Expert Report of Synapse Energy Economics, Inc.

In Response to the Proposals of New Brunswick Power in Matter 529

Prepared for New Brunswick Energy and Utilities Board

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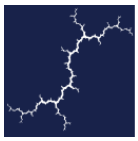

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1. INTRODUCTION

The New Brunswick Energy and Utilities Board (Board) engaged Synapse Energy Economics, Inc. (Synapse) to review and provide recommendations concerning the rate design proposals of New Brunswick Power (NB Power or Company) in Matter 529. In this report, Synapse focuses principally on those proposals from NB Power with implications for residential customers.

We begin with an evaluation of the Company's overall "Long Term Roadmap," which lays out the sequence and timing of its various proposals. Next, we address the Company's specific recommendations for revisions to criteria governing the ability of non-domestic residential customers to access service on the Residential rate. This subset of customers includes certain farms, religious organizations, non-profits, and lodging customers. NB Power's recommendations include imposing new usage cutoffs limiting access to only certain non-domestic customers whose consumption is below these usage cutoffs, as well as categorically excluding certain "grandfathered" religious organizations and non-profits from the Residential rate class irrespective of usage. Finally, we address a range of other more specific rate proposals put forward by the Company: the proposed Net-Zero Rate (NZR), proposals to update compensation for distributed generation (DG), proposals pertaining to electric vehicle (EV) rates, and the proposed regulatory rate design learning sandbox.

1.1. Summary of Recommendations

The following is a summary of the recommendations provided in this report, organized by topic area:

Long-term roadmap

1. The Board should direct NB Power to file an updated roadmap reflecting any modifications necessary to the timing of events on the roadmap, including changes to timing resulting from delays to AMI deployment and reflecting the Company's plans for utilizing load research data and its plans for utilizing its updated CCAS.

2. The Board should direct NB Power to file a detailed plan addressing how the Company will utilize new load data gleaned from its continuing load research efforts and broader AMI deployment in the context of the activities on the roadmap, with a timeline for utilization of this new load data, and a description of any potential implications of this updated load data on the timing and sequence of activities on the roadmap.

3. The Board should direct NB Power to file a detailed plan addressing how the Company will utilize an updated class cost allocation study (CCAS) based on new load research data in the context of the activities on the roadmap, with a timeline for utilization of the updated CCAS, and a description of any potential implications of this updated CCAS on the timing and sequences of activities on the roadmap.

Non-domestic customers

4. The Board should not endorse, even in concept, the proposed usage cutoff approach or specific usage cutoffs that have been proposed to limit access of non-domestic customers to the Residential rate, nor should the Board endorse, even in concept, the elimination of grandfathering for certain religious organizations and non-profits.

5. The Board should direct NB Power to fully justify why a change in the status quo for non-domestic residential customers is necessary.

6. The Board should direct the Company to clearly justify its proposed usage cutoffs for non-domestic residential customers by referencing its load research results, including specific reference to data on energy consumption, peak demand, load factors, and cost-of-service for non-domestic customers and other customers, including both other residential customers and commercial and industrial customers.

7. In justifying its proposals for usage cutoffs for non-domestic residential customers, the Company should address expected bill impacts and any customer protections that it deems to be warranted.

Net-zero rate

8. As a threshold matter, the Board should assess whether it even makes sense to implement the NZR given that a Canadian Clean Energy Standard (CES) appears imminent.

9. Were the Board inclined to approve some form of a NZR, the Board should direct the Company to update its proposal to include the following:

    a. A clear articulation of the justification for the requirement that supply be sourced only from local facilities, with detail about any cost implications of this requirement.

    b. A clear procurement plan that addresses resources, costs, and capacity needs. The procurement plan should address the following:

        i. How and when the competitive procurement process will proceed.

        ii. Procurement terms, including whether prices for contracted procurements will be fixed or variable, and whether it will be possible to vary the amount of energy procurement from suppliers in response to changes in NZR energy needs.

    c. A plan for contracting with subscribers covering contract length requirements and any cancellation terms.

    d. An overview of any anticipated interaction between the NZR and current or anticipated future federal or provincial policy, to the extent relevant.

10. If the NZR is implemented, NB Power should be required to report on its supply procurement on an ongoing basis that discloses the cost of procuring additional non-emitting supply to improve transparency for the NZR.

Distributed generation compensation

11. Before taking up the issue of cost-shifting from distributed generation, the Board should direct the Company to demonstrate that distributed generation cost-shifting is currently a material concern in New Brunswick through conducting a value-of-solar analysis.

12. As a preliminary step in conducting this value-of-solar analysis, the Company should provide to the Board for review its specific analytical plans. This should include any plans for modifying its load research efforts, the specific costs and benefits that the Company intends to include in this analysis, and any methods, inputs, or other assumptions relevant to the accounting of these costs and benefits.

13. At its discretion, the Board may elect to open a dedicated regulatory proceeding for the value-of-solar analysis, with scope for stakeholder participation, wherein the Board may establish methodological guidelines for the Company's value-of-solar analysis and provide other direction (including direction concerning relevant policy and law); the Board may also opt to otherwise provide direction to the Company on objectives for future rate design for DG.

Electric vehicles

14. The Board should approve the Company's request to continue setting rates for its eCharge member stations and should allow the Company to exempt these member stations from general rate increases.

15. The Board should direct the Company to evaluate the revenue-to-cost ratios of eCharge stations.

16. Before taking up the issue of cost-shifting from EVs, the Board should direct the Company to evaluate the cost of serving different EV charging use cases (including eCharge network sites, private commercial charging stations, fleet charging, and private residential and business charging).

17. Before considering the implementation of any special rates for public charging or fleet charging customers, the Company should demonstrate that this will not result in undue cost-shifting.

Regulatory Rate Design Learning Sandbox

18. The Board should grant NB Power's request and direct the Company to submit a detailed proposal in Phase 2 for an efficient and predictable process by which the Company can seek approval for special-purpose rate designs and rates for a demonstration project, pilot, or soft launch, as required, to undertake rate design learning.

