Nova Scotia Energy Board

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July 21, 2025

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Annie Beth Sampson, P.Eng.
Manager, Regulatory
Nova Scotia Power Incorporated
1223 Lower Water Street
Halifax, NS B3J 2W5

Dear Ms. Sampson:

M11927 – Nova Scotia Power Incorporated – CI 50518 – HYD Ruth Falls Main Dam Refurbishment – $14,839,116 (Amended ATO)

On June 18, 2025, the Nova Scotia Energy Board (Board) issued a decision in Matter M11927 Nova Scotia Power Incorporated – CI 50518 – HYD Ruth Falls Main Dam Refurbishment -$15,445,508 (ATO). The Board's decision stated:

> The Authorization to Overspend application will be held in abeyance until NS Power receives the *Fisheries Act* Authorization from the Department of Fisheries and Oceans. Once the *Fisheries Act* Authorization is obtained, NS Power can file an amended application, which must be accompanied by a Net Present Value analysis comparing the preferred refurbishment option to the decommissioning option.

In a letter dated July 4, 2025, NS Power notified the Board that it had received the *Fisheries Act* Authorization (FAA) for the project on June 17, 2025 (a copy of the FAA was attached to the letter). Per the Board's decision in M11927, NS Power's letter also included an updated detailed dam refurbishment project cost estimate resulting from the finalization of the FAA process, and a comparative Net Present Value (NPV) analysis of the proposed dam refurbishment project to the decommissioning option.

Based on the FAA, NS Power confirmed that the habitat offsetting requirements and related costs associated with the dam refurbishment project have reduced since filing of the Company's original ATO application. As such, NS Power updated its detailed cost estimate for the project. NS Power is now requesting Board approval of an amended ATO for the Ruth Falls Main Dam Refurbishment Project in the amount of $14,839,116. This represents a reduction of $606,392 from the Company's original ATO request.

NS Power's amended application also stated that the finalized FAA only allows the Company to decrease the dam headpond level between July 21, 2025, and March 31, 2026, after which water levels must be returned to the normal operating range. NS Power noted that any delay beyond the July 21, 2025, start date could jeopardize its ability to complete the work within the authorized window. This could, in turn, require deferral of construction to a subsequent year and require an amendment to the FAA. If this were to occur, NS Power indicated that the dam refurbishment project would likely incur cost increases.

For the dam refurbishment option, NS Power's NPV comparative analysis included all capital costs associated with the project, as well as future sustaining capital, operating and maintenance cost estimates associated with continued operation of the Ruth Falls hydro system. The sustaining capital cost estimates were taken from NS Power's most recent Hydro Interval Plan (HIP). The analysis also included additional annual contingency allowances in the event that additional sustaining capital were required at Ruth Falls not currently captured in the HIP. The decommissioning option included estimated capital costs to decommission the Ruth Falls dam and powerhouse, as well as costs for replacement generation. NS Power's NPV analysis comparing the Ruth Falls dam refurbishment option to the decommissioning option shows a significant cost gap between the two options. The present value estimate of revenue requirement for the dam refurbishment option is minus $21,926,086, while that of the decommissioning option is plus $49,632,167. The analysis, therefore, suggests that from an NPV perspective, the dam refurbishment option is preferred.

The Board allowed Intervenors and Board Counsel Consultants, Midgard Consulting Inc., (Midgard) to file comments/submissions on NS Power's amended ATO application. The Small Business Advocate (SBA) filed comments on July 14, 2025, while the Industrial Group and Midgard filed comments/submissions on July 17, 2025. NS Power filed reply comments/submissions on July 18, 2025.

<u>Submissions/Comments</u>

The SBA had no further comments beyond those noted in its March 25, 2025, closing submissions from the original ATO application. Nonetheless, the SBA continued to request that the Board require NS Power to provide regular status updates on the project.

As it relates to the finalized FAA, Midgard stated that the FAA is within expectations and removes a significant area of risk for the dam refurbishment project. With regards to NS Power's updated project cost estimate, Midgard noted that the Utility's amended application adjusted the costs for "Offsetting (West River Project)" and "Offsetting Contingency", resulting in the $606,392 decrease in the overall project cost estimate. Midgard concluded that it is reasonable for the project cost estimate to decrease as a result of the offsetting requirements being confirmed in the finalized FAA. Specifically, Midgard noted that the final offsetting amount from the FAA is 27,601 m², while NS Power's "Offsetting Contingency" line item was meant to account for offsetting amounts up to 40,000 m². Therefore, Midgard concluded that it is reasonable for some or all of the "Offsetting Contingency" line item to be removed as part of the amended ATO application. However, the final offsetting amount of 27,601 m² is greater than NS Power's originally estimated 20,000 m² for the "Offsetting (West River Project)" line item. As such, Midgard stated that it is not clear why cost of the "Offsetting (West River Project)" has now decreased. Given that the reasons for the exact amount of the decrease are unclear, Midgard recommended that NS Power provide additional detail in its reply submissions on how it estimated the updated offsetting cost.

