

NOVA SCOTIA ENERGY BOARD

Nova Scotia Power Incorporated - To obtain a cost reasonableness review of NS Power - CI C0051815 –
\$5,959,515 - RTU Replacements Program – Phase 6, as outlined in Section 2.1 of the 2025 ACE Plan
Decision 13 (M12012) (NSEB M12550)

Midgard Consulting Incorporated Responses to The Consumer Advocate Information Requests

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Request IR-1:

Reference: With respect to Midgard’s statement that NS Power’s execution strategy uses “sequential execution” (p. 13) and that:

The installation sequence does not appear optimized to maximize work crew efficiency through progressive skill development. While NSPI employs process optimizations such as parallel design work and equipment standardization, the physical installation schedule is primarily dictated by risk mitigation (asset condition and criticality) rather than managing sequencing to compound learning and productivity in the service of managing Program costs and execution risk. (p. 14)

- a) Please provide Midgard’s opinion of NS Power’s choice to use sequential execution rather than multiple crews based in different parts of Nova Scotia (multiple crews could provide greater operational efficiency). (Please ensure that this response is reconciled with or considered in your response to CA IR-8 below.)
- b) Please explain Midgard’s understanding of the reason that NS Power used Phases for the RTU Replacements Program rather than proposing full systemwide replacement in one multi-year capital project.
- c) Please provide any information that Midgard is aware of that supports the project schedule, as proposed in the 2025 ACE Plan, as optimal with respect to an earlier filing.
- d) Please explain whether NS Power could have emphasized operational efficiency and work crew efficiency through progressive skill development by proposing and implementing Phase 6 at an earlier date (e.g., in the 2024 ACE Plan rather than the 2025 ACE Plan).
- e) Please provide Midgard’s opinion as to whether NS Power could have reduced the cost of Phase 6 by filing the project earlier and using techniques such as (i) optimized scheduling of multiple work crews as discussed in your response to part (a) to achieve operational efficiency, (ii) use of contract term labour as discussed in your response to CA IR-4(c), and (iii) increased work crew efficiency through progressive skill development as discussed in your response to part (d).
- f) Considering your response to part (e) above, please provide Midgard’s opinion as to a reasonable estimate for any cost reduction that could have occurred through reduced travel time, reduced labour hours, and reduced labour rates (due to reduced overtime labour or contract term labour, including consideration of administrative overhead rates). Please

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provide supporting analysis in an excel workbook, such as a variant scenario based on Exhibit N-3(i)(C).

Midgard Response IR-1:

- a) Midgard’s report employs the concept of optimization to mean a lower cost to execute the program without material changes to the risk profile in its execution. The lower cost is attributable to facilitating the productivity gains from hands on learning by the core execution team.

A multi-crew deployment model could, in theory, reduce overall program duration. However, it would dilute the concentration of learning amongst a greater number of resources, and therefore would not better facilitate productivity gains from hands on learning as effectively.
- b) Midgard did not review or analyze NSPI’s approach to segmenting its RTU Replacements Program into distinct phases, as that assessment was outside the scope of Midgard's assignment. Midgard is not in a position to provide its professional judgement on NSPI’s decisions regarding the phasing of its RTU replacements.
- c) Midgard is not aware of any documentation provided by NSPI that specifically establishes the 2025 ACE Plan filing date as optimal relative to an earlier filing. Midgard’s report employs the term “optimal” in reference to learning-curve efficiency within the planned execution of Phase 6, consistent with Midgard's response to CA IR-1(a).
- d) Midgard’s report did not include a review of NSPI’s execution of Phase 5 of its RTU replacement program, nor did it evaluate the optimal timing for filing Phase 6. Please see response IR-1(b). While NSPI’s evidence and responses imply that the organization has incorporated continual learning into its 2025 ACE plans, and that the timing of its RTU replacements is informed by its risk and asset management programs, Midgard’s report does not analyze or comment upon these internal asset management processes.
- e) As noted in Midgard’s response to CA IR-1(b), evaluating alternative historical filing timelines for the RTU Replacements Program is outside the scope of Midgard's assignment. Consequently, Midgard has not performed an analysis to determine if an earlier filing, combined with the hypothetical application of multiple crews, contract labour, and alternative learning sequences, would have yielded cost reductions. Midgard is not in a position to provide its professional judgement on the financial outcome of this hypothetical scenario.
- f) Please refer to Midgard’s response to CA IR-1(e).

