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BY EMAIL AND RESS

March 15, 2023

Ms. Nancy Marconi
Registrar
Ontario Energy Board
Suite 2700, 2300 Yonge Street
P.O. Box 2319
Toronto, ON M4P 1E4

Dear Ms. Marconi,

Transmission Licence Amendment Application to approve exemptions regarding connecting the OPG Small Modular Reactor near Darlington Switching Station

Hydro One hereby applies to the Ontario Energy Board ("Board" or "OEB") pursuant to s. 74 of the Act for an Order or Orders approving exemptions from specific obligations in Section 5.1 of its Electricity Transmission Licence (ET-2003-0035), as they pertain to sections 6.3.3 and 6.3.4 of the Transmission System Code. The effect of the requested relief will be to establish that 22 kilometers of transmission line (and related equipment and Hydro One station modifications) in the Darlington area ("the Project" or "the OPG SMR Connection Project"), which will be constructed to connect the Ontario Power Generation ("OPG") contemplated Small Modular Reactor at Darlington Switching Station will be fully funded by the network pool.

An electronic copy of this Application and Evidence has been filed through the OEB's Regulatory Electronic Submission System.

Sincerely,

Joanne Richardson

cc. Saba Zadeh

APPLICATION

The Applicant of this request is Hydro One Networks Inc. ("**Hydro One**"), a subsidiary of Hydro One Inc. Hydro One is an Ontario corporation with its head office in the City of Toronto. Hydro One carries on the business, among other things, of owning and operating transmission facilities within Ontario.

Hydro One hereby applies to the Ontario Energy Board ("**Board**" or "**OEB**") pursuant to s. 74 of the *Ontario Energy Board Act, 1998* ("**Act**" or "**OEB Act**") for an Order or Orders approving exemptions from specific obligations in Section 5.1 of its Electricity Transmission Licence (ET-2003-0035), as they pertain to sections 6.3.3 and 6.3.4 of the Transmission System Code. The effect of the requested relief will be to establish that 22 kilometers of proposed transmission lines (and related equipment and Hydro One station modifications) in the Darlington area ("**Project**" or "**OPG SMR Connection Project**"), which would be constructed to connect the planned Ontario Power Generation Inc. ("**OPG**") Small Modular Reactor ("**SMR**") at the OPG Darlington Switching Station, will be fully funded by the network pool from inception. A detailed overview of the Project is provided at **Section 2** of this Application.

Effective January 1, 2022, the Province amended *Ontario Regulation 53/05: Payments under Section 78.1 of the Ontario Energy Board Act, 1998* to prescribe as a regulated nuclear generating facility "any small modular reactors on the lands owned by Ontario Power Generation Inc. in the Municipality of Clarington". This amendment will allow OPG to recover prudently incurred costs associated with the Darlington SMR from electricity rate payers under the oversight of the OEB. Subject to approvals from the Canadian Nuclear Safety Commission ("**CNSC**"), OPG is planning to construct an SMR nuclear generating station at the existing Darlington site on lands owned by OPG in the Municipality of Clarington with a projected in-service by the end of this decade. OPG has an approved environmental assessment and holds a site preparation licence for the site, approved by the CNSC in 2021 for a period of ten years expiring in October 2031. In October 2022, OPG submitted a Licence to Construct application to the CNSC. Consistent with the conditions defined in the Transmission System Code ("**TSC**"), Hydro One is obligated to connect the generator to the transmission system.

Hydro One requests that the OEB approve the exemption relief requested such that the Project is fully funded by the Uniform Transmission Rate Network Pool from inception. This request is primarily predicated on the following:

(i) both Hydro One and OPG are OEB rate regulated entities, and the approved cost of the Project will be borne by ratepayers whether the Project costs form part of Hydro One's rate base and funded by the Network pool or the Project costs form part of OPG's rate base and funded through its OEB approved payment amounts;

(ii) there is a financial benefit to ratepayers over time to recovering the costs associated with these transmission facilities through the Network pool;

(iii) the asset classification will not impact reliability and quality of transmission service; and

(iv) the Project will be built within a provincially owned corridor over which Hydro One holds a statutory easement and on a right of way easement held by Hydro One.