Midgard expressed concerns about the schedule status of the project, noting that NS Power now has just over eight months (many of which are winter months) to complete the project's in-stream works. Midgard concluded that the timelines imposed by the FAA, and NS Power's ability to meet those timelines, represent a key cost risk area for the project going forward. Midgard noted that this risk is lessened if NS Power is able to start construction as soon as possible to July 21, 2025, but will remain, to some extent, regardless of start date.

Midgard also referenced a second construction window identified in NS Power's amended ATO application. This window runs from July 1, 2025 to July 21, 2025, and allows for "in-water installation of access roads downstream of the Ruth Falls dam and the temporary bridge construction below the Ruth Falls Dam in the East River, Sheet Harbour". Midgard stated that it is unclear whether NS Power has begun this construction and will meet this condition of the FAA. As such, Midgard recommended that NS Power should provide an update on the status of this work and of the associated FAA condition in its reply submissions.

Midgard's review of NS Power's Economic Analysis Model (EAM) comparing the dam refurbishment option to decommissioning suggests that the EAM results appear to be reasonable given the model inputs. Midgard noted that the results of the EAM are particularly sensitive to the cost of the decommissioning alternative and the cost of replacement energy if Ruth Fall is decommissioned. To better understand the sensitivity of the economic analysis to these inputs, Midgard conducted a sensitivity analysis of the EAM. This involved adjusting the decommissioning capital costs by minus 75% and the cost of replacement energy by minus 50%. Midgard stated that these adjustments represent extreme scenarios. In each sensitivity scenario tested by Midgard using these adjustments, the NPV of the dam refurbishment option remained lower than that of the decommissioning option. Midgard, therefore, concluded that NS Power's EAM appears to be robust even as key inputs are stress tested, and that the refurbishment alternative remains preferable even under the modelled extreme scenarios.

This notwithstanding, Midgard highlighted several issues with NS Power's EAM. Midgard noted that NS Power did not provide supporting cost information for the decommissioning estimate. Midgard stated that it would expect this information to be provided as part of such an analysis in a regulatory environment. Midgard also assumed that NS Power's decommissioning cost estimate is for the decommissioning of only the Ruth Falls portions of the Sheet Harbour hydro system, though this is not stated explicitly by NS Power. More broadly, Midgard stated:

> NS Power's estimation of decommissioning costs is a long-standing issue that has been before the Board several times, and which Midgard has addressed in numerous previous proceedings. In its 2018 Hydro Asset Study, NS Power retained Hatch to carry out decommissioning cost estimates for its entire hydroelectric system. In that report, the cost for decommissioning the entire Sheet Harbour hydroelectric system was estimated at $55.46 M. Escalated from 2018 to 2025 this becomes approximately $68.2 M.
>
> The Ruth Falls facility includes one of six dams and one of two powerhouses in the Sheet Harbour system. Furthermore, the reservoir created by the Ruth Falls dam is relatively modest in size compared to the other six in the system, larger only than that of Malay Falls. Therefore, it is notable and concerning that over the course of seven years, the estimated decommissioning cost for Ruth Falls alone (representing a fraction of the Sheet Harbour system) is now greater than the previously estimated cost of decommissioning the entire Sheet Harbour system, even accounting for inflation. This is suggestive of a much broader issue with the potential for dam decommissioning in Nova Scotia.

The Industrial Group expressed similar concerns as Midgard about the offsetting costs identified by NS Power in the amended ATO application. The Industrial Group stated that there continues to be no specific justification and evidentiary support for the offsetting unit cost rate used by NS Power. In the absence of this justification, the Industrial Group, recommended that NS Power be held to its originally estimated $25/m^2 unit rate for offsetting costs. With respect to the overall project cost estimate, the Industrial Group submitted that the Board should direct NS Power to manage the cost within the envelope approved by the Board, before accounting for any allowance for funds used during construction (AFUDC). The Industrial Group noted that this approach would be consistent with the Board's approval of NS Power's capital application to construct office space on Lower Water Street in Halifax (2008 NSUARB 165). The Industrial Group also recommended that the Board direct NS Power to file a detailed construction schedule and monthly project progress update reports (as required to be submitted to the Department of Fisheries and Oceans (DFO) per the requirements of the FAA) with the Board, with reports on spending vs the approved budget on a quarterly or every six months basis.