Request IR-2:

Reference: With respect to Midgard’s finding (p. 21) stating, “Using materials cost as the proxy for the complexity of the equipment, Phase 6 materials costs are comparable with those in Phase 5,” please provide the supporting analysis in an excel workbook.

Midgard Response IR-2:

The supporting analysis is provided in the Microsoft Excel workbook previously filed as Exhibit N-3(C)-(i), which underpins Table 6 of Midgard’s evidence report.¹ The key findings are:

1. Phase 5 materials cost per RTU (normalized to 2025 dollars) = \$97,182;
2. Phase 6 materials cost per RTU = \$107,115;
3. variance = +10.2%.

The workbook also includes formulas documenting the CPI escalation methodology (Phase 5 in-service 2019 escalated to 2025) and the RTU normalization factor ($\div 4$ RTUs for Phase 5, $\div 14$ for Phase 6).

¹ Exhibit N-3, Section 3.2.1.1, Table 6, p. 17.

Request IR-3:

Reference: With respect to Midgard’s finding (p. 30), stating “Consequently, a technical comparison between Phase 1 and Phase 6 scope, complexity, or execution methods cannot be supported by primary documentation”:

- a) Please explain why Midgard did not attempt a technical comparison between Phase 6 and phases other than Phase 1.
- b) On p. 17, Midgard references NS Power’s statement that “key personnel involved in earlier phases are no longer with the Company.”
 - i. Please confirm that NS Power’s response appears to refer to key personnel involved in Phase 1, given the context of the question. If not confirmed, please explain the basis for Midgard’s understanding.
 - ii. Please explain why Midgard did not seek information on whether key personnel involved in more recent phases (e.g., Phases 4 and 5) are involved with Phase 6 work and, if so, in what capacity.
- c) Please identify any other analysis that was constrained by difficulties in comparing Phase 6 to Phase 1 that were not resolved by a technical comparison between Phase 6 and phases other than Phase 1.
- d) Please explain whether Midgard is satisfied with the sufficiency of data for topics discussed in part (c) of this information request.
- e) If Midgard had the opportunity to obtain additional information from NS Power that was not requested prior to completing its report, please identify what additional information would be useful and how it would assist Midgard in improving the definitiveness or other qualities of its report.

Midgard Response IR-3:

- a) The Board’s 2025 ACE Plan Decision emphasized the Phase 1 to Phase 6 labour hour escalation as the central concern, given the approximately four-fold increase identified.² Midgard’s scope of work was accordingly framed around that question.

The initial analytical methodology required a comparison between Phase 1 and Phase 6 to determine whether the documented cost increases were justified. Midgard had expected to receive more information in NSPI’s responses to its IRs than was provided, for reasons detailed in NSPI’s responses.

Because information for the Phase 1 was unavailable, the technical assessment necessarily relied on some information, namely regarding Phase 5 of NSPI’s RTU replacement program, that was

² NSEB Matter No. M12012, Decision, Section 2.2.1, pp. 8-11.