Furthermore, while OPG is experienced with building traditional nuclear plants, OPG has advised that this proposed approach would permit OPG to ensure that its efforts are focused on the construction of the SMR, a new first of a kind technology and avoid intercompany project monitoring reporting and intercompany funding that would unnecessarily increase the cost of connecting the SMR. Further justification for this proposal is detailed in **Section 4** of this Application.

The need for regulatory certainty on the exemption relief requested at this time in the maturation process of the Project is to provide clarity for the development of the Project and, more notably, to provide sufficient time for Hydro One to explore possible First Nation equity partnership opportunities. In order to create a partnership, Hydro One and any potential partners will need to know that a revenue stream will be available. Mitigating any regulatory uncertainty (i.e., disallowance of that future revenue stream) that would otherwise hinder the development of those partnership discussions drives the need for this requested relief today.

If the OEB approves the licence amendment it would allow the Project to qualify for Hydro One's 50-50 equity partnership model with applicable First Nation communities. This partnership opportunity would ensure that economic benefits of the Project flow to partner communities, advancing Hydro One's commitment to Reconciliation, and providing opportunities for economic prosperity for generations to come.

The OPG SMR Connection Project facilities that underpin this Application will be the subject of a future leave to construct application pursuant to s.92 of the OEB Act and will ultimately be subject to an asset transfer application, pursuant to s.86 of the OEB Act, to transfer the assets to the new partnership once established.

Capital funding for the Project is not within Hydro One's recently approved joint revenue requirement application[1]. However, given the future intended ownership of these facilities and the recently enacted Provincial changes to Ontario Regulation 53/05 to prescribe as a regulated nuclear generating facility "any small modular reactors on the lands owned by Ontario Power Generation Inc. in the Municipality of Clarington", the costs associated with the development and construction of the transmission lines for the Project would reside in the OEB approved *Affiliate Transmission Partnership* regulatory account[2]. For reference purposes, further information on this OEB-approved regulatory account is available at **Section 5** of this Application.

SECTION 2.0: PROJECT OVERVIEW

The proposed OPG SMR Connection Project is to construct approximately 22 km of 230kV double-circuit transmission lines from the Clarington Transformer Station ("**TS**") to the Darlington SMR Switching Station ("**SS**") on an existing transmission corridor. The new double-circuit transmission lines will be built to the 500kV standard to meet the generation capacity need identified by OPG and operated at 230kV in the interim. More specifically, with the construction of the new transmission lines, Hydro One will address the present

[1] EB-2021-0110
[2] EB-2021-0169

and ultimate generation capacity need identified by OPG for the connection of the SMR (1444MVA).

Station modifications at Clarington TS will also be required to accommodate the connection of the new double-circuit transmission lines to the existing switchyard. More specifically, Clarington TS will require new and modified structures within the station property to accommodate the two new transmission circuits' termination. The Project will also require modifications to telecommunications facilities at Clarington TS to provide status information and control capability to Hydro One's Integrated System Operations Center and status information to the Independent Electricity System Operator ("**IESO**"). Modifications and additions to protection and control, SCADA, metering, and AC/DC station service at Clarington TS, are required to provide protection, control and status of the new and re-terminated facilities. Clarington TS is designated as an "NPCC-impactive" station; therefore, modifications will also have to satisfy the pertinent Northeast Power Coordinating Council ("**NPCC**") requirements for such designation. A schematic diagram showing the proposed configuration at Clarington TS is provided in **Appendix 1**.