2. OVERALL COMMENTS ON THE LONG-TERM RATE DESIGN ROADMAP

This section addresses the overall sequence and timing of the Company's various rate design proposals in this proceeding, as summarized in the Company's roadmap. Overall, Synapse finds that the roadmap represents a reasonable plan, but it evidently requires some updates to account for process delays, and also requires modification to reflect the impact of the Company's load research efforts and updates to the CCAS.

2.1. Board's Direction in Matter 357

In its Decision in Matter 357, the Board laid the groundwork for the instant rate design proceeding, identifying key priorities including the reduction of inequities in the Company's existing customer classification structure and the establishment of a rate design methodology that would be clear, manageable, predicable, and easily adaptable to future changes.[1]

The Board designated the following issues for resolution during the first phase of this proceeding:

- Updating the commercial and industrial class structures and moving customer classes toward the range of reasonableness.
- Phasing out the GS II rate class.

The Board further directed the Company to address through its filing the following: whether any changes were required in the treatment of farms and churches (or "places of worship"); whether a separate class should be created for charitable customers; and whether the Board should cease its rate regulation of streetlights, unmetered customers, and water heaters.

While the Board articulated that the rate design proceeding would cover three phases, it did not provide detail about the subsequent phases, indicating only that the second phase would focus on rate design and that the third phase would be occupied with implementing new rates.

2.2. Overview of NB Power's Proposed Changes and Roadmap

The Company organizes its rate proposals in a long-term roadmap with three phases: "Period 1" spans 2023–2026, a "Transition" stage occurs in 2027, and "Period 2" covers 2028–2030. Consistent with the Board's direction in Matter 357, Period 1 include those matters flagged for resolution by the Board, and it also includes three other specific proposals that are not offered at the behest of the Board: a Net-Zero

[1] Decision in Matter 357, pp. 1-2.

Rate, modernization of net metering, and a proposal to continue the Company's approach to pricing for its eCharge network of EV charging facilities.

During the Transition period, the Company proposes to roll out new business classes and implement usage cutoffs for its non-domestic residential customers. Also, during the Transition, the Company intends to begin adjusting rate component revenue-to-cost ratios for new customer classes, to continue with rate modernization for its business classes, and to commence rate modernization for its residential and wholesale customers.

Finally, during Period 2, the Company plans to continue with its rate modernization efforts.

The Company also describes the organization of its proposed initiatives thematically. Its overall roadmap includes *enabling work*, such as piloting rate programs and deploying advanced metering infrastructure (AMI); *traditional issues* to rectify, such as improving revenue-to-cost ratios amongst customer classes and addressing historical customer classification issues; and *modern rate design*, or the introduction of new rate design programs such as a net zero rate and an EV charging tariff. In this framing, the *enabling work* and *modern rate design* components are slated to be completed before 2027, while the *traditional issues* items occur over the entire long-term roadmap.

2.3. Considerations in Evaluating the Company's Roadmap

Synapse concludes that the Company's proposed timing and sequencing of events is overall reasonable. In making this determination, we have paid particular attention to the Company's proposal for Period 1, when it aims to undertake activities in compliance with the Board's direction from Matter 357. Many of the later events on the roadmap appear to be more prospective and less certain –proposals made of the Company's own volition rather than in response to Board directive– and so we have devoted less attention to the timing and sequence of those later events.

For Period 1, the Company proposes a staged process of incremental changes—adjusting revenue-to-cost ratios for existing classes through the GRA process, modifying rate components, and finally, rolling out new business classes. We generally agree with the Company that this timing, sequence, and overall phasing are consonant with the aims of gradualism and other foundational principles in rate design and ratemaking.[2] Yet while the Company's overall plan appears sensible, it is also provisional. The plan includes many disparate items separately requiring Board approval, and various items on the roadmap appear vulnerable to delays. Indeed, the Company has clarified that the AMI roll-out has already incurred delays, and there appears to be no assurance that there will not be additional future delays facing the AMI project.[3]

[2] NBP 1.03, Evidence, p. 15, p. 27, and p. 89.

[3] See response to JDI IR-18(a), response to UM IR-19(c), and response to NBEUB IR-89(a).

While Synapse expresses general support for the Company's roadmap, we observe that there are two items that appear to be missing from it. Specifically, the Company does not include its load research activities or updates to its CCAS on the roadmap. Each of these activities are highly implicated in the other items on the roadmap, and delays to either (e.g., as a consequence of additional delays in AMI rollout or other procedural slowdowns) could impact the timing and sequence of the various other activities included on the roadmap.

Lack of plans for utilizing load research data

While the Company has expanded its load research efforts in recent years, gaps in the available data on customer energy usage remain a crucial liability in the Company's various proposals. In particular, the lack of data on non-domestic customers raises questions about the Company's planned criteria for transitioning certain of these customers off of the Residential rate, to say nothing about the timing of this proposed transition and its sequence in relation to the many other changes that the Company intends to make to class and rate structures. The Company should specifically include within its roadmap its plans for utilizing load research data. Further, the Company should update the roadmap to account for the impact of delays to AMI installation on load research, to the extent that these impacts are material.

Lack of plans for utilizing updated CCAS

The Company's conclusions about current interclass equity issues, and the proposals that it makes to rectify them, are based upon outdated data.[4] The Company should use an updated CCAS based on the most recent load research data. While the Company appears to agree in principle with the merit of using a CCAS based upon more current data to formulate its plans to rectify interclass equity issues, the Company's current plans with respect to how an updated CCAS will enter into its proposals in this proceeding are still not entirely clear.[5,6] Ultimately, the changes that the Company introduces to classes and rates should be based upon a CCAS utilizing the most recent load research data, and it may be appropriate to undertake class and rate changes iteratively with updates to the CCAS over the course of this proceeding.

[4] See response to NBEUB IR-67(a).

[5] See response to NBEUB IR-67(b).

[6] See response to JDI IR-18(c).

2.4. Recommendations

Overall, the Company's proposed roadmap appears reasonable. Synapse offers qualified support for the Company's proposed sequence and timing of activities through Period 1 and Period 2 but recommends that the Board direct the Company to provide the following.

1. An updated roadmap reflecting any modifications necessary to the timing of events on the roadmap, including changes to timing resulting from delays to AMI deployment.

