2025 **M12661**

NOVA SCOTIA ENERGY BOARD

IN THE MATTER OF: ***The Public Utilities Act***

IN THE MATTER OF: **An Application by Nova Scotia Power Incorporated for approval of an Extra Large Industrial Dispatchable Above-the-Line Tariff applicable to Port Hawkesbury Paper**

INFORMATION REQUESTS

To: Port Hawkesbury Paper LP

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Issued at Halifax, Nova Scotia, this 18th day of June, 2026.

Request IR-1:

Reference: Testimony, pages 4-5, recommendations 1-7.

(a) For each recommendation, quantify the specific impact on NSP's proposed ELID tariff charges and credits and the additional costs that would be allocated to PHP under Mr. Bowman's proposed approach. Provide all workpapers in excel format with all formulae and links intact.

(b) Provide the revised ELID Tariff charges and credits if the Board were to adopt all seven of Mr. Bowman's recommendations.

Response IR-1:

(a) Mr. Bowman cannot quantify the specific impact of each proposal on the proposed ELID tariff with any precision, given that Mr. Bowman does not have an operable version of NSP's Cost of Service Model, among other limitations. Absent the model, it is difficult to precisely analyze the impact of changes – for example, when a change is made to PHP's forecast peak load, this can also change the system load factor which changes the energy:demand splits and has downstream effects on all classes.

Mr. Bowman also does not have specifics as to how large the ELID savings from the DR could be, as these are dependent on PHP's operating characteristics in a given year, and the profile of hourly system costs.

However, in providing the most complete response to the question, Mr. Bowman notes the following:

Recommendation 1 proposes to set the ELID projected demand in the COS study consistent with a reasonably high load factor customer with an inherent load pattern consistent with PHP. No demand value consistent with this principle is provided in the filing, and Mr. Bowman has indicated NSP should be engaged to develop that value.

In the interim, NSP has provided evidence (Ex. N-5, pdf page 204 of 206) that implies a value of 120 MW would be appropriate. Mr. Bowman has adopted this value, but recommends it be properly updated using the appropriate confidential information and forecasts available to NSP.

While Mr. Bowman cannot model this precisely. NSP has already modelled the impact of changing NSP's peak load from 65 MW to 8 MW (in IG-NSP IR-7 with results summarized in Attachment 1). Since this a reduction of 57 MW, and Mr. Bowman's recommendation would be an increase of 55 MW, the relative ratio of change should be comparable. Using 2027 numbers, the impacts are as follows:

- Under the 65 MW scenario, PHP's allocated costs in 2027 are $38.1 million (IG IR-7 Attachment 1, page 1 of 9).

- PHP's proposal to decrease the peak by 57 MW results in reduced cost allocation of $9.4 million, or 24.7% (IG IR-7 Attachment 1, page 1 of 9).
- A comparable increase, as recommended by Mr. Bowman could similarly be estimated at $9.4 million.

This is the estimate of an ATL cost allocation for PHP as an interruptible customer (but without DR).

Recommendation 2 proposes that the rights that NSP acquires as part of the DR include stronger "control" than simply economic signals. There is no specific cost impact to this recommendation.

Recommendation 3 recommends that the DR concept be revised, such that PHP is still given the opportunity to secure system savings in a manner not available to any other customer, but that these savings be shared between PHP and the other customers. This is intended to ensure that any potential overestimate of the DR savings achieved is not simply a benefit to PHP and a detriment to other customers. While this principle has been in place for some time, Mr. Bowman does not provide a specific recommendation as to the ratio that should be adopted, so the recommendation cannot be quantified. However, the savings to be shared are cited as being up to $11 million.

Recommendation 4 is that the interruptible credit should be adjusted to reflect the practical interruptibility of PHP. Specifically, the Large Industrial Interruptible customers receive a credit benchmarked to the value of each kW of avoided thermal capacity, or $13.107/kVA. However, they do not receive this full credit value. Instead they receive $7.638/kVA on the basis that not all of the demand units billed to the LIIR class are in practice interruptible at coincident peak times. The calculation of this credit is provided in the GRA filings (Exhibit N-17, 2026-2027 GRA SR-01-Attachment 4, page 1 of 5), but the end result is that the LIIR customers receive $7.638/$13.107, or about 58% of the credit that they would receive if all of their demand was available at peak times to interrupt. By the same token, PHP should receive credits consistent with the share of its 120 MW demand that is practically on the system at the time when an interruption is called. No estimate is presently available of this value or ratio; however, in

multiple places, NSP indicates that effectively no PHP is load is typically on the system at coincident peaks, as it will have already been curtailed under the DR for economic reasons. In developing the IR for PHP, it appears that the $7.638/kVA is a significant overvaluation of the interruptibility that PHP offers, given it is already participating in (and receiving credit for) the DR. While no specific value is provided for this change, the impact would be some share of the following:

- At NSP's proposal, PHP load is set at 65 MW. Of this, 8 MW is not interruptible, so 57 MW is interruptible. The power factor adjustment is 1.06, and the credit value used in the application is $7.638/kVA, leading to a credit of $461,000 per month.
- At the above revised proposal on demand (120 MW), the same calculations lead to this credit being $907,000 per month.