OPG also plans to construct a new switching facility near its SMR facility. The new 230kV double-circuit transmission lines will be terminated on the OPG constructed line entrance structure. A schematic diagram showing the proposed configuration is provided at **Appendix 2.**

The proposed in-service date for the OPG SMR Connection Project is March 2027, assuming a construction commencement date of November 2024. As stated above, Hydro One will file a separate application for leave to construct approval as the Project scope, schedule and costs become more defined. OEB approval of the relief sought by this Application is requested by June 2023 to confirm the way the Project will be delivered and to clarify opportunities for ownership of the transmission lines during the development phase of the Project. A project schedule is provided at **Appendix 3.**

The route passes through, and is solely contained within, the Municipality of Clarington, in the Regional Municipality of Durham. An overview map of this area is provided at **Appendix 4**.

The majority of the length of the new double-circuit transmission lines will be built within a provincially owned corridor over which Hydro One holds a statutory easement, parallel to four existing 500kV transmission lines currently running between Bowmanville SS and Cherrywood TS (B540TC, B541TC, B542TC, B543TC). The remainder of the lines will be built within an easement which is held by Hydro One. Irrespective of cost responsibility, i.e., generator-funded or network pool-funded, the lands required to build the Project will remain unchanged; therefore further information specific to the land requirement of the Project is not pertinent to the relief sought by this Application. Full property requirements and specifics regarding land matters will be documented in a future leave to construct application.

SECTION 3.0: AACE CLASS 4 FORECAST PROJECT COST

The current forecast total capital cost of the Project is $187 million[3]. Given that the Project is early in the project maturation lifecycle, the estimate and schedule provided in this Application is predicated upon an AACE[4] Class 4 estimate. At this time, a stratification of these costs in a manner consistent with what istypically provided in a leave to construct application is not available nor is it pertinent to the relief sought in this Application. The regulatory certainty on cost responsibility which is sought remains the same irrespective of the total forecast cost of the Project. The forecast cost of the Project of $187M is detailed in this Application for reference purposes and to assist with the ratepayer implications of the two cost responsibility alternatives that are documented in the following section.

SECTION 4.0: CUSTOMER IMPACT DRIVEN BY COST RESPONSIBILITY

Transmission facilities used for the benefit of all customers or approved by the OEB as being for the benefit of all customers in the province are included in the Network rate pool.

[3] The estimate is broken down as $163M in transmission line costs and $24M in transformer station costs.
[4] Association for the Advancement of Cost Engineering

Similarly, Generation Line and Transformation Connection functional categories are also assigned to the Network rate pool.

In accordance with TSC section 6.3.3, except for modification to a transmitter-owned connection facility, the transmitter shall require a generator to provide its own dedicated connection facilities and related equipment at the generator's cost. Under TSC section 6.3.4, where there is a modification of a transmitter-owned connection facility to meet the generator's needs, the transmitter shall require the generator to provide a capital contribution to cover the cost of the modification. Without the exemption relief sought by this Application for this specific situation, the approved project costs arising from the foregoing provisions would be recovered through OPG's regulated rate base and OEB approved payment amounts. If Hydro One includes the capital costs for the same facilities in its revenue requirement, the cost would be recovered through the network charges in the uniform transmission rates. Ultimately, the same global Ontario electricity ratepayers would be responsible for cost recovery, albeit through different cost recovery mechanisms. Therefore, no harm will occur to ratepayers.

Hydro One's evidence herein supports that there is merit, in this specific situation, for the OEB to approve that recovery of the cost of the Project be captured exclusively through the Network pool rate and no capital costs will be incurred by OPG. Over time, this will result in economic benefits to all customers in the province.

The economic benefit to customers is primarily driven by OPG's current approved debt-to-equity ratio for its regulated business which is 55:45, whereas Hydro One's debt to equity ratio is 60:40. Incremental operating and maintenance costs are identical for both cost responsibility alternatives as there would be no difference to the required sustainment effort under either scenario. Taking this information into account, Hydro One has been able to calculate the results summarized in **Table 3** below. The assumptions underpinning this analysis are detailed in **Appendix 5**.

