

The Synapse Report to IRAC on Maritime Electric's 100 MW Diesel Combustion Turbine (CT) Proposal

What Citizens & Policymakers Need to Know

June 2026

PURPOSE OF THIS BRIEFING DOCUMENT

This document has been prepared to provide a summary of the findings and recommendations found in the spring 2026 report delivered by Synapse Energy Economics, which was hired by the Island Regulatory and Appeals Commission (IRAC), to provide independent, expert review of Maritime Electric's 100 MW diesel peaker plant proposal.

This summary is supplemented by information found in Synapse's subsequent responses to follow-up questions by IRAC, as well as the New Brunswick Auditor General's June 2026 report on NB Power's Tantramar gas plant and current battery costing information provided by NRStor, a leading Canadian battery energy storage company.

Key findings:

- Batteries can meet the same needs that the diesel plant can, but at far lower cost and on a fast timeline.
- Where a diesel peaker plant would be used for 2% or less of every year, batteries can provide value to PEI's grid and ratepayers every single day.
- Batteries are a reliable technology being used extensively by utilities around the world.
- Many of Synapse's concerns about Maritime Electric's diesel plant proposal have been echoed in the most recent report of the NB Auditor General on NB Power's planned gas/diesel plant in Tantramar.

WHO IS SYNAPSE ENERGY ECONOMICS, AND WHO COMMISSIONED THEIR REPORT?

Synapse Energy Economics ("Synapse") is a Massachusetts-based consultancy specializing in electricity system planning, utility regulation, and energy economics. They are not an advocacy organization — they are hired by regulators, government agencies, and public interest bodies across North America to provide independent expert analysis of utility proposals.

Synapse has been retained by IRAC to provide the Commission with **independent, expert evaluation and analysis of Maritime Electric's (MECL) proposal to purchase and install a 100 MW diesel combustion turbine (CT)** in downtown Charlottetown at an originally projected cost of \$334 million (now [expected to cost approximately 10% more](#), or roughly \$367 million). Their final report was provided to IRAC in early April 2026, and released publicly in late May 2026. IRAC received responses to a series of follow-up questions to Synapse on May 29th.

Synapse has worked with IRAC in the past - including submitting a resource planning report to IRAC in 2022 concluding that battery storage was cost-effective for PEI's capacity needs. It also recently provided expert witness testimony to the NS Utility and Review Board in the proceeding that approved Nova Scotia Power's 150 MW of battery storage installations.

The report was authored by Sabine Chavin, Bob Fagan, and Ida Weiss — specialists in utility resource planning, electricity market economics, battery storage analysis, and regulatory proceedings across the United States and Canada.

KEY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The Need Is Real — But the Solution Is Wrong

Synapse agrees PEI needs more on-island capacity. Peak load is growing as homes switch from oil heat to electric heat pumps, and the firm capacity available from New Brunswick is limited to 190 MW under the current agreement. **What Synapse disputes is that diesel turbines are the right answer.**

Synapse also clarifies an important point: **the case Maritime Electric is making for on-island capacity is primarily on economic and peak capacity grounds, not a safety imperative driven by disconnection risk**, which the company itself agrees has a low probability of occurring. Full disconnections from New Brunswick are rare — there has been only one since the second cable set was installed in 2017 (in November 2018 during a winter wind storm), and previous disconnection events have lasted for up to 2.5 hours only.

Neither the diesel turbines proposed by Maritime Electric, nor batteries of similar capacity, are designed to fully replace NB imports during a prolonged outage (indeed, in 2018 one of PEI's main CTs had a failure that prolonged the outage).

The Cost Case Is Clear

The cost relationship between batteries and gas generation has fundamentally reversed since Maritime Electric last analyzed its options in 2022. In its report, Synapse wrote that a 100 MW, 4-hour battery system would cost about \$233 million installed - or 30% cheaper than the \$334 million diesel turbine.