1 available on the NSEB website and public database of archived decisions and orders, as well as
2 professional engineering judgment applied to the defined scope of work for Phase 6.
3

4 b)

- 5 i. Confirmed. The context of NSEB RIR-1(a) concerned NSPI's ability to substantiate Phase
6 1 labour parameters, and NSPI's response regarding personnel no longer with the company
7 appears to refer to personnel involved in Phase 1 execution.
- 8 ii. Midgard did not request personnel data for Phases 4 and 5 because the primary analytical
9 focus directed by the Board pertained to the cost escalation originating between Phase 1
10 and Phase 6. Securing continuity data from recent phases could validate that organizational
11 learning has been preserved and applied to Phase 6 planning.
12

13 c) The primary analyses constrained by this limitation include:

- 14 a. Labour hour productivity benchmarking, where a Phase 2–5 actuals database would have
15 provided a more statistically robust benchmark than a single Phase 5 data point; and
- 16 b. Contingency calibration, where realized contingency drawdown data from Phases 2-5
17 would have enabled probabilistic rather than qualitative contingency assessment.
18

19 d) Midgard's report conclusions were informed by alternative methods (IFC-based allocation, RFW
20 documentation review, Phase 5 cost normalization) absent Phase 2-5 data.
21

22 e) In brief, Midgard's IRs requesting detailed information on Phase 1 could have been replicated in
23 the IRs, substituting Phase 1 with Phase, 2, Phase 3, Phase 4 and Phase 5.
24

25 The most useful additional information would consist of complete technical, labour, and execution
26 data from Phase 1 and other prior phases. Access to this historical documentation would improve
27 the factual record of the report and enable direct empirical comparison with Phase 1 data.

Request IR-4:

Reference: With respect to Midgard’s recommendation (p. 36) stating, “Midgard recommends a 30% reduction in labour hours to align the estimate with reasonable productivity levels supported by technical documentation”:

a) On p. 18, Midgard finds that, “Overtime Labour rose by approximately 228%, indicating a materially higher reliance on premium hours relative to historical norms.” On p. 25, Midgard quotes NS Power as stating that, “Risks intended to be covered by the contingency are overtime work that may be required ...” On p. 31 in footnote 65, “Midgard’s estimates reflect regular hours only, with overtime expected to be minimal under normal execution conditions.”

i. Please provide a revised project budget based on applying the recommended reduction in labour hours, reducing overtime hours first consistent with footnote 65. Please supply this document as an excel spreadsheet with all primary data included and formulas intact.

ii. If not all overtime hours are removed in the revised project budget provided in the response to part (i) above, please explain how the 30% reduction in labour hours is consistent with the finding on footnote 65 and how both points may be reconciled.

iii. Assuming that all contingency cost is represented by overtime hours, please provide an estimate of how many overtime hours would be provided for in the contingency cost and how that compares to the 30% reduction recommended by Midgard.

b) With respect to the comparison between “NSPI’s 25-32 day estimate and its reconciliation to RFW-documented durations” (p. 30):

i. Is it mathematically possible that NS Power’s budgeted overtime labour explains the difference?

ii. Considering the lower end of the percentage difference calculated by Midgard (line 20), what would be the reduction if this value were the basis for Midgard’s recommendation?

iii. Please explain why the comparison between NS Power’s estimate and the RFW-documented durations was not used as the basis for Midgard’s labour hour reduction recommendation. In your response, please state whether such a decision would, in Midgard’s opinion, be reasonable even if it is not Midgard’s recommendation.

- 1 c) With respect to Table 21 in Appendix A, how did Midgard evaluate labour hours for
2 contractors in its analysis? Please clarify Midgard's recommendation with respect to internal
3 labour and external contract resources (term labour). In your response, please provide any
4 opinion that Midgard may have as to reasonable assumptions regarding the productivity of
5 term labour as compared to internal labour.
- 6 d) On p. 35, Midgard reports the internal labour overhead rate for regular hours as 53.98% and
7 the contractor overhead rate as 10.45% for 2026+.
- 8 i. Please confirm that Midgard understands the effective internal overtime labour
9 overhead rate for all overtime hours as 26.99% (50% of the regular hour overtime
10 rate). If not confirmed, please provide Midgard's understanding.
- 11 ii. Is Midgard concerned that the higher effective internal overtime labour overhead
12 rate as compared to contractor overhead rate may create an incentive for use of
13 overtime as opposed to contractors (term labour)? Please explain.