As it relates to the decommissioning option, the Industrial Group noted that NS Power's decommissioning option is identified in the amended application as "partial decommissioning". It is unclear to the Industrial Group why the option is "partial" instead of full decommissioning. With the amended application process, the Industrial Group also submitted that there continues to be no opportunity to question the details of the decommissioning scenario and whether there is any alternative that could manage the impact on the environment and fish habitat in a less costly way. Therefore, the Industrial Group recommended that more detail and a range of decommissioning options be presented by NS Power in any future hydro project capital approval applications submitted for Board approval.

In its reply submissions, NS Power clarified that the $25/m^2 unit rate for offsetting, included in its original detailed project cost estimate filed in October 2024, was an estimated rate used to inform the project budget. Since the time of filing the ATO, the Company has awarded a contract to a proponent to complete the offsetting work. The updated costs filed in NS Power's amended ATO application are reflective of the proponent's unit cost rate to complete the required offsetting as established by DFO.

NS Power also addressed Midgard's recommendation for the Company to provide an update on the July 1, 2025, to July 21, 2025, construction window for in-water installation of access roads downstream of the Ruth Falls dam and the temporary bridge construction below the Ruth Falls dam. NS Power stated that the contractor was able to find alternative access to the site that currently does not require a downstream temporary access road. In accordance with its FAA, the Company notified DFO that the downstream access road construction was not moving forward on July 1, 2025, as it was not required. As such, as of July 18, 2025, no instream work has started and will not start until the drawdown is completed.

With regards to the decommissioning option, NS Power noted that while all structures at the Ruth Falls development would be removed under this option, and the site returned to its pre-development conditions, the related Sheet Harbour Hydro System would not be decommissioned in its entirety, as the upstream structures, including the generating station at Malay Falls would remain and the Company would continue to hold operating approvals for the Hydro System. This explains why NS Power entitled the option as "partial decommissioning". NS Power also confirmed that its cost estimate for the decommissioning option in the amended ATO application is only for the Ruth Falls portion of the Sheet Harbour Hydro System.

NS Power also addressed Midgard's concern about the estimated decommissioning cost for Ruth Falls alone (representing a fraction of the Sheet Harbour system) now being greater than NS Power's previously estimated cost of decommissioning the entire Sheet Harbour system, even when accounting for inflation. NS Power stated that its estimated 2018 Hydro Asset Study costs to decommission the Sheet Harbour Hydro System were updated in 2024 (these have since been filed with the Board as Undertaking U-8 in Matter M12012).

Further, these estimates contained several exclusions which would be required if the Company were to move forward with the decommissioning option. These exclusions include, but are not limited to, archaeology, fish habitat compensation, wetland compensation, engagement with the Mi'kmaq of Nova Scotia, and NS Power's internal costs such as labour, travel, meals, and administrative overhead. The costs associated with those exclusions were estimated by NS Power and included in its EAM in its amended ATO application.

In response to the Industrial Group's recommendation that NS Power provide more detail and a range of decommissioning options in future hydro project capital approval applications, NS Power noted that in its April 8, 2025, closing submissions for the original ATO application, it agreed to provide decommissioning costs as part of future applications. However, the Company also indicated that it does not believe there is a case to develop multiple alternatives for partial decommissioning given the difference in NPV of the alternatives considered in the Company's EAM.

NS Power has agreed to provide the detailed construction schedule and monthly progress reports, as submitted to DFO, to the Board and Interested Parties, should the Board deem it necessary. However, NS Power stated that these reports do not include project financial information. Further, since the construction of the project is expected to be completed in an eight-month window ending in April 2026, the Company does not agree that quarterly reporting or reporting every six months on project spending compared to budget is required. NS Power stated that there are well established tools in place to provide reporting to the Board if project spending falls outside of the approved final cost ranges defined within the Capital Expenditure Justification Criteria (CEJC). The Company believes that those ranges provide the appropriate balance of regulatory efficiency to provide an appropriate level of reporting and approvals.