According to a [January 2026 presentation to PEI's Standing Committee on Natural Resources and Sustainability](#), Jason Rioux of the Canadian battery energy storage company NRStore shared recent procurement data indicating that even Synapse's cost data may be out of date. **According to recent numbers provided by Rioux, a 100 MW, 8-hour battery can now be had for just over \$110 million in capital cost net of federal investment tax credits for clean energy projects, and the capital costs cited in the Synapse report are at least 50% higher than current market prices.**

Synapse also found that Maritime Electric's 50-year accounting framework for the CT project **failed to include variable operating costs**, most significantly the **cost of diesel fuel** to run the CT.

According to Synapse, Maritime Electric's own cost comparison was analytically flawed: it gave the CT a 50-year lifespan but only gave batteries a 20-year lifespan, then calculated a per-unit cost from those mismatched numbers — making batteries appear over three times more expensive than they actually are. When properly compared on equal terms, the battery wins or is roughly equivalent in nearly every scenario. This is even before accounting for the much lower current market prices cited by NRStore, the 10% cost increase on the CTs cited above, or federal clean energy tax credits that could be applied to batteries but not combustion turbines.

Batteries Are Equally Capable

Maritime Electric argued batteries couldn't meet PEI's reliability needs. Synapse refutes this on every dimension:

- Both resources are rated “excellent capacity resources” by Maritime Electric’s own consultants
- A 6-hour battery carries 100% capacity credit for reliability purposes; a 4-hour battery carries 90%
- Batteries can be delivered and installed by the end of 2028 — the same target date as the diesel plant (although according to a [vendor update provided to IRAC in March 2026](#), the earliest a CT could now be in place is the fall of 2029).
- Grid-forming battery technology (already operating in Nova Scotia) keeps wind turbines running during a disconnection event — something diesel turbines cannot do
- A 100 MW battery could eliminate Maritime Electric’s “hold to schedule” diesel fuel burning entirely during peak demand when on-Island wind + imports from NB are insufficient. Synapse points out that not only would this result in savings on fuel, but by using our remaining CTs less often, we could prolong their lifespans and defer the need to replace them.

The Wind-Battery Synergy

PEI's wind generation is strongest during cold winter conditions — exactly when peak load is highest. A battery can store surplus wind energy and dispatch it during peak hours, multiplying the value of PEI's existing and planned wind fleet. Diesel turbines offer no such benefit. This synergy is significant and has not been examined by Maritime Electric.

Synapse's Formal Recommendations

1. Deny the CT application pending a proper competitive process to establish real market prices for battery alternatives.
2. Issue an RFP or RFI for 100 MW of 4-hour or 6-hour battery storage immediately.
3. Commission a new Integrated System Plan — the existing one dates from 2020 and explicitly excluded batteries as uneconomic, which is no longer true.
4. Negotiate hourly energy pricing with NB Power in the post-2026 energy agreement to capture the arbitrage value batteries provide.
5. The first 100 MW of new on-island capacity should be BESS, not CTs. The second tranche should be wind combined with more batteries, not gas.

On the hybrid proposal of 100 MW CTs plus 50 MW of batteries, Synapse was unambiguous: “A scenario with the first 100 MW of on-island capacity from the new CT project would not be in the best interest of ratepayers... It is, at best, a second-best choice. A further increment of 50 MW of BESS resource does not make the selection of the CT for the first 100 MW increment any more economical.”