14 **Midgard Response IR-4:**

- 15 a)
- 16 i. Based on the revised labour analysis, aligning NSPI's estimated labour hours to the 1,291
17 hours supported by technical documentation yields an average direct cost of \$88,327 per
18 RTU. This represents a 33.4% reduction from NSPI's estimate. The revised budget reflects
19 all labour costs at regular rates, includes travel time, and excludes travel expenses
20 (accommodation and vehicle costs), meals and entertainment, and overhead adjustments.
21 Extrapolated across all 14 RTUs, the total revised direct labour cost is \$1,236,578,
22 excluding overhead adjustments.³ Midgard maintains its formal recommendation of a 30%
23 reduction to provide a conservative margin for execution uncertainties.⁴
- 24
- 25 ii. Footnote 65 clarifies that Midgard's estimates reflect regular working hours only.
26 Midgard's recommended 30% reduction is driven by a reduction in total labour hours, as
27 the IFC-based technical analysis identifies a variance of up to 33.4% in hours relative to
28 NSPI's estimate.⁵ Overtime does not affect total labour hours under Midgard's
29 methodology. However, retaining NSPI's budgeted overtime in the cost estimate would
30 widen the cost differential further, as overtime hours carry a higher effective rate than
31 regular hours.
- 32
- 33 iii. If the \$351,546 Phase 6 contingency budget is allocated exclusively to overtime labour,
34 the number of implied hours is the contingency amount divided by the effective all-in
35 overtime hourly rate. However, contingency is a financial reserve for unknown project
36 risks, not a pre-planned budget for systematic overtime. Therefore, potential contingency

³ Please see the attached Excel workbook (*P0822-D012-MDL-R00-EXT-Evidence IR Response Workbook.xlsx*) for supporting calculations.

⁴ Exhibit N-3, Section 6.2, p. 39, l. 4-5.

⁵ Exhibit N-3, Section 5.1, Table 14, p. 31.

1 spending is unrelated to Midgard's recommendation of a 30% reduction to baseline labour
2 hours.

3
4 b)

5 i. No. NSPI allocated 64 overtime hours per site for each field resource (the electrician and
6 the technician), which equates to 8 standard working days per resource. If a single resource
7 executed their 8 days of overtime sequentially following the [REDACTED] duration specified in
8 the RFW, the schedule would extend to [REDACTED], which remains below NSPI's estimated
9 25 to 32 days. Because these resources execute tasks concurrently, the actual calendar
10 extension would be fewer than 8 days, yielding a schedule under [REDACTED].

11
12 ii. Using the lower end of the duration variance (the difference between the [REDACTED] RFW
13 baseline and the 25 day minimum NSPI estimate) would yield a [REDACTED] reduction for field
14 installation labour. However, as demonstrated in the response to CA IR-4(b)(i), even the
15 25 day minimum threshold cannot be mathematically reconciled with NSPI's own budgeted
16 overtime hours.

17
18 iii. The RFW documentation defines the duration for [REDACTED]
19 [REDACTED]. It does not capture the entirety of the project scope [REDACTED]
20 [REDACTED]. For [REDACTED], the durations
21 specified in the RFW were used as the basis for calculation. However, for [REDACTED]
22 [REDACTED], the assessment relied on professional engineering judgment. Midgard considers
23 its report recommendation to be reasonable based on the report's analysis and professional
24 opinion. The report has not ventured to provide a reasonableness band.

25
26 c) Table 21 derives labour hour estimates from the project's technical scope, making the assessment
27 independent of whether execution uses internal utility personnel or external contractors. Because
28 the methodology isolates the effort required by the defined scope, the recommendation applies
29 uniformly to total hours without distinguishing external or internal labour sources.

30
31 d)

32 i. Comparing the internal overtime overhead rate to the contractor overhead rate involves
33 distinct underlying cost components. Internal overhead comprises a variety of corporate,
34 administrative, and facility support costs allocated to capital projects, whereas external
35 contractor overhead applies to third-party expenditures and encompasses different
36 financial components. Midgard's evaluation of cost-effectiveness focuses on baseline
37 labour efficiency rather than opining on whether the variance between these different
38 overhead allocation models creates an execution incentive.