2. A detailed plan addressing how the Company will utilize new load data gleaned from its continuing load research efforts and broader AMI deployment in the context of the activities on the roadmap, with a timeline for utilization of this new load data, and a description of any potential implications of this updated load data on the timing and sequence of activities on the roadmap.

3. A detailed plan addressing how the Company will utilize an updated CCAS based on new load research data in the context of the activities on the roadmap, with a timeline for utilization of the updated CCAS, and a description of any potential implications of this updated CCAS on the timing and sequences of activities on the roadmap.

3. NON-DOMESTIC RESIDENTIAL CUSTOMERS

This section addresses NB Power's proposals concerning the Residential rate eligibility of farms, non-profits and charities, churches (or "places of worship") and religious organizations, and premises with lodgings, which have been provided in response to the Board's Decision in Matter 357.[7,8] Overall, Synapse concludes that the Company has not provided sufficient justification for its proposals, and as such, it would be premature for the Board to provide any endorsement.

3.1. The Status Quo for Non-Domestic Residential Customers

Under the Company's current practices, many farms, religious organizations, non-profits, and premises with lodging may take service on the Residential rate. The following is a summary of this status quo.

Farms

While farms are typically eligible for the Residential rate, agricultural retail or wholesale operations and agricultural processing facilities are excluded from eligibility for service on the Residential rate and must be separately metered.[9] At present, approximately 95 percent of farms in the Company's service territory currently take service on the Residential rate.[10]

Religious organizations

Under current rules, churches (or "places of worship") are eligible for the Residential rate. This eligibility is limited to service to buildings that are used primarily for worship; non-worship spaces of religious organizations are required to take service on the General Service rate.[11] Prior to August 29, 1979, all religious organizational facilities were eligible for Residential service. When this change in eligibility was instituted, existing non-worship spaces taking service on the Residential rate were grandfathered, allowing them to continue to take service on the Residential rate. At present, the large majority of

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[7] The Board's Decision in Matter 357 addressed charities and churches but did not concern the broader cases of grandfathered non-charity non-profits and grandfathered religious organizations that are not places of worship. The Company's proposals do address these broader cases.

8 The Board's Decision in Matter 357 appears to use the term "grandfathered" in a general sense to refer to categories of non-domestic customers permitted to take service on the Residential rate as a consequence of an exception. The Company clarifies in its rate design application its use of the term to describes instances in which customers are permitted to continue taking service on a specific rate even after a rules change renders them no longer eligible by virtue of a specific exception to these rules rendered. The Company appears to understand the Board's use of the term "grandfathered" in its Decision in Matter 357 to refer to the gamut of exceptions permitting non-domestic customers to take service on the Residential rate.

[9] NBP 1.03, Evidence, p. 32.

[10] Ibid. The Company reports that there are presently 1,913 farms on the Residential rate and 147 farms on the General Service rate.

[11] NBP 1.03, Evidence, p. 33.

religious organizations are served on the Residential rate, with less than 5 percent of these customers enrolled in General Service.[12]

Non-profits

The non-profit category of customers is a broad one, encompassing charities and other types of organizations. While non-profits are not presently eligible to take service on the Residential rate, a cohort of non-profits remains in the Residential class as a result of a decision to grandfather them in 1979. According to the Company, approximately 75 percent of all non-profit organizations take service on the Residential rate.[13]

Premises with lodging

Today, only those lodging facilities with nine or fewer beds are permitted to take service on the Residential rate. Prior to 1984, lodging customers were permitted to take service on the Residential rate without condition, and larger facilities on the Residential rate prior to the introduction of limitations were grandfathered and permitted to remain in the Residential class. Nearly equal proportions of premises with lodging take service on the Residential and General Service rates.[14]

3.2. NB Power's Proposals for Non-Domestic Residential Customers

The Company does not propose any immediate changes to Residential rate eligibility for non-domestic customers. Under its new framework recommended for implementation in Period 2 of this proceeding, the Company proposes to impose usage thresholds to determine Residential rate eligibility for non-domestic customers. The Company further proposes to terminate certain non-domestic customers' access to the Residential rate class irrespective of usage characteristics. Customers no longer eligible for the Residential rate would be transitioned to one of the business rates.

The Company proposes the following, provisional usage thresholds for Residential class eligibility:

- For farms, places of worship, charities, and premises with lodging,[15] only those accounts with annual energy consumption under 60,000 kWh and annual peak demand under 20 kW will be eligible for the Residential class.

[12] NBP 1.03, Evidence, p. 23.

[13] NBP 1.03, Evidence, p. 34. The Company reports that there are presently 76 non-profits on the Residential rate and 23 non-profits on the General Service rate.

[14] NBP 1.03, Evidence, p. 38.

[15] These are termed "small load premises with lodging."

- For premises with lodging serving a charitable function, higher thresholds of 150,000 kWh annual consumption and 50 kW peak demand dictate Residential class eligibility.[16]

Under the Company's proposal, the following non-domestic customer types would no longer be eligible for the Residential rate, irrespective of usage:

- Religious organizational facilities that are not places of worship.
- Non-profits that are not charities providing poverty relief.

Moreover, under the new framework proposed by the Company, customer tenure would no longer be a relevant factor, and so non-domestic customers would not be entitled to take service on the Residential rate by virtue of grandfathering alone.[17]

The Company does not support the creation of a separate class for charitable customers, explaining that in the absence of "economic or cost of service rationale" for creating new classes, "general regulatory principles require customers in equivalent circumstances to pay similar rates." [18] The Company further concludes that creating a new charitable rate class in this circumstance would "be based on social policy alone," which, without an express statutory mandate, is "not an appropriate exercise of jurisdiction."[19,20] The Company takes a similar position on dedicated classes for either farms or churches, stating that "a new rate class (and the associated regulatory complexity, administrative burden, and customer disruption) is not warranted due to the relatively small number of eligible customers, their usage characteristics, and the limited anticipated benefits."[21]

3.3. Considerations in Evaluating NB Power's Proposals and Recommendations

NB Power has proposed a reasonable and generally coherent approach to updating the treatment of non-domestic Residential customers. In general, a systematic framework with all customers subject to the same rules is preferrable to uneven application of rate class criteria. However, there are other relevant factors that should be considered.