CT vs. BESS — COMPARATIVE ASSESSMENT

Factor	Diesel Combustion Turbines (CT)	BESS — 4 Hour	BESS — 6 Hour
Installed cost (100 MW)	\$334M (\$3,240/kW)	\$233M (\$2,334/kW) — 30% cheaper per Synapse \$145 million per NRStor (\$110 million net of investment tax credit (ITC))¹	\$314M (\$3,138/kW) — 6% cheaper per Synapse \$190 million per NRStor (\$145 million net of ITC)²
Net present cost (50 yr)	\$411M	\$292–375M — cheaper in most scenarios per Synapse \$138–177M per NRStor numbers³	\$386M — cheaper \$179M per NRStor numbers⁴
Energy arbitrage value	None	\$1–2M/year estimated	\$1–2M/year estimated
Capacity credit (ELCC)	~96% (4% forced outage rate)	~90% (first tranche per NB Power IRP)	100%
Delivery timeline	End of 2029 (according to ProEnergy)	End of 2028 — same	End of 2028 — same
2018 disconnection event	Tripped offline multiple times	Not installed — but grid-forming BESS provides instantaneous support	Not installed — same
Extreme weather reliability	Mechanical outage risk in extreme cold	Must be pre-charged; operators have advance warning; NS BESS performed well Jan 2026	More robust — 6hr buffer

¹ From numbers provided by NRStor, a Canadian battery energy storage company, based on actual bids developed by the company between mid-2025 and mid-2026. Note that federal clean energy investment tax credits to which all battery energy storage costs are currently entitled further reduce the net capital cost by 24%.

² See above

³ Estimated by applying similar multipliers to capital costs net of the ITC to those used by Synapse in its net present cost calculations.

⁴ See above

Factor	Diesel Combustion Turbines (CT)	BESS — 4 Hour	BESS — 6 Hour
Wind integration synergy	None	Stores surplus wind; dispatches during lulls	Stronger synergy — longer buffer
Hold-to-schedule ⁵	Yes — burns diesel (\$5M+/yr by 2030)	Yes — at zero emissions cost	Yes — at zero emissions cost
Voltage/frequency support	Yes, if a synchronous condenser is included (this is not part of the ProEnergy package proposed by Maritime Electric)	Yes — instantaneous response; faster than CTs in grid-forming mode	Yes — same
GHG emissions	Rising — diesel use expected to double 2029–2033	Zero local emissions	Zero local emissions
Regulatory risk (CER)	Moderate — grandfathered pre-2035 but exposed post-2035	None — zero-emission asset	None — zero-emission asset
Stranded asset risk	Moderate if clean fuel mandates tighten	Very low	Very low
PEI net-zero alignment	Poor — increases fossil dependence	Strong — supports 2030 & 2040 targets	Strong — same
Long-term O&M trend	Rising — fuel costs increase over time	Stable — augmentation every ~10 yrs	Stable — same

⁵ "Hold to schedule" is when NB Power tells Maritime Electric to stick to its agreed import amount and cover any extra need using its own on-island generation — typically requiring MECL to burn diesel in its existing turbines. A battery could meet this same need by discharging stored power instead, at no fuel cost and no emissions.

TOP QUESTIONS FOR POLICYMAKERS

“Do we actually need more power on PEI?”

Yes - but the question is what kind. PEI's peak load is growing and the amount of firm electricity purchasable from NB Power is, according to Maritime Electric (MECL), not likely to increase in the foreseeable future (although if NB Power proceeds with the recently-approved 500 MW RIGS gas plant in Tantramar, that might change).

“Will a battery provide sufficient security in case of extreme weather or disconnection from the mainland?”

This is the most common concern, and it deserves a careful answer. Several points are essential to understand:

Neither resource fully solves this. Even with 100 MW of on-island capacity — whether CT or BESS — there would still be load shedding during a lengthy full disconnection at peak load. That is not the planning goal for either solution.

Synapse ran the numbers. Synapse did modelling based on actual PEI peak electricity demand and supply, and determined that a 100 MW, 6-hour battery would be sufficient to see PEI through its peak winter electricity needs for the foreseeable future.

Battery capacity can be overbuilt to provide additional security of supply. If utilities and policymakers determine that PEI requires an additional layer of security for the rare long-duration power shortage, more battery capacity can be installed than is strictly required for normal resource adequacy planning. It should be noted that at actual market prices for batteries and factoring in the federal clean energy investment tax credits, PEI could install TWO 100 MW, 8-hour batteries for less than the cost of the 100 MW diesel plant being proposed, providing 16 hours of power supply. This is far longer than any disconnection event or peak load crunch that PEI has ever experienced or is likely to experience.