39
40 ii. Please refer to Midgard's response to CA IR-4(d)(i).

Request IR-5:

Reference: With respect to Midgard's discussion of the contingency amounts and budget (p. 19, 25-27):

- a) Please provide Midgard's opinion regarding whether NS Power's 10% contingency budget is consistent with NS Power's non-binding contingency guidelines, as directed by the Board in its 2020 ACE Plan Decision, Matter No. M09499 (June 25, 2020), pp. 33-37, using the most recent version of the guidelines submitted by NS Power in Exhibit N-4, Matter No. M12012, CA RIR-15, Attachment 1. In your response, please consider both the scenario in which the Board accepts Midgard's 30% reduction recommendation as further elaborated on in response to CA IR-4 and the scenario in which the Board rejects that recommendation.
- b) Considering the referenced material and any other information from NS Power proceedings that the Midgard staff involved in this project are familiar with, please provide any opinion that Midgard may have as to:
 - i. Material weaknesses in the non-binding contingency guidelines; and
 - ii. NS Power's application of those guidelines.
- c) Please confirm that the only risk register documentation provided by NS Power to Midgard is found in NSEB RIR-2, Attachment 1. If not confirmed, please identify relevant documents.
- d) In a previous proceeding, NS Power explained that transmission line replacement projects with a 15% contingency "are routine in nature and do not present a higher level of cost risk," further pointing out that, "There are contracts with set pricing in place to control the costs of executing the work," and that "While outage windows for transmission lines can fluctuate, this typically does not have a material impact on completion timelines or overall cost." (Exhibit N-5, M11458, CA RIR-17) Please provide Midgard's opinion as to whether the RTU replacement projects can be considered "routine in nature," "do not present a higher level of cost risk," "have set pricing in place to control costs," and that costs and completion timelines are not materially affected by any outage windows for transmission lines.
- e) Similarly, in the 2026 ACE Plan proceeding, NS Power justifies the lack of a risk matrix and detailed schedule for transformer addition projects on the basis that, "NS Power has significant experience completing [the transformer addition projects] and the risks to the project are well understood, as they are generally very consistent across all transformer addition projects." (Exhibit N-3, M12619, CA RIR-16) Please provide Midgard's opinion as to whether the NS Power has significant experience completing RTU replacement projects and whether risks to the Phase 6 project are generally very consistent across all transformer addition projects.

- 1 f) Please provide Midgard’s opinion as to whether it would have been reasonable for NS Power
2 to not prepare a risk matrix for the Phase 6 project.
- 3 g) Considering your response to parts (c), (d) and (e) above, please provide Midgard’s opinion
4 as to whether the risk matrix documentation demonstrates a recommended level of attention
5 to potential drivers of cost, completion timeline, and any other categories of risk that Midgard
6 considers relevant to RTU replacement projects.
- 7 h) In Exhibit N-2, NSEB RIR-9, NS Power does not refer to the Project Delivery Model as
8 applied to current RTU projects that did not apply to Phase 1. As the Board summarized in
9 its 2024 ACE Plan decision,

10 The PDM serves as the overarching framework that provides guidance on
11 documenting and sharing cost minimization expectations and practices within
12 NS Power’s business. The PDM also describes the process for the proactive
13 review and tracking of cost minimization opportunities during all stages of
14 the project life cycle. (NSUARB, 2024 ACE Plan Decision, Matter No. M11458
15 (August 13, 2024), para. 183.)

16 In its approval of the PDM as submitted, it directed NS Power to “revise its PDM to include
17 a quality control step to verify that maturity matrices, risk registers, and other relevant
18 documents are accurate ...” (*Id.*, para. 198) Please provide Midgard’s opinion as to NS
19 Power’s compliance with the 2024 ACE Plan decision with respect to the RTU Replacement
20 Phase 6 project.