In this section, we consider these other factors, starting with a review of the regulatory context and extant guidance for the proposed class changes, turning to interactions between the Company's proposals for non-domestic Residential rate customers and its intended changes to the General Service

[16] These are termed "medium load premises with lodging."

[17] NBP 1.03, Evidence, p. 36, 39.

[18] NBP 1.03, Evidence, p. 35.

[19] Ibid.

[20] It is worth noting that there is nothing inherent in the creation of a separate rate class for charitable customers, or for any of the other non-domestic customer types on the Residential class, that would imply that customers on a such a new class would need pay more or less than their cost of service.

[21] Response to NBEUB IR-104(b).

rate structure and General Service rate design, and finally examining the available data on non-domestic customer usage and cost of service.

Regulatory context for proposed changes

The Board addressed the issue of farms, churches, and charities on the Residential rate in its Decision in Matter 357. The Company frames its proposals in response to this Decision.

In this Decision, the Board stopped short of concluding that the status quo of non-domestic customers on the Residential rate class was necessarily a problem. However, it did acknowledge that these carveouts had "resulted in customers with similar usage profiles [being] treated differently,"[22] and it further noted that it had "heard requests on several occasions to consider the creation of a rate class for charitable organizations."[23]

The Board provided the following instructions to the Company:

> [38] NB Power is directed to file an application, no later than June 2021, containing a proposal to address the above issues. In its proposal, NB Power is also directed to address any proposals for special rates for particular groups of customers, as directed below.
>
> [39] The proposal should outline the history and rationale behind the current manner in which farms and churches are classified. This should provide a view as to whether the existing "grandfathered" clause should continue, and if so, on what basis, and whether a charitable class should exist. NB Power should also address any other issues raised by individual intervenors in recent hearings.

It is not clear whether the Board's concerns in Matter 357 about the Residential rate were specifically related to interclass inequities. While the Board did address interclass inequities elsewhere in this Decision, it was in the context of discussing commercial and industrial classes. There, the Board provided its view that revenue-to-cost ratios are "influenced by the composition of the rate classes themselves" and further advanced the principle that "customer classes should group customers with similar electricity use patterns or load profiles."[24]

Upon review, it does not appear that the Company has directly addressed whether a change to the status quo for non-domestic customers on the Residential rate is required. On the contrary, the Company appears to proceed from the view that such a change is necessary.

[22] Decision in Matter 537, paragraph 36.

[23] Id, paragraph 37.

[24] Id, paragraph 29.

Interactions with proposed changes to business classes and rates

The Company's proposed changes to Residential rate eligibility relate to its proposals for business customers in at least two key ways. First, there is an apparent attempt to create symmetry between the class structure that the Company proposes for business customers and the approach that the Company proposes to limit non-domestic customers' access to Residential rates. The approach that the Company proposes for Residential rate eligibility for non-domestic customers, based upon usage cutoffs, is structurally similar to the approach that it proposes for commercial and industrial customers, with the boundaries between the new business rates similarly delineated by peak demand thresholds.

The other relationship between Residential and Business class proposals is one of more direct interaction. Under the Company's proposal, some non-domestic customers will be newly subject to Business rates. In Synapse's view, the question of whether the Company's proposed usage cutoff for non-domestic customers are reasonable is partly a matter of assessing how any customers cut off of Residential service would be billed upon initiation into the business classes. In particular, special consideration should be given to the prospect that these newly transferred non-domestic customers will encounter demand charges on the business rates, as appears to be the case under the Company's proposal.[25] The imposition of demand charges can cause pronounced changes in customer bills.

Evidence on non-domestic residential customer load and cost

In evaluating whether the future business rates are appropriate for non-domestic customers that would be transferred under the Company's proposal, it is critical to compare these non-domestic customers' load and cost characteristics with the same for the Company's business customers. Unfortunately, the Company has little data on its non-domestic residential customers. While some farms and religious organizations have been included in the Company's past load research, the Company reports that their representation was too small to support any inferences about overall population characteristics.[26] The Company has since expanded its load research sample to include a statistically significant representations of farms, religious organizations, and charities and expects to have instructive data in approximately one year hence.[27]

The Company has not specified how it intends to use its load research data to assess whether any modifications are required to its preliminary usage cutoffs for non-domestic customers on the Residential rate. But in Synapse's view, as suggested in the preceding section, such a transfer would only be equitable if the affected customers were acceptably similar to business customers in their cost of service. It is not clear whether the Company agrees. In the Company's supplemental response to IR-105(b) from the Board, it clarifies in regard to its proposed usage cutoffs that "cost of service" of the

[25] Response to NBEUB IR-113(b)ii.

[26] Response to NBEUB IR-04.

[27] Response to NBEUB IR-04 and response to NBEUB IR-103.

non-domestic residential customers "was not a key driver of NB Power's proposal, nor is it likely to cause NB Power to modify its plan." [28] However, later in this response, the Company indicates that it would consider whether "each [non-domestic] customer's cost to serve – potentially using load factor as a proxy – is within the range of common values for residential customers."[29]

3.4. Recommendations

The Company has requested that the Board approve "in concept" its proposals for usage cutoffs for non-domestic customer Residential class eligibility. In Synapse's view it would be premature for the Board to provide any endorsement of this plan, since the Company has yet to show any understanding of the usage characteristics of these customer types and has failed to show that its proposals are cost-reflective. Were the Board to provide even a qualified endorsement of the Company's usage cutoff approach, it would represent the privileging of a kind of standardization (through imposition of parallel usage cutoffs across rate classes) over any necessary assurance that transferring non-domestic customers to the business rates will be cost-based and overall equitable.