Depending on the conclusion regarding the quantity of interruptible load, the lost benefit to PHP could be a large proportion of this credit.

Recommendation 5 recommended eliminating the priority interruptible credit, as it provides no value to the system. This premium is set at 10% of the value of the main interruptible credit, which, as noted above, is estimated at $461,000 per month, so this leads to an impact of $46,100 per month.

Recommendation 6 is related to reporting and has no direct cost.

Recommendation 7 is in support of NSP's proposal that PHP be set at the same Revenue-to-Cost ratio as the other customers on NSP's system, as per the last GRA. As this was already included in NSP's proposals, there is no cost impact to the proposal as compared to the Application.

(b) See (a). Also note that the above charges do not include the material credit possible from the DR.

Taken in total, if all of the revisions were implemented, the impact would be approximately as follows:

- Per NSP application: $38.1 million
- Added peak demand to 120 MW: $9.4 million (may be less, pending NSP analysis)

- Less: DR savings: Up to $11 million in savings, with some degree of sharing with other customer classes.
- Adjust DR: reduced credits of up to $907,000 per month, or up to $10.9 million in the extreme.
- Remove priority interruptibility: 10% of the DR, or $1.1 million (assuming the 120 MW peak is used).

Because a number of the above estimates can only establish a range, it is not possible to set a precise impact, but using the most extreme values in each case leads to a total cost allocation to PHP (net of DR) of $48.5 million.

Note that the allocation to the LI class is $72.9 million. Given PHP is slightly over 50% larger in capacity than the LI class (120 MW versus 77 MW) and slightly over 50% smaller in energy (305 GW.h versus 695 GW.h), but is intended to be given benefits for their load shaping, this outcome is generally consistent with the intent that PHP can capture savings from its load shaping activities, and yet is still intended to have a reasonable ATL rate.

Request IR-2:

Reference: Testimony, pages 6-7, lines 29-1. "In this manner the ELIADC tariff makes limited contribution towards paying the fixed costs of NSP's operation, but receives service using higher priced marginal source of power as available from time-to-time."

(a) Does Mr. Bowman agree that marginal power costs in excess of the average power costs paid by ATL customer classes are used to fund NSP's embedded cost of service? Please explain.

Response IR-2:

(a) Under the ELIADC, PHP in effect purchases marginal cost power. This is an entirely different pricing model than embedded cost (or ATL) service. To the extent PHP pays prices that exceed the marginal cost from moment-to-moment, then PHP is contributing to covering more than the cost of the power it consumes, and is therefore effectively making a contribution toward NSP's fixed costs.

Request IR-3:

Reference: Testimony, page 9, lines 20-23. "The capacity value used in the COS for PHP should be representative of the expected PHP average demand based on total forecast energy requirements (prior to non dispatchable wind energy credits) at a high load factor. Absent other values provided by NSP consistent with the concept of a CBL, the value should be set at 120 MW."

(a) Please explain whether under this proposal PHP would be permitted to operate at the CBL at all hours of the year.

(b) Please explain whether PHP operating at the CBL in all hours of the year would increase energy and capacity costs on a total-company basis compared to operating at the dispatchable levels proposed by NSP.

(c) Please explain whether the proposal suggests that the "capacity value" referenced would be used in place of the 3-CP demand allocator currently in use in the COS.

(d) If the answer to subpart (c) is in the affirmative, would Mr. Bowman suggest that other customer classes use the "average demand" value in place of the 3-CP demand allocator for COS allocation? Please explain.

(e) Please confirm that Mr. Bowman does not support the modelled PHP firm load at 8 MW at the three coincident peaks or PHP's firm, plus interruptible load, at a forecast of 65 MW, as modeled by NSP in its Application.

(f) Please indicate the firm and interruptible load parameters that Mr. Bowman is suggesting for PHP.