21 **Midgard Response IR-5:**

- 22 a) Midgard assesses the 10% contingency as a matter of cost reasonableness, utilizing NSPI’s non-
23 binding guidelines as an industry reference for Class 3 estimating practices rather than conducting
24 a compliance audit.

25
26 If the Board accepts Midgard's 30% labour reduction applying a proportional 10% contingency to
27 the revised base aligns with standard Class 3 estimating parameters and historical program
28 maximums (see Midgard's response to CA IR-4 for supporting calculations). Similarly, if the Board
29 rejects the reduction, the filed contingency amount on the unadjusted estimate continues to align
30 with these historical upper bounds.⁶

- 31
32 b) Midgard has not formed an opinion regarding potential material weaknesses in the non-binding
33 contingency guidelines or their general application. Midgard’s engagement is limited to assessing
34 the cost reasonableness of the Phase 6 estimate.

- 35
36 c) Confirmed.
37
38

⁶ Exhibit N-3, Section 4.2, Table 11, p. 26.

- 1 d) Midgard does not consider the Phase 6 RTU replacement projects strictly routine in nature. The
2 evidentiary record demonstrates variability across the portfolio, with site complexities ranging from
3 straightforward replacements to control-heavy hubs requiring integration.⁷ The Phase 6 cost
4 estimates are also dependent on variable internal utility labour and systematic overtime.⁸
5 Furthermore, NSPI has stated that its specialized technicians must coordinate these capital
6 installations alongside system maintenance activities, indicating that execution timelines and
7 associated costs are impacted by resource availability and operational constraints.⁹
8
- 9 e) Midgard considers the execution risks associated with the Phase 6 RTU replacement program to be
10 distinct from those typically observed in transformer additions. While transformer projects rely on
11 standardized, standalone equipment procurement, RTU replacements involve variable software
12 configuration, signal mapping, and multi-system integration across disparate sites. The technical
13 heterogeneity of the Phase 6 portfolio indicates that the associated labour and execution risks are
14 site-specific.¹⁰ While NSPI has executed prior phases of the RTU program, NSPI has confirmed it
15 did not maintain formal program-level productivity metrics,¹¹ limiting the degree to which past
16 experience can be used to treat Phase 6 cost risks as uniform or predictable.
17
- 18 f) Within the context of evaluating cost reasonableness, Midgard considers the absence of a
19 quantitative risk matrix for the Phase 6 project to be a limitation. NSPI's contingency operates as a
20 static, policy-based allowance rather than a risk-modeled reserve calibrated to the specific risk
21 profile of the project. The existing risk register catalogs key operational and supply-chain risks, but
22 the link between these threats and the contingency is qualitative rather than quantitative. It assigns
23 qualitative ratings (e.g., Medium Impact, High Likelihood) but does not assign monetary values,
24 calculate expected cost exposures, or utilize probabilistic modeling.¹²
25
- 26 g) The risk register documentation provided by NSPI does not demonstrate an adequate level of
27 attention to the project's risk profile or cost drivers. The Phase 6 portfolio exhibits technical
28 heterogeneity, variable site complexities, and reliance on operational coordination and overtime.
29 While the provided risk register categorizes operational and supply-chain risks using qualitative
30 ratings (e.g., "Medium Impact, High Likelihood"), it fails to map these qualitative ratings to
31 expected cost exposures or contingency drawdown amounts. Given the lack of program-level
32 historical productivity metrics and the site-specific execution risks identified in this proceeding, a
33 qualitative register without monetary valuation is insufficient to empirically validate the project's
34 contingency or overall cost profile.
35
- 36 h) Midgard's evidentiary report did not analyse the Board's PDM directive. However, based upon
37 Midgard's professional opinion, from a cost estimation perspective, the Phase 6 documentation
38 lacks evidence of a quantitative quality control process. The provided risk register utilizes
39 qualitative metrics without establishing traceability to expected monetary impacts or discrete cost
40 drivers. Absent empirical calibration or demonstrated cost tracking under a formal Project Delivery

⁷ Exhibit N-3, Section 3.1, Table 4, p. 13.