NS Power disagrees with the Industrial Group's recommendations that the Company be directed to manage the project cost with the envelope approved by the Board, before accounting for AFUDC. The Company noted:

> The juxtaposition between NS Power's reconstruction of its office premises at Lower Water Street and the refurbishment of the Ruth Falls Main Dam is not an appropriate comparison. The project justifications, project alternatives, project risks, regulatory environments, and impact to NS Power's operations and rate base are entirely different.

NS Power noted that in the Lower Water Street Matter, the Company presented four reasonable alternatives, and there were different risks associated with each alternative. Further, the NPV of the alternatives were very similar. NS Power noted that the Board was concerned that risks associated with the preferred option could result in the cost of the project exceeding the cost of the next best alternative. As such, the Board directed NS Power to manage the project within the envelope of money approved before AFUDC. In its current reply submissions, NS Power stated that this is not the case for the Ruth Falls main dam project, as the difference in NPV between refurbishment and decommissioning is significant. Therefore, NS Power submitted that all prudently incurred costs associated with the project should be recoverable through the Company's rate base in accordance with the CEJC, including any prudently incurred costs that exceed the ATO threshold and are approved by the Board.

Board Findings

The Board finds that NS Power has provided an adequate response to Midgard's recommendation about providing an update on the July 1, 2025, to July 21, 2025, construction window to construct access roads. No further direction by the Board is required for this item. Similarly, the Board finds that NS Power has sufficiently responded to Midgard's recommendation for the Company to provide an update on how it estimated the offsetting cost in its amended ATO application. Based on NS Power's reply submissions, the updated offsetting cost is based on contract pricing provided by a proponent who will complete the offsetting work. The offsetting cost in the amended application implies that the proponent's unit cost for the offsetting work is lower than the $25/m^2 cost NS Power had estimated in its original ATO application. In this case, the Board finds that it is not necessary to hold NS Power to the $25/m^2, as was recommended by the Industrial Group.

As it relates to NS Power's EAM comparing the NPV of the main dam refurbishment option to the decommissioning alternative, the Board finds that NS Power has sufficiently clarified that the decommissioning cost estimates in the EAM are only for decommissioning of the Ruth Falls assets, as opposed to the complete decommissioning of the Sheet Harbour hydro system. Nevertheless, the Board agrees with Midgard that NS Power provided limited supporting cost information for the decommissioning option. This notwithstanding, the EAM certainly suggests that from an NPV perspective, the refurbishment option is preferred by a wide margin. The Board has greater confidence in this conclusion based on the sensitivity analysis completed by Midgard. That analysis shows that even in extreme cases where the estimated capital costs of decommissioning and replacement energy costs are much less than those estimated by NS Power, the dam refurbishment option remains the lower NPV option. As such, the Board finds that even with the ATO increase in project cost over the cost approved by the Board in NS Power's 2019 ACE Plan, refurbishment of the Ruth Falls main dam is the preferred option over decommissioning of the Ruth Falls assets.

Given the above findings, the Board approves the ATO for the Ruth Falls Main Dam Refurbishment project for a total project cost of $14,839,116. Consistent with the Board's decision for NS Power's office premises at Lower Water Street (2008 NSUARB 165), the Industrial Group has recommended that the Board should direct NS Power to manage this project cost within the approved envelope before accounting for AFUDC. However, the Board agrees with NS Power that the circumstances in the current ATO proceeding are much different than those in the Lower Water Street Matter. Specifically, the difference in NPV between the main dam refurbishment option and decommissioning alternative is much larger than it was between the Lower Water Street options. This leads the Board to find that there is low risk of the refurbishment project cost exceeding the decommissioning cost estimate. The Board, therefore, respectfully does not agree with the recommendation of the Industrial Group. However, as per all NS Power capital projects, the Board expects NS Power to effectively and efficiently manage the Ruth Falls Main Dam Refurbishment project to minimize all prudently incurred capital costs.

The Board notes the tight timeline imposed by the FAA to complete all in-stream construction work for the project between July 21, 2025, and March 31, 2026. The Board fully expects NS Power to mange the project as effectively as possible to meet the March 31, 2026, completion date. The Board also notes that NS Power is well aware of typical timelines required for Board approval of capital applications and ATO applications. The timeline for Board approval in this Matter is within those typical norms. Further, NS Power requested two extensions in the current proceeding, which were approved by the Board and added a total of three weeks to the proceeding's timeline. As such, should NS Power file a further ATO for this project, the Board will not consider any requests for additional costs associated with not meeting the March 31, 2026, completion date resulting from claimed delays in receiving Board approval for the current ATO.