Response IR-3:

(a) Under the NSP proposal, PHP is always permitted to operate as required for its business purposes, outside of the narrow conditions of utility-triggered interruptions. However, if PHP operated at 120 MW all year, it would consume 1,051 GW.h, when the load projections are that, net of

wind, PHP will consume 305 GW.h, so that scenario does not appear relevant.

(b) If PHP operated at 120 MW all year, and consumed 1,051 GW.h of energy, then yes, the system costs would go up.

(c) Yes.

(d) No. The 3-CP demand is the standard approach for establishing ATL rates, when the company can measure and report past ATL loads. However, this is not possible for PHP, as the past loads occurred under an ELIADC regime, which undermines the use of this data for pre-DR load projections (as the ATL scenario in the COS is to be run). For this reason, a different solution is required for PHP.

(e) Confirmed.

(f) Mr. Bowman is recommending that: “The capacity value used in the COS for PHP should be representative of the expected PHP average demand based on total forecast energy requirements (prior to non dispatchable wind energy credits) at a high load factor. Absent other values provided by NSP consistent with the concept of a CBL, the value should be set at 120 MW.”

Applying this recommendation, the firm load would be 8 MW, and the interruptible load would be all loads above this level, priced to reflect the relative expected available interruptible load of PHP at coincident peak times (after application of the DR load shaping).

Request IR-4:

Reference: Testimony, pages 12-13, lines 25-2. "The DR dollar value credit proposed to be allocated 100% to PHP risks over-crediting PHP for the value of DR, and harming other customers. This arises in part because the theoretical CBL against which the PHP DR activities will be measured does not reflect what would likely be the default PHP operation absent the DR. Separately, there has been experience in Nova Scotia of the CBL-type calculation over valuing the contribution of dispatchable load. In order to address this issue, the Board should retain some form of benefit sharing, as is in place under the current tariff (ELIADC), rather than 100% allocation of all theoretical savings to PHP."

(a) Does Mr. Bowman agree that hypothetically, if PHP operated in a suboptimal manner, the DR could result in a charge to PHP? Please explain.

(b) If Mr. Bowman agrees with subpart (a), please explain whether his proposal would include other customer classes receiving a share of the DR charge.

(c) Does Mr. Bowman agree that the DR as proposed by NSP is calculated based on the change in FAM-related costs (fuel and variable O&M expense) that would occur under a CBL scenario and PHP's actual dispatch level? Please explain.

(d) Please explain whether it is Mr. Bowman's understanding that the DR as proposed by NSP will not credit any capacity cost savings to PHP. If the answer is in the negative, describe these capacity costs, and how these capacity costs savings are passed on to PHP through the DR.

Response IR-4:

(a) The question poses an interesting hypothesis, as nowhere in the materials did Mr. Bowman see a discussion of outcomes that could lead to the DR being a net charge to PHP. Specifically, the ELID Tariff page 8 (Exhibit E-1 pdf page 27) notes the following: "To the extent savings can be created by the customer moving off the high load factor profile to take advantage of lower cost supply periods throughout the year, the resultant savings will

accrue to the customer offering the dispatch flexibility, while other customers are held harmless." It is acknowledged that moment-to-moment PHP may operate in a manner that leads to the longer-term savings effectively being reduced, but this is a normal part of calculating a net benefit. The evidence does not appear to support the idea that there could be an overall net cost to PHP from the DR.

(b) N/A.

(c) Generally yes, that is Mr. Bowman's understanding. However the specific mechanics of this calculation remain somewhat unclear, particularly with respect to the Goose Harbour wind output. Mr. Bowman takes note of the evidence of Messrs Mahmudov and McLaren similarly noting uncertainty underlying the complexity of the DR proposal, and recommend the mechanism be reviewed by the Board after the first year of actual operation of the Tariff.

(d) Mr. Bowman understands that the DR is not a mechanism intended to credit capacity cost savings to PHP.

Request IR-5:

Reference: Testimony, page 14, lines 19-21. "Given the lack of practical interruptibility of PHP loads at times of system constraint, there should be little to no credit via Interruptiblility Rider ("IR") provided in the ELID tariff."

(a) Does Mr. Bowman agree that the value of interruptibility is currently set to the avoided cost of a peaker through the LIIR? Please explain.

(b) Does Mr. Bowman agree that the calculation of the LIIR per unit interruptible credit is currently determined based on the difference between the LIIR classes's average demand and firm demand? Please explain.

(c) Does Mr. Bowman agree that under the ELID tariff if PHP is called on during an interruptible event, it would be required to reduce its load down to the firm demand level of 8 MW or be subject to a penalty? Please explain.