Fortunately, for the purpose of getting right NB Power's treatment of non-domestic residential customers, this customer segment is small and likely rather inconsequential when it comes to effects on overall interclass equity. This means the Company can afford to defer any action on these customers. Furthermore, the Company seems to share this view, stating in its supplemental response to Board IR-105 that it intends to "consider the materiality of any impact on the cost of service for other rate classes given the small aggregate load of the customers in these groups."[30]

In summary, Synapse's complete recommendations are detailed below:

1. The Board should not endorse, even in concept, the proposed usage cutoff approach or specific usage cutoffs that have been proposed to limit access of non-domestic customers to the Residential rate, nor should the Board endorse, even in concept, the elimination of grandfathering for certain religious organizations and non-profits.
2. The Board should direct NB Power to fully justify why a change in the status quo for non-domestic residential customers is necessary.
3. The Board should direct the Company to clearly justify its proposed usage cutoffs for non-domestic residential customers by referencing its load research results, including specific reference to data on energy consumption, peak demand, load factors, and cost-of-service for non-domestic customers and other customers,

[28] Supplemental response to NBEUB IR-105(b).

[29] Ibid.

[30] Ibid.

including both other residential customers and commercial and industrial customers.

4. In justifying its proposals for usage cutoffs for non-domestic residential customers, the Company should address expected bill impacts and any customer protections that it deems to be warranted.

The Board may elect to provide further guidance on matters of policy, addressing the following:

- Whether it is appropriate to permit certain non-domestic customers to remain on the Residential rates even if their cost-of-service and load characteristics turn out to be markedly different from other residential customers.
- How to balance the imperative of ensuring that customers pay in proportion to their respective costs of service with the need to ensure that non-domestic customers do not face odiously high bill increases.

4. NET-ZERO RATE

The Company has asked the Board to approve its proposed approach to calculating rates for its Net-Zero Rate (NZR). As a threshold issue, it is worth considering whether it even makes sense to launch an elective NZR given that a Canadian Clean Electricity Standard (CES) may be adopted in the near future and since the Company has articulated its intention to achieve a net zero grid by 2035.[31] Synapse defers to the Board to make this threshold determination and focuses in this section on providing recommendations to improve the Company's proposal. In Synapse's opinion, even if the Board were to view favorably the Company's proposal for an NZR, it would still be inappropriate for the Board to approve the NZR at this juncture since further development of the Company's NZR plans is still required.

4.1. Net-Zero Rate Proposal

The NZR would be an optional rate under which subscribers would receive electric supply exclusively sourced from local, non-emitting resources.[32] NB Power defines local as "energy generated at a facility that is located in the province of New Brunswick,"[33] and defines non-emitting resources as "electricity produced in a manner that does not directly release any greenhouse gases (GHGs) as a result of fuel combustion." According to the Company, both nuclear energy and fossil generation coupled with carbon capture and sequestration capabilities would qualify as non-emitting.[34]

The Company designed the NZR rate formula with the aim of preventing cost-shifting. Under the Company's approach, the incremental cost per-kilowatt-hour charged to subscribers should adjust with the share of NB Power's energy supply coming from non-emitting sources and with the cost of the incremental supply procured for the NZR. The Company indicates that it intends to discontinue the NZR should its overall supply mix reach 100 percent non-emitting resources.[35]

The incremental cost of the NZR to a subscriber is determined by calculating the share of the Company's energy supply that does not come from non-emitting resources, multiplying this share by the subscriber's total energy consumption in kilowatt-hours, and then multiplying the resulting total by the NZR price per kilowatt-hour. As an example, if NB Power's energy supply were sourced from 75 percent non-emitting resources, then the NZR subscriber would only pay the NZR price for 25 percent of their energy consumption and would pay the otherwise-applicable standard rate for the remaining 75 percent of consumption. The current renewable portfolio standard is set at 40 percent. Nuclear provides roughly

[31] NBP 1.03, Evidence, pp. 66.

[32] NBP 1.03, Evidence, pp. 65-66.

[33] Response to NBEUB IR-17.

[34] Response to NBEUB IR-20(c).

[35] Response to NBEUB IR-16(d).

35 percent of supply, meaning that the current non-emitting supply mix is 75 percent of generation.[36] NB Power also includes a minimum monthly charge for subscribers to the NZR to ensure that it recovers the costs of serving subscribers with minimal energy usage.[37] While the Company does not anticipate incurring any additional firm capacity costs as a result of deploying the NZR, at least initially, the Company affirms that any costs to meet incremental capacity needs associated with the NZR would be passed on to NZR customers.[38]

To help float the program, NB Power proposes establishing an anchor customer who is willing to purchase a large portion of the new, non-emitting generation being supplied, and indicates that a number of suitable customers have expressed interest.[39]

4.2. Local Requirement

Customer interest in locally sourced energy must be balanced with cost considerations. When NB Power submitted its proposal, it provided findings from customer surveys conducted while designing the NZR. In these surveys, NB Power found that most customers liked the idea of a clean energy rate and held "a strong belief in the need for energy to come from, clean, local, and ideally renewable sources."[40] The survey results also noted that customer willingness to pay 15 percent more for this type of supply varied.[41] NB Power states "[t]he development of this offering has been influenced by research using terminology such as clean energy, green energy, renewable generation, non-emitting, etc." [42]

The survey methodology makes no mention of asking customers of their interest in supply being *both* local and renewable, nor did the survey address the relative importance of cost containment against a requirement that supply be local. It is also not known from the survey results how customers would have felt about procuring renewable supply from neighboring regions.

Notwithstanding any conclusions the Company has drawn from the survey results, the requirement that supply be local appears to be implemented inconsistently in the formula for the NZR, and it also conflicts with the likely implications of a future CES. On the first issue, the Company proposes to count all existing non-emitting supply toward the NZR without respect to whether that supply is from in-province sources. Concerning the future CES, as noted above, NB Power indicates it would close the NZR if a CES were

[36] NB Power. 2020 Integrated Resource Plan, p. 16.

[37] NBP 1.03, Evidence, p. 72.

[38] Response to NBEUB IR-92(f).

[39] NBP 1.03, Evidence, p. 70.

[40] NBP 1.30, Appendix U: Clean Energy Rate Strategy and Recommendations Report, Prepared for NB Power by Now or Never (April 2022), p. 3.

[41] Id.

[42] NBP 1.03, Evidence, p. 66.

adopted. Yet, there is no indication that such a CES would also include a local mandate for Canadian electric utilities.