Both the SBA and Industrial Group submitted that the Board should require NS Power to provide regular status updates on the project. The Industrial Group specifically recommended that the Board direct NS Power to file a detailed construction schedule and monthly project progress update reports (as required to be submitted to the DFO) per the requirements of the FAA) with the Board. The Industrial Group also recommended that NS Power be directed to file reports on project spending compared to the approved budget on a quarterly or every six months basis. NS Power has agreed to provide the detailed construction schedule but disagrees that any further project reporting is necessary. NS Power believes that the established project reporting tools defined within the CEJC provide the appropriate balance of regulatory efficiency to provide a sufficient level of reporting for the project. However, the Board notes that construction of the project is expected to be complete within an eight-month window ending by March 31, 2026. Consequently, semi-annually (i.e., once every six months) project reporting would result in only two reports needing to be filed. The Board does not believe that this would result in an onerous regulatory burden. Therefore, given project cost concerns expressed by parties during this proceeding, the Board finds that regular project reporting by NS Power would be beneficial.

As such, the Board directs NS Power to file one project update report on January 21, 2026, and another at the completion of project construction. These reports are to provide status updates on the project, are to include project spending vs budget updates, complete with updates on the use of any contingency and on scope variation amounts. The reports are to be in a similar format to the project update and spending reports filed with the Board in the Tusket Main Dam Matter (M10197). The reports shall also include copies of NS Power’s monthly project progress update reports submitted to DFO, as required by the FAA. NS Power is also to file its detailed construction schedule for the project by July 31, 2025.

The Industrial Group recommended that NS Power provide more detail and a range of decommissioning options in any future hydro project capital approval applications submitted for Board approval. NS Power does not believe there is a case to develop multiple alternatives for partial decommissioning given the difference in NPV of the alternatives considered in the Company’s EAM. The Board agrees with NS Power in this particular matter. However, in future hydro capital approval applications, the difference between the NPV of a proposed project and a partial decommissioning option may not be as large as in the current Matter. Therefore, in future hydro capital applications submitted for Board approval where the difference between the NPV of a proposed project and the partial decommissioning option is marginal, the Board will expect NS Power to present a range of decommissioning alternatives.

When the Utility prepares future capital applications for Board approval, the Board expects NS Power to consider its broader hydro fleet and lessons learned on prior capital projects related to archaeological impacts, requirements and costs. This consideration shall be addressed in NS Power’s line item cost estimates for archaeological and Mi’kmaq engagement, complete with explanations about how the lessons learned were used to develop those cost estimates.

The Board also expects NS Power to provide decommissioning costs and related analyses in future hydro capital approval applications, as applicable. Further, when NS Power presents decommissioning options in its capital approval applications, the Board will expect NS Power to provide supporting information for its decommissioning cost estimates. This information is to include the basis of estimate, the scope of work being estimated, and the level of accuracy of the estimate.

Yours very truly,

Steven M. Murphy, MBA, P.Eng.
Member

c. William L. Mahody, K.C.
Board Counsel Consultants
Parties in Matter M11927

Nova Scotia POWER
An Emera Company

NSEB APPROVAL SHEET

Project Title: HYD Ruth Falls Main Dam Refurbishment

CI Number: 50518

Date: July 8, 2025

Expenditure Profile

Year	Budget Amount	Project Estimate
2017	125,191	125,191
2018	201,467	86,643
2019	1,561,074	490,360
2020	5,334,095	638,963
2021	22,595	1,207,160
2022		1,521,159
2023		126,306
2024		23,917
2025		8,140,400
2026		2,479,017
Total	$7,244,422	$14,839,116

Type of Filing

- [ ] Capital Project Authorization
  - [ ] Unforeseen and Unbudgeted (U&U)
  - [ ] Planned & Advanced (P&A)
  - [ ] Subsequent Approval Item
- [X] Authorization to Overspend (ATO)
- [ ] Scope Change
- [ ] Final Cost (FIN)

COMMENTS

Approved	$7,244,422
Current Submission	$14,839,116
ATO Variance	$7,594,694

Submitted on behalf of NOVA SCOTIA POWER INCORPORATED

Authorized Signatory
Dave Pickles
Chief Operating Officer

DATE
July 8, 2025

Approved on behalf of NOVA SCOTIA ENERGY BOARD

DATE
July 21, 2025