(d) Under Mr. Bowman's proposal would PHP still be called during interruptible events to reduce its load if operating at levels higher than its firm demand (8 MW)? Please explain.

(e) Does Mr. Bowman agree that the purpose of the IR is to credit customer classes for the avoided cost of capacity? Please explain.

(f) Does Mr. Bowman agree that the IR does not credit customers for FAM-related cost (O&M expenses and fuel)? Please explain.

(g) If PHP load is reliably dispatched down ahead of or during system peaks to preserve grid integrity, please explain why that operational response does not constitute a tangible capacity resource that avoids the need for incremental peaking capacity investments.

Response IR-5:

(a) This is not clear. Mr. Bowman's understanding is that the interruptibility values are based on $160/kW. In Exhibit N-2, Brubaker and Associates indicate that this value is linked to a dated value of the avoided cost of a

peaker (pdf page 23) but provide no reference in support of this assertion. In Exhibit N-9, the SBA requests specific confirmation from NS Power that the $160/kW is a “the latest value for avoided cost of generation costs” and NS Power indicates that it is, but the reference provided is to the recent GRA, which helps clarify that this value is the latest used in setting the interruptible credit, but does not appear to clarify that it is the latest value of the cost of a levelized peaking unit. In fact, the reference cited (GRA Ex. N-17, SR-01, Att.4) indicates the value is set based on a 2024 nominal value of a “50MW combustion Turbine (Frame) from E3 Resource Option Study”, not the current value.

(b) No. It is Mr. Bowman’s understanding that the value of the interruptible credit is based on the avoided cost of a peaking unit (perhaps dated) adjusted for the ratio of industrial customer coincident demand, with industrial customer billed demand.

(c) Yes.

(d) In theory, yes, however PHP is rarely - if ever - operating above 8 MW at the time of interruptions.

If it was expected/experienced that over time PHP was operating, after DR adjustments, well above 8 MW during the times of coincident peaks, then PHP would be given a larger dollar value of credit, and would be expected to reduce to 8 MW when called under the IR.

(e) Yes.

(f) Yes.

(g) The premise from the outset of any interruptible rider, whether LIIR or ELID, is that the customer will have a naturally varying load, and the utility will make plans to invest in new capacity in light of that naturally varying load across all customers. This is the nature of load diversity and coincidence, as it applies to system planning. Not all classes use their highest quantity of power coincident with the system peak.

Consider an LIIR customer (or class) who may have a process that operates poorly or uses relatively little power at very cold temperatures. This load may peak at 50 MW, but at the time of coincident system peaks, only operate at 30 MW. The utility would plan its system for this customer to have a 30 MW load, but for this load to drop to zero (i.e., the interruptible program would contribute 30 MW to coincident peaks, as that is all that the customer can contribute based on their operating forecast). The reason that the customer typically operates at only 30 MW during system peaks, and not 50 MW at system peak times is irrelevant – it may be a physical limitation, or engineering, or economic. The customer or class would have their own reasons, that are not relevant to the system planners. Most importantly, it would not be appropriate to give this customer or class credit for 50 MW of interruptibility at the full value of avoided capacity, as they did not avoid that capacity – they only avoided 30 MW. This is what is done for the LIIR in the Cost of Service study.

If PHP is reliably dispatched down to 8 MW at the time of system coincident peaks and times of high likelihood of IR interruptions, then similar to the customer above, PHP is contributing basically nothing to avoiding system capacity investment. It does not matter that PHP has done this due to their own physical or engineering or economic reasons (including DR response).

Request IR-6:

Reference: Testimony, page 15, lines 6-9. "There is no basis for providing PHP with a priority interruptibility credit, given (a) PHP is rarely if ever interruptible in practice under the IR, and (b) the priority interruption adds nothing to the system in terms of extra resources, in exchange for the added credit provided to PHP.

(a) Does Mr. Bowman agree that if a customer class is interrupted prior to other customer classes, and as a result, an interruption is avoided for other interruptible customer classes, the customer classes that avoided an interruption would experience operational cost savings? Please explain.

(b) Does Mr. Bowman agree that if a customer class is interrupted prior to other customer classes, and as a result, an interruption is avoided for other interruptible customer classes, that this would provide more opportunities for interruptions for the non-interrupted customer class (due to the restrictions on the number of interruptions).

Response IR-6:

(a) The customer class that avoided an interruption would receive benefits of various types, including avoided disruption. It is not possible to necessarily universally link this to operational cost savings, but it is clearly a potential benefit.