Grid-forming batteries keep wind turbines running. During the February 2023 polar vortex, PEI's wind was generating up to 160 MW before temperatures hit. A grid-forming battery paired with improved wind turbines (most PEI wind farms are now rated for extreme cold) would have provided significantly more on-island supply than the CT resources actually delivered.

Batteries aren't a one-shot deal. Even during lengthy cold snaps when demand for electricity peaks, there are periods in the day when demand is lower (for example, overnight when people are sleeping and using less power). This provides an opportunity to re-charge batteries from surplus power in the system (from local wind, existing combustion turbines, and imports), ensuring they are ready for the next peak in demand.

Extreme events are forecast in advance. In the February 2023 polar vortex, MECL had advance notice and prepared its CT resources. The same notice would allow operators to pre-charge a battery to full capacity before an extreme event. Nova Scotia Power did exactly this during the January 2026 Maritime cold weather event, maintaining batteries at full charge until peak demand hit, then dispatching 230 MWh to the grid.

Diesel turbines have their own extreme weather vulnerability. In the 2018 winter storm — the one full disconnection since the second cable set was installed — the existing CT tripped offline multiple times, experienced low voltage problems, and went into a four-hour cooldown lockout. Mechanical equipment fails in extreme conditions, too.

Newly announced federal support for Maritime transmission infrastructure promises to make PEI's electrical interties with the mainland more resilient. The [June 26, 2026 announcement](#) says that “the proposed project includes new sub-sea cables connecting PEI and New Brunswick while also reinforcing the transmission system linking Nova Scotia, New Brunswick, and PEI.”

“Is this the same equipment as the NB Power gas plant?”

Yes. Maritime Electric's proposal involves the same ProEnergy refurbished combustion turbines, the same supplier, and the same basic contractual structure as the Tantramar (RIGS) project. The NB Auditor General's recent report⁶ on the RIGS project found deeply flawed process, inadequate alternatives analysis, and significant financial risks to ratepayers — concerns that mirror what Synapse found about Maritime Electric's approach.

“Has this been properly reviewed by independent experts?”

Yes — and their conclusion is that the CT project should not be approved as proposed. IRAC hired Synapse as its independent expert. Synapse's formal recommendation is to deny the application and require a proper competitive process that includes consideration for battery energy storage solutions. No equivalent independent analysis has been done that supports the CT project over a battery alternative.

“What about the cost to ratepayers?”

Maritime Electric projects the CT project will increase customer rates by approximately 5% starting in 2029. That covers only capital and operating costs — not the rising diesel fuel costs projected to exceed \$5M/year by 2030. A battery system would have no fuel costs, lower capital costs, and would generate annual energy savings. The full long-term rate impact of choosing diesel turbines over batteries, properly modelled over 20–30 years, has not been provided to ratepayers or policymakers.

“What about PEI's climate commitments?”

PEI has committed to net-zero energy by 2030 and net-zero GHG emissions by 2040. Diesel turbines directly contradict both targets — MECL's own projections show diesel consumption more than doubling between 2029 and 2033. Battery storage produces zero local emissions, supports the integration of more wind energy, and is fully compatible with both targets. Under Canada's Clean Electricity Regulations, new fossil fuel generation also carries long-term regulatory uncertainty — even if the current proposal would be grandfathered before 2035 rules take effect, PEI ratepayers could be paying for this equipment well into the 2050s. If the diesel CTs are only used about 2% of the time as claimed by MECL, total emissions from the plant will be small relative to PEI's total emissions. However, the enormous costs of investing in and operating diesel CTs risk depleting ratepayer (and/or taxpayer) capacity to support the additional clean grid investments needed to ensure we meet our overall emissions reduction targets.