Finally, the local requirement may also result in an NZR that costs more than necessary. The Company proceeds on the assumption that prospective NZR subscribers will willingly pay a premium for this rate, but it is not clear that non-emitting supply necessarily needs to cost more than conventional resources. There are likely to be abundant cheap renewable resources available in neighboring regions (specifically hydropower in Quebec, and wind and solar in Northern Maine). It is possible the Company could reduce the cost of the NZR by dropping the local requirement for non-emitting resources.

4.3. Procurement Plan

NB Power lacks a concrete procurement plan for obtaining the additional non-emitting resources that the NZR will require. When asked how it plans to procure the additional non-emitting supply, NB Power indicated that "[n]o such details are available because the plan for procurement has not been finalized," and that procurement would be handled along the way.[43] Through interrogatories, it was determined that NB Power will leverage a competitive procurement process which could include negotiations to procure additional net-zero emission energy and that NB Power anticipates most of the additional non-emitting supply will come from wind resources.[44] The competitive pool that would be eligible to provide supply for the NZR is inherently limited to resources in New Brunswick given the rate's local requirement.

Establishing a procurement plan is a basic but critical step when introducing a new rate that will drive a change in the resource mix. The procurement plan should provide customer protection by ensuring the incremental supply procured for the NZR meets the program requirements at the lowest possible cost and complements the larger energy portfolio of the grid's resource mix. Without a procurement plan or requirements on how NB Power will keep the Board, stakeholders, and customers apprised of how procurement efforts are governed and how they are progressing, the NZR lacks basic transparency and risks overcharging customers.

The procurement plan should detail the competitive procurement process, including the timing and procedures for the Request for Proposals, how bids will be assessed, how customers interested in the NZR will be engaged and enrolled, and when the utility will execute the subscriber contract. The procurement plan should also address anticipated or required contracting terms. It should specify, for example, the duration of contracts to be entered into with non-emitting energy suppliers, whether prices will be set for the term of a given contract or be variable, and whether NB Power will have the authority to modify contracts to modulate the amount of supply procured annually as dictated by its energy needs. To the extent relevant, the procurement plan should also address how the Company will meet incremental capacity needs. Finally, the procurement plan should account for any interactions

[43] Response to NBEUB IR-22.

[44] Ibid.

between procurements for the NZR and the Company's general approach to procuring supply for all its customers.

4.4. Net-Zero Rate Subscriber Contract

NB Power should also address how it plans to contract with NZR subscribers. Contracting is important not only to memorialize customer enrollment, but also for NZR subscribers to understand the options and terms NB Power is offering. NZR contracts would also provide greater certainty over how NB Power will recover the costs of the NZR without inducing cross-subsidization.

The Company should establish the terms under which customers will subscribe to the NZR, specifically addressing whether customers will be able to disenroll from the NZR. If NZR subscribers can terminate their enrollment in the rate at will, then it is possible that remaining NZR subscribers could be on the hook for substantial procurement costs that NB Power would then be recovering among a diminished NZR subscriber base. NB Power does not explain how revenue shortfalls would be covered should NZR subscribers, particularly large customers, drop out. NB Power's contracting procedures for the NZR could mitigate this risk by requiring all subscribers to sign a long-term contract for a certain quantity of energy or to pay an exit fee upon disenrolling. (As noted above, the Company should also address in its procurement plan whether it expects to be able to modulate total energy procurement from contracted suppliers in response to changes in NZR energy needs.)

4.5. Interactions with Provincial and Federal Policy

While the Company is currently in compliance with existing renewable energy requirements, a National Clean Energy Standard (CES) is expected in the near future.[45] Should a new standard be phased in, it is conceivable that a small base of NZR subscribers, in pulling up the overall share of NB Power's supply from non-emitting sources, could effectively subsidize non-subscribers in the intervening years before the complete net-zero requirement were in effect. Under such a scenario, NZR subscribers would function to relieve the Company of the need to increase overall non-emitting supply procurement. The Company does not explain how the proposed NZR will interact with provincial and federal environmental requirements, nor does the Company address the potential for policy changes that could entirely obviate the need for the NZR.

45 See response to NBEUB IR-16. According to NB Power, details of Canada's Clean Electricity Standard (CES) are uncertain and will be finalized in 2023. The CES aims for a net zero electricity grid by 2035, which was laid out in New Brunswick's provincial 2022-2027 Climate Action Plan. NB Power explains that while it is working to achieve net-zero supply by 2035, some are ready to be early adopters of net-zero energy solutions. The 2023 Integrated Resource Plan (IRP) will explore the impacts of the CER. Should the CER of 100 percent by 2035 be finalized, there would be a maximum timeframe of roughly nine years in which the NZR could be used, given the NZR offering is set to officially launch in 2026.

4.6. Recommendations

In summary of the above, Synapse offers the following recommendations:

1. As a threshold matter, the Board should assess whether it even makes sense to implement the NZR given that a Canadian CES appears imminent.

2. Were the Board inclined to approve some form of an NZR, the Board should direct the Company to update its proposal to include the following:

    a. A clear articulation of the justification for the requirement that supply be sourced only from local facilities, with detail about any cost implications of this requirement.

    b. A clear procurement plan that addresses resources, costs, and capacity needs. The procurement plan should address the following:

        i. How and when the competitive procurement process will proceed.

        ii. Procurement terms, including whether prices for contracted procurements will be fixed or variable, and whether it will be possible to vary the amount of energy procurement from suppliers in response to changes in NZR energy needs.

    c. A plan for contracting with subscribers covering contract length requirements and any cancellation terms.

    d. An overview of any anticipated interaction between the NZR and current or anticipated future federal or provincial policy.

3. If the NZR is implemented, NB Power should be required to report on its supply procurement on an ongoing basis that discloses the cost of procuring additional non-emitting supply to improve transparency for the NZR. This will also help ensure the lowest cost energy supply that meets programmatic requirements is being procured.