(b) No. For example, the utility may have 10 customers who each provide 5 MW blocks, that can be interrupted 10 times each. This means that the utility has 100 – 5 MW blocks to work with. It may choose to cycle through these, or shift from one customer or group to another in some pattern. But it does not change the net value of the resource to the utility, of 100 blocks of 5 MW. Priority interruption of one customer (if it actually occurred) would not yield system benefits, it would simply reduce the likelihood that one of the other customers may be interrupted.

Request IR-7:

Reference: Testimony, page 15, lines 6-9. "The Board should not adopt the proposals from PHP to alter the rate as proposed by NSP. This includes adjusting the PHP peak load to 8 MW in the COS study, adjusting the PHP Revenue-to-Cost ratio to 100%, and providing PHP with added value related to ancillary services for which it is already compensated via the DR."

(a) Please explain how PHP is compensated for ancillary services via the DR.

(b) Please explain how PHP is compensated for operating reserves via the DR.

(c) Under Mr. Bowman's proposals, which appear to set the capacity value of PHP at 120 MW with "little to no credit" for Interruptibility, what would be the firm demand level for PHP? Please confirm what demand level PHP would be allowed to operate at during all times without penalty, including times of interruption events.

Response IR-7:

(a) The quoted sentence from the Bowman evidence is potentially unclear.

Through the DR, PHP is compensated for any contribution it makes towards operating cost efficiencies and dispatch savings. PHP, however, does not deliver most of the core ancillary services required by NS Power, as its demand response is entirely voluntary and does not operate on the rapid time scales—typically seconds or less—needed for services such as voltage and frequency control. Accordingly, there is no basis for payment for these services. If NS Power elected to contract for these ancillary services from PHP, and if available, the parties could consider a suitable contractual arrangement.

(b) See (a). The ELID would not be a reliable form of operating reserves as PHP's response to the DR is voluntary.

(c) The premise of the question is incorrect. Under Mr. Bowman's proposal PHP would be given a material IR credit if the load pattern indicated that

PHP contributed material interruptible loads at the typical times of system coincident peaks loads and system constraints. However, that does not appear to be the evidence as to PHP's operation, which indicates that PHP typically (if not universally) is already dispatched down at these times due to responding to DR prices signals.

Mr. Bowman has recommended that changes be made to increase the degree of control provided NS Power under the DR. However, if no change is made to the DR as proposed, then at times of interruption events, PHP can operate at whatever level it wishes absent an IR interruption. It would be required to interrupt down to 8 MW, if called.

Take note of the example in IR-5(g) above, where the customer/class who is otherwise expected to operate at 25 MW at typical times of system constraints, but could in theory operate at 50 MW. This customer or class would only be receiving an IR credit equal to 25 MW equivalent, as that is their typical load at the time of system coincidence, but that is not a restriction on their operation. Whether they were at 25 MW or at 50 MW at times of system constraint, they would be required to interrupt if called.

The same is true of PHP. Absent DR control (or PHP response to DR price signals) to operate at a low level at times of system constraint, PHP can operate at whatever level they deem they require. If called, they would be required to interrupt from this level down to 8 MW.

Request IR-8:

Reference: Testimony, page 18 lines 8-10. "Regarding PHP proposal #3, seeking changes to the proposed Revenue-to-Cost Ratios, there is no basis to exclude PHP from the overall GRA adoption of ratios above 100% for non-residential customers. This part of the rate design has been included in the NSP GRA negotiated settlement, and included in the Matter M12451 compliance filing."

(a) Please confirm that (i) Mr. Bowman's testimony makes recommendations to other parts of the rate design that are contrary to the NSP GRA negotiated settlement, (ii) the proposed ELID tariff was not approved as part of the Matter M12451 compliance filing, and (iii) that in Matter M12451 the Board approved the PHP deferral account that was included in the NSP GRA negotiated settlement to account for any revenue variances from the above the line PHP tariff assumptions included in the 2026-2027 GRA.

Response IR-8:

(a) Confirmed. As noted in the Settlement Agreement under "PHP Treatment" item (f): "In the PHP ADC and tariff processes that will be brought forward for approval by the Board later this year, it remains open for all Parties to take any position they so choose, including whether each of the PHP ADC and tariff filing(s) is inconsistent with the load characteristics and basic tariff structure as set out above"

Mr. Bowman is not indicating the negotiated settlement is determinative to the matter of PHP Revenue-to-Cost ratios, but it is informative of the principles adopted by the parties to help balance rate impacts, and it appears inconsistent with the balancing principles to adjust the ratios as part of this proceeding.