⁶ [NB Auditor General Report on NB Power's Renewable Integration and Grid Security Project \(RIGS\)](#) (June 2, 2026)

THE PROCESS FAILURES — PEI AND NB COMPARED

The concerns Synapse has raised about Maritime Electric's process are virtually identical to those the New Brunswick Auditor General (AG) raised about NB Power's handling of the Tantramar gas plant. This is not coincidence — it reflects a pattern in how utilities in this region have approached fossil fuel generation procurement.

Issue	NB Power / Tantramar (Auditor General)	Maritime Electric / PEI (Synapse / IRAC)
Technology chosen before alternatives analyzed	NB AG: NB Power “selected a single technology and signed a 25-year agreement with ProEnergy before finishing a full alternatives review.” Analysis was done “after the fact, after decisions had been already made.”	Synapse: MECL's application “does not compare the net present value of the proposed project to any other specific alternative on-island capacity supply project.” Neither the Capacity Resource Study nor the Application provides any direct cost comparison to a BESS alternative of similar scale.
Governance rules bypassed	NB AG: The project “did not proceed through the full Investment Governance Framework in the way expected for a major capital commitment.” The EUB chair made the same observation.	Synapse: Maritime Electric has not updated its Integrated System Plan since 2020 — a plan that explicitly excluded batteries as uneconomic, which is no longer true. Making a \$334M commitment on a six-year-old plan is a comparable governance failure.
Urgency used to foreclose proper analysis	NB AG: NB Power signed a contract with a hard regulatory deadline, creating artificial urgency that compressed the process. The AG found the urgency was largely self-created.	Synapse: MECL used the same ProEnergy deadline and “only viable path” framing to argue no alternative could be delivered in time. Synapse dismantled this using MECL's own IR responses.
Financial risks not fully disclosed	NB AG: The true 25-year cost of \$3.55B — \$425–700M more than self-ownership — was kept confidential. Key financial protections, including a \$46M USD performance assurance, were quietly reduced.	Synapse: The full long-term energy cost implications of choosing diesel over batteries have not been modelled or disclosed. The cost comparison provided was analytically flawed in a way that systematically overstated battery costs threefold.
Battery evidence too general to be conclusive	NB EUB: Approved the gas plant partly because battery evidence from interveners was “general in nature and did not address the specific conditions, costs, and system requirements in New Brunswick.”	Synapse's report was specifically designed to fill this gap for PEI — detailed, jurisdiction-specific, and grounded in MECL's own data. Its conclusion: batteries are viable, less expensive, and more sustainable.

The Critical Difference — And the Opportunity

NB Power's project has been approved, despite the process failures, and the political fallout from the Auditor General's report is ongoing. PEI's regulator has not yet ruled on Maritime Electric's application - but will likely do so in Summer 2026. IRAC still has the opportunity to require the comprehensive, honest analysis that NB's regulator accepted the project without.

The NB Auditor General concluded that NB Power “did not proceed in the clearest or most disciplined order, increasing governance, financial and regulatory risk for New Brunswick power and energy customers.” PEI policymakers and IRAC have the recent, vivid example of exactly what that looks like — and what it costs ratepayers — as a reason to insist on a higher standard before committing to the same equipment, from the same supplier, on the same inadequate analytical foundation.

SOURCES

[Synapse Energy Economics, Final Report to IRAC](#) (April 9, 2026)

[Synapse Responses to Commission Staff Interrogatories](#) (May 29, 2026)

[NB Auditor General Report on NB Power's Tantramar Plant](#) (RIGS) (June 2, 2026)

[Exhibit M-26 – Letter to Commission re: Update on ProEnergy Opportunity](#) (March 20, 2026)

[Presentation by Jason Rioux of NRStor to the Standing Committee on Natural Resources and Environmental Sustainability](#) (January 15, 2026) and subsequent correspondence

Natural Resources Canada press release: [Canada takes action to advance a stronger grid and increase reliable, affordable energy](#) (June 26, 2026)