⁸ Exhibit N-3, Section 3.2.1.1, pp. 16-18.

⁹ NSEB Matter No. M12012, Exhibit N-21, Undertaking U-6, p. 2, l. 21-27.

¹⁰ Exhibit N-3, Section 3.1, Table 4, p. 13.

¹¹ Exhibit N-2, NSPI Response to I-2(e), p. 5 of 7, l. 8-9.

¹² Exhibit N-3, Section 4.2, p. 25, l. 9-20.

1 Model, the submitted documentation does not provide the structural accuracy required to validate
2 the project's contingency allowance.

1 **Request IR-6:**

2 **Reference:** With respect to Midgard’s conclusion that “Learning occurred through ad-hoc
3 channels rather than formal post-project reviews or lessons-learned assessments, creating
4 organizational risk given recent personnel turnover” (p. 20):

- 5 a) Please explain why Midgard did not provide a recommendation related to post-project
6 reviews or lessons-learned assessments.
- 7 b) Please provide any recommendations or best practices regarding post-project reviews or
8 lessons-learned assessments that may be useful to improve planning and execution of capital
9 projects with execution practices and challenges similar to RTU replacements.

10 **Midgard Response IR-6:**

- 11 a) Midgard’s finding regarding the absence of formal lessons-learned assessments was documented
12 as a risk observation.¹³ Midgard limited its formal recommendations to adjusting the labour hour
13 estimates and enhancing reporting requirements because those specific items directly address the
14 cost reasonableness mandate of this proceeding. The specific recommendations provided by
15 Midgard are as follows:

- 16
- 17 a. *“Adjustment to Labour Estimate: Reduce the approved labour hours for the Project by*
18 *30% to reflect a technically supportable baseline consistent with RFW documentation.*
- 19 b. *Enhanced Reporting Requirements: Direct NSPI to (i) reconcile assumed installation*
20 *durations to site-specific technical documents, (ii) document the attribution methodology*
21 *for Program-level project management, and (iii) provide a task-level labour basis of*
22 *estimate that explicitly maps hours to discrete deliverables for future Phases.”*¹⁴
23
- 24 b) Please refer to Midgard’s response to Part (a).

¹³ Exhibit N-3, Section 3.2.2, p. 20, l. 14-15.

¹⁴ Exhibit N-3, Section 6.2, p. 39, l. 4-9.

Request IR-7:

Reference: With respect to Table 14 (p. 31), please explain the differences between data in column Total Hours/RTU-NSPI and the data in Exhibit N-2, NSEB RIR-6(b), p. 5. For example, SM Electrician is reported as 272 hours in Table 14 and 240 hours in NSEB RIR-6(b). The same total hourly data in NSEB RIR-6(b) appear to be included in NSEB RIR-10(a), RIR-12(b). Note that Exhibit N-3(i)(C), tab Labour, does not appear to include formula support to reconcile these data. In your response, if there are any other material differences between the data in Exhibit N-3(i)(C) and supporting data provided by NS Power that are not explained by existing formulas in the workbook, please provide support for those differences as well.

Midgard Response IR-7:

The discrepancy between the SM Electrician figure of 272 hours in Table 14 and 240 hours in NSEB RIR-6(b) reflects the treatment of overtime hours. Table 14 reports total hours per resource, combining regular and overtime hours, while the tables in NSEB RIR-6(b) report them separately. For example, the 64 overtime hours identified in IR-8 for the Electrician/Technician category were allocated equally between the electrician and technician roles.¹⁵ Adding the 32 overtime hours to the 240 regular hours reported in NSEB RIR-6(b) reconciles to the 272 total hours in Table 14.

¹⁵ Exhibit N-2, NSPI Response to I-8(a), p. 3 of 5.