5. DISTRIBUTED GENERATION COMPENSATION

NB Power has asked the Board to recognize the need for modernizing net energy metering (NEM) and Distributed Generation (DG) compensation and to provide guidance on the objectives and considerations relevant to modernizing net metering. Specifically, NB Power requests that the issue of modernizing NB Power's net metering program be identified by the Board for resolution in Phase 2.[46]

In Synapse's view, it is likely premature to consider redesigning NEM or to evaluate alternative compensation schemes given that generally, cost-shifting between DG customers and non-DG customers is negligible at low levels of DG penetration.[47,48] To the extent there may be any cost-shifting born under NEM in the near to moderate future in the province, these concerns must be weighed against countervailing policy objectives[49] and the many other benefits that DG can render. The bottom line in Synapse's view is that the extent of cost-shifting must be quantified before policymakers introduce substantial changes in the name of remedying cost-shifting.

5.1. Value of Distributed Energy Resources

While NB Power made certain characterizations about cost-shifting and why NEM modernization is necessary, the Company relied on a generic value of solar study. As far as could be determined, NB Power has not conducted a comprehensive, quantitative study exploring the value of distributed energy resources (VDER) in New Brunswick. As such, we know little about the real value of solar and other DERs in New Brunswick.

As a starting point, NB Power should complete a VDER analysis. Through an interrogatory response, the Company indicated its view that it lacks any mandate from the Board to develop the capabilities to conduct a VDER.[50] Synapse recommends that the Board make completion of a VDER study a requisite for granting the Company's request for consideration of modernization of DG compensation. The Board may provide further direction on the specific types of values that the Company should include in its DER

[46] NBP 1.03, Evidence, p. 76.

[47] Supplemental response to NBEUB IR-31.

[48] In jurisdictions with low levels of adoption, the cost shifting impacts on other customers are necessarily quite small. If only 1 percent of class load is accounted for by distributed solar, then the worst-case scenario is approximately 1 percent higher bills for nonparticipating customers, with a strong likelihood of lower impacts given the offsetting benefits of solar generation. See: *Electric Cost Allocation for a New Era: A Manual*, The Regulatory Assistance Project (2020).

[49] The Province of New Brunswick has legislation and regulations that include a renewable portfolio standard and permits the development of embedded generation and net metering policies by NB Power (New Brunswick Regulation 2015-60 under the Electricity Act). Eligible homeowners can receive a grant of up to $5000 from the government of Canada for a solar photovoltaic system through the Canada Greener Homes Initiative. The Government of Canada provides tax incentives for businesses investing in clean energy projects

[50] Response to NBEUB IR-33.

valuation, and the Board may further prescribe methods for measuring these values to the extent warranted.

It is important that any VDER conducted in the future by the Company not neglect relevant values. While the Company's exhibit/appendix on alternative DG compensation mechanisms explains different rate designs, it omits important aspects regarding the value stack of DERs. For instance, DERs provide capacity, energy, transmission, and distribution benefits through avoided costs. While NB Power considers the avoided energy and T&D costs in its evaluation of DG benefits, it omits avoided capacity costs and other benefits.[51] Because DERs are most commonly solar and other low-carbon resources or measures (such as energy efficiency) they also deliver environmental and social benefits by avoiding air emissions and reducing public-health-related costs. Another benefit of DERs is improving system resiliency through the decentralization of energy resources, which mitigates the impact of any one outage on the grid. All of these values must be examined and quantified to the greatest extent possible alongside the costs of DERs to arrive at a VDER that truly reflects the benefits they deliver.

5.2. Distributed Solar's Contribution to Capacity Needs

NB Power makes certain tenuous assumptions concerning the value of solar that should be more thoroughly examined. In its response to IR-31 from the Board, NB Power claims the system peak is during the winter from 7 am – 9 am and that solar production is "essentially non-existent" and not "material" during that time.[52] NB Power therefore believes that solar does not contribute to the capacity needs of the system. This conclusion overlooks ways in which solar would in fact contribute to capacity needs. For instance, it is possible that different distribution zones or areas in the grid may experience a local peak when solar energy is in fact being generated, such as in a zone with higher concentrations of commercial and industrial customers. This perspective also neglects the contribution solar can make in providing low-cost energy for energy storage technologies to recharge at the most economical rate for subsequent dispatch during system peaks.

5.3. Lack of Information to Assess Cost-Shifting

NB Power needs to continue to collect data on DG customers' load and cost characteristics, including through its load research program, before it or the Board can determine whether any significant cost-shifting is occurring as a result of DG. It does not appear that the Company current has the needed information on hand. As an example of a potential informational gap, it is unclear whether NB Power has granular information on the performance of solar energy by hour and by season. Furthermore, NB Power appears to lack the in-house capabilities and experience necessary to conduct a comprehensive VDER analysis, which would could include assessment of system upgrade deferral potential and locational based marginal pricing (LBMP) values. As a preliminary step, NB Power uses a generic solar

[51] Supplemental response to NBEUB IR-31.

[52] Ibid.

valuation to extrapolate cost of service and cost-shifting conclusions regarding the value of behind-the-meter solar. It appears that NB Power is waiting for a regulatory or statutory mandate to incorporate LBMP and environmental and social benefit values into the calculation of the value of solar. This is the most appropriate next step for the next phase of this proceeding since a VDER study and value-of-solar study to empirically evaluate cost-shifting would be crucial to determining whether a modernized DG compensation mechanism is even needed. As noted in the Regulatory Assistance Project's *Electric Cost Allocation for a New Era: A Manual,* "some utilities and consumer advocates argue that net metering rules allow customers with solar to pay less than their fair share of system costs. It is important to *quantitatively* (emphasis added) evaluate these concerns before making policy adjustments to address them."[53]

5.4. Recommendations

In summary of the above, Synapse offers the following recommendations:

1. Before taking up the issue of cost-shifting from distributed generation, the Board should direct the Company to demonstrate that distributed generation cost-shifting is currently a material concern in New Brunswick through conducting a value-of-solar analysis.

2. As a preliminary step in conducting this value-of-solar analysis, the Company should provide to the Board for review its specific analytical plans, including any plans for modifying its load research efforts, the specific costs and benefits that the Company intends to include in this analysis, and any methods, inputs, or other assumptions relevant to the accounting of these costs and benefits.

