are greenhouse-based operations that fall under the criterion of "greenhouses for the production of crops or bedding plants" and that three agricultural operations relate to "blueberries, organic vegetables and beef farming."[10] Synapse recommends that these five customers be transferred to a new large farm class.

Of the remaining four customers, one should remain in the residential class, as MECL states that this customer was a beef slaughterhouse, but that its operations ceased in 2020.[11] The last three customers consist of three grain-handling operations, which MECL acknowledges "in retrospect should be served under the General Service or Small Industrial Rates instead of Residential."[12] Synapse recommends that these grain-handling operations be transitioned to the general service or small industrial classes.

Coincident Peak Demand Allocator

Traditionally MECL has used the 1 CP allocator for generation and transmission demand costs, which is a simplistic allocator that assigns all demand-related costs to the single highest hour of the year, based on historical data. In the 2023 CAS, MECL opted to use a 3 CP allocator, which uses the average of the three coincident peaks in January, February, and December. Chymko, MECL's consultant, rationalized this change based on recent extreme weather events in 2020 and 2023 that would result in skewed cost allocation results. For example, Chymko noted that "the January 2020 storm day caused many schools and businesses to close and with the population staying at home, residential load was higher than it otherwise would have been."[13] Chymko argues that such events are not representative of how the system is planned, and that it is desirable for cost allocation results to be stable, rather than subject to extreme weather events.[14]

PEIFA argues that this "unapproved methodology change… is negatively impacting farming customer RTCs while simultaneously muting the demand-related system cost drivers."[15] While Synapse acknowledges that the 3 CP allocator results in worse results for large farm customers, there are

[10] Exhibit M-7, response to Synapse IR-1 (a), filed March 18, 2022
[11] *Ibid.*
[12] *Ibid.*
[13] Maritime Electric 2023 Cost Allocation Study filed in UE21232, produced by Chymko Consulting Limited, September 23, 2024, at 19.
[14] *Ibid.*
[15] PEIFA Evidence, at 27.

numerous benefits associated with using a 3 CP allocator instead of a 1 CP allocator. In particular, a 3 CP allocator:

- Better reflects the drivers of system capacity investment, since the need for capacity is driven by the risk of inadequate supply (which can be caused by power plant and transmission outages) in hundreds or thousands of hours during the year;
- Reduces the volatility of cost allocation results; and
- Promotes fairness by distributing costs in accordance with typical peak usage rather than extreme events.

For these reasons, Synapse supports the use of the 3 CP allocator.

Revenue-to-Cost Ratio for Large Farm Customers

Synapse disagrees with PEIFA's assertion that large farms currently have a revenue-to-cost ratio of 98% under the 2023 Cost Allocation Study. This figure is based on the "status quo" methodology that applies a 1 CP allocator for generation and transmission demand costs. As discussed above, Synapse supports MECL's use of a 3 CP allocator, as it yields a more accurate depiction of cost causation. This method results in an RTC of 90% for large farms, rather than 98%.

Classification of Distribution Costs

PEIFA's consultants challenge Synapse's support for the basic customer method to classify distribution costs. Synapse acknowledges that this is a contentious issue, and that jurisdictions have taken varied approaches. We continue to support the basic customer method as a sound and well-accepted approach. Although alternative approaches exist, such as the minimum system method, such approaches fail to accurately reflect the cost-causation principles, while tending to allocate a higher share of costs to low-use customers, potentially undermining efficiency and equity. The basic customer method promotes cost causation, simplicity, and economic efficiency, especially in a system increasingly focused on enabling customer-side resources and demand flexibility.

We thank the Commission for the opportunity to provide these comments.

Sincerely,

Melissa Whited
Vice President
Synapse Energy Economics, Inc.