Request IR-8:

Reference: In Appendix A, p. 40, Midgard discusses the average commute time for RTU replacement project staff. Related to operational efficiency in dispatching staff and other resources, NS Power has reported on the initial impacts of its Work Management and Scheduling & Dispatch project, which upgraded deployment of IBM Maximo and Salesforce software. NS Power stated that savings were achieved through outcomes such as enhancing “operational efficiency by eliminating redundant trips and unnecessary site visits” (Exhibit N-1, M12253, M10400 CI46075 – IT – T&D WAM Phase 2 – Work Management and Scheduling & Dispatch Application Benefits Report, p. 3).

- a) Please describe the familiarity of the Midgard team that worked on the RTU Replacements Program report with this type of software and its application by any utilities.
- b) Based on the Midgard team’s professional experience, is it likely that the Maximo/Salesforce software could improve operational efficiency in the RTU Replacements Program, such as by reducing the average commute time by scheduling resources located proximately to the RTU projects?
- c) Please describe any evidence identified by Midgard as to how NS Power sought to minimize costs through improved operational efficiency including, but not limited to, use of the Maximo/Salesforce software.
- d) How would Midgard recommend reconciling any compromise between operational efficiency, criticality, and opportunities for learning-curve benefits?

Midgard Response IR-8:

- a) The Midgard team possesses no operational experience using IBM Maximo or Salesforce software. The team's qualifications consist of substation engineering, project management, and utility capital project delivery.¹⁶
- b) From a general project management perspective, any methodology that successfully assigns crews to geographically proximate sites will reduce average daily travel time and corresponding total labour hours.
- c) Midgard identified no evidence in the proceeding record indicating that NSPI utilized IBM Maximo or Salesforce to optimize crew deployment or minimize travel costs for Phase 6. NSPI's documented execution strategy relies on risk prioritization.¹⁷
- d) Midgard recommends evaluating RTU replacements across three dimensions: asset criticality, site complexity, and geographic proximity. Asset condition dictates the primary schedule. Among assets with equivalent criticality, lower-complexity and geographically clustered sites should be sequenced first to compound productivity gains and reduce logistical hours.

¹⁶ Exhibit N-3, Appendix B.

¹⁷ Exhibit N-3, Section 3.1, p. 12, l. 10-14.

Request IR-9:

Reference: In Exhibit N-2, NSEB RIR-8(a), NS Power provides its “most reasonable estimate” of the qualitative factors that affect the overall labour effort for the RTU replacements project.

- a) Please confirm that Midgard did not include discussion that relies on this evidence in its report and provide an explanation for this decision. If not confirmed, please explain how this evidence is included in its report.
- b) Please provide Midgard’s opinion as to the reasonableness of NS Power’s estimates. In your response, please specifically discuss the following:
 - a. The 104 hour labour increase for RTU technicians due to infrastructure complexity.
 - b. The 104 hour labour increase for RTU technicians due to scope change.
 - c. The 80 hour labour increase for engineering due to infrastructure complexity.
 - d. The 80 hour labour increase for scope change due to infrastructure complexity.
 - e. Any other specific estimates included by NS Power in this table that Midgard finds questionable.

Midgard Response IR-9:

- a) While Midgard used the total average hours per RTU in NSEB RIR-6 and RIR-8(a) as the utility’s baseline estimate for comparison, it did not rely on the incremental factor allocations in RIR-8(a). Midgard’s labour allocation analysis was developed bottom-up, referencing Phase 6 IFC packages and RFW documentation.¹⁸ The categorical breakdown of incremental hours in RIR-8(a) was excluded because the absence of Phase 1 baseline documentation renders the utility’s proportional allocations unverifiable.
- b) Midgard cannot verify the specific 104-hour and 80-hour increments individually, because the absence of the Phase 1 baseline scope and design basis precludes a discrete technical comparison for each isolated factor.¹⁹

¹⁸ Exhibit N-3, Section 5.1, p. 29, l. 15-20.

¹⁹ Exhibit N-2, NSPI Response to I-1(a), p. 2 of 4, l. 6-23.