3. At its discretion, the Board may elect to open a dedicated regulatory proceeding for the value-of-solar analysis, with scope for stakeholder participation, wherein the Board may establish methodological guidelines for the Company's value-of-solar analysis and provide other direction (including direction concerning relevant policy and law); the Board may also opt to otherwise provide direction to the Company on objectives for future rate design for DG.

[53] See: *Electric Cost Allocation for a New Era: A Manual*, The Regulatory Assistance Project (2020), p. 90.

6. ELECTRIC VEHICLES

The Company makes three discrete requests concerning EVs: to allow the Company to set rates for EV charging stations that are a part of the eCharge network to be comparable to EV rates charged in the region and to waive general rate increase for its eCharge customers; to take up the issue of public charging and fleet charging in Phase 2 of this proceeding with the aim of mitigating unnecessary or unjustified barriers in rate design as an objective; and, in Phase 2, to consider the potential for cost shifting resulting from EV residential and general service charging. These proposals are addressed in this section.

6.1. Pricing for eCharge Network Stations

The Company asks for authorization to continue its practice of setting rates for its eCharge stations and to waive general rate increases for these customers. Synapse recommends that this request be approved, since third-party customer participation in the eCharge network is voluntary and the impact of waiving general rate increases in the short term is probably trivial. However, the Company should seek to measure the revenue-to-cost ratios for these stations to determine the extent of any cross-subsidization and cost-shifting resulting from these pricing practices.

6.2. Special Rate Treatment and Cost-Shifting Concerns

The Company's two other EV-related requests seem to cut in opposite directions. On the one hand, the Company is requesting that the Board undertake to mitigate unnecessary or unjustified rate design barriers affecting public and fleet charging. On the other hand, the Board raises concerns about and requests that the Board attend to cost shifting relating to residential and general service EV charging. It is not clear why the Company has not articulated concerns about cost-shifting that could result from the requested mitigation of rate barriers for public and fleet charging, though perhaps the focus on "unnecessary or unjustified barriers" implies an objective to make rates for fleet and public charging more cost reflective.

In any case, Synapse observes that there appears to be key gaps in the available data concerning EV load and cost of service. Any discussion about rate changes or cost shifting should be data-based. It is thus imperative for the Company to collect and analyze the EV load data –including data for both residential and business charging use cases, and fleet and public charging use cases– and to present to the Board relevant information about the cost to serve these various customer types. Otherwise, any discussion about what is justified or unjustified, or what is necessary or unnecessary will be abstract. Similarly, it is not possible to have a meaningful conversation about cost-shifting associated with any variety of EV charging without the requisite data demonstrating that cost-shifting is or soon will be a material concern.

Synapse does observe that the extent of current cost-shifting from EV charging is likely *de minimis* given the low level of EV penetration in the province. Furthermore, to the extent there may be any cost-shifting resulting from EV charging, these concerns must be weighed against any countervailing policy objectives promoting EVs. Here, the Board may be able to provide more guidance to Company on the how much cost shifting is tolerable.

6.3. Recommendations

In summary of the above, Synapse offers the following recommendations:

1. The Board should approve the Company's request to continue setting rates for its eCharge member stations and should allow the Company to exempt these member stations from general rate increases.
2. The Board should direct the Company to evaluate the revenue-to-cost ratios of eCharge stations.
3. Before taking up the issue of cost-shifting from EVs, the Board should direct the Company to evaluate the cost of serving different EV charging use cases (including eCharge network sites, private commercial charging stations, fleet charging, and private residential and business charging).
4. Before considering the implementation of any special rates for public charging or fleet charging customers, the Company should demonstrate that this will not result in undue cost-shifting.

7. REGULATORY RATE DESIGN LEARNING SANDBOX

NB Power requests that the Board direct it to submit a proposal in Phase 2 detailing a process for seeking regulatory approval for "special purpose rate designs and rates for a demonstration project, pilot, or soft launch."[54] The Company explains that such a process would support the "learning initiatives" needed to meet the Board's goals for rate design, including through providing insights about "bill impacts, customer perspectives, and compatibilities with technologies."[55] The Company further explains that, without such a process, it might be inhibited from attempting learning initiatives out of "[u]ncertainty about time and effort that would be required to obtain Board approval."[56]

The Company articulates potential objectives and qualification criteria that the Board might apply in screening proposals for special purpose rate designs and rates, which include the requirements that such proposed initiatives support the Board's rate design goals, limit risk, be voluntary, be fully funded, and not last for more than five years.[57]

The Company further suggests that the approval process for special purpose rate designs and rates could consist of "an exchange of letters between the applicant and Board without direct involvement of a larger stakeholder group."[58]

In Synapse's view, the Company's proposal for a streamlined regulatory process for rate pilots has merit. Moreover, undertaking limited trials of special purpose rate designs and rates is likely to be low risk, and potentially, high reward. However, Synapse offers two specific considerations:

First, should the Board ultimately approve such a regulatory process, the Board must carefully balance the need for efficiency with the probable benefits of wider stakeholder involvement. The Company's recommendation to exclude "larger stakeholder" engagement in the review process could be to the detriment of the overall rate design process as stakeholders may provide valuable recommendations for new rate designs and rates and valuable feedback on the Company's pilot proposals.

Second, the Board should carefully consider whether the requirement that pilots be fully funded is warranted. Certain costs may be appropriately recovered from the wider customer base if these costs are reasonable and in service of developing learnings that promise to benefit all customers.

[54] NBP 1.03, Evidence, p. 79.

[55] NBP 1.03, Evidence, p. 77.

[56] NBP 1.03, Evidence, p. 78.

[57] Ibid.

[58] Ibid.

7.1. Recommendations

In summary of the above, Synapse offers the following recommendations:

1. The Board should grant NB Power's request and direct the Company to submit a detailed proposal in Phase 2 for an efficient and predictable process by which the Company can seek approval for special-purpose rate designs and rates for a demonstration project, pilot, or soft launch, as required, to undertake rate design learning.

Should the Board ultimately approve such a regulatory process, the Board should consider the following:

- How to achieve the appropriate balance between the need for efficiency in the approval process and the probable benefits of wider stakeholder involvement; and
- Whether it is necessary for special purpose rate designs and rate pilots to be fully funded.