Table 3 - Rate Payer Perspective			
	Hydro One Funded	**OPG Capital Contribution**	**Rate Payer Savings (Hydro One vs OPG)**
Rate Base Impact	$187.0M	$187.0M	$-M
Revenue Requirement in Year 2 (post half year rule)	$14.1M	$15.0M	$1.0M
25 Year Total Revenue Requirement Impact**	$335.1M	$353.3M	$18.2M

* Note: numbers do not add due to rounding.

There is a financial benefit to ratepayers over time by recovering the costs associated with these transmission facilities through Hydro One's revenue requirement via the Network pool. For example, based on the Project's current preliminary cost, the associated initial annual network pool incremental revenue requirement for Hydro One is nearly $14.0M while the OPG estimated revenue requirement is approximately $15.0M, an approximate $1.0M difference. These annual savings to ratepayers would persist over time even as the assets depreciate. Cumulatively, over 25 years, the savings to ratepayers would grow to over $18M and continue to increase afterwards. Given the estimated savings, Hydro One proposes that classifying the Project facilities as network facilities from inception is reasonable and a benefit to all customers in the province.

SECTION 5: DEFERRAL ACCOUNT REQUEST

There are no new deferral account requests made as part of this Application. Though the station specific facilities of the Project will be owned and operated by Hydro One, the line component of the facilities identified in the Application will be owned by a future Hydro One partnership that as of the time of this Application has not yet been finalized.

Consistent with the OEB-approved Affiliate Transmission Partnership Regulatory Account ("**ATP Account**") Hydro One would record and track costs for the line component of the Project in the ATP Account because the following criteria apply:

(i) i) Hydro One has or will receive a letter from the IESO identifying transmission system needs, and/or an Order in Council or direction by the Minister of Energy (the Ministry) in respect of Hydro One or its OEB Transmission Licence for the development or construction of a transmission project; and

(ii) ii) All or part of the Project is expected to be owned by and included in the rate base of a new partnership between Hydro One and one or more First Nations partners, as a licensed transmitter, and will not form part of Hydro One's rate base.

Hydro One acknowledges that there is no correspondence from the Ministry or the IESO to Hydro One for this Project. However, direction from the Ministry in respect of the Project is considered to have been provided via the amendments to Ontario Regulation 53/05 that prescribe the SMR facilities as regulated assets. The purpose of this Application is to obtain regulatory certainty on the proposed asset classification approach that will deliver the same project contemplated by the aforementioned regulation. Thus, irrespective of whom the Ministry direction is provided to, the Ontario system need remains unchanged. The intent is to deliver the same government-directed project but parse out the transmission-specific facilities required to connect the SMR such that the overall project can be delivered at a lower cost to the ratepayers of Ontario.

Hydro One is consenting that this proceeding be disposed of without a hearing pursuant to section 21(4) of the OEB Act. Hydro One provides that based on the evidence provided herein, the relief requested via this Application will not adversely affect customers in any material way. Hydro One recovery of the facilities through the Uniform Transmission Rate Network pool will result in ratepayer benefits as well as provide socio-economic benefits that would not materialize if the Project is delivered consistent with the language in Sections 6.3.3 and 6.3.4 of TSC. Furthermore, in-depth review of the Project costs and their impact on the transmission ratepayers alone would be the subject of a future leave to construct application that would be the subject of an OEB hearing as well as future licencing and asset divestiture applications.

If the OEB determines that disposing of this request without a hearing is appropriate, Hydro One requests that the requested relief be decided by an employee of the OEB who has been delegated this authority pursuant to section 6 of the OEB Act and that a decision be rendered within 90 days. Such a decision will ensure that the in-service schedule of these facilities, as provided in Appendix 3, is met.

The proposed approach is supported by written evidence which includes details of Hydro One's proposal. The written evidence is prefiled and may be amended from time to time prior to the Board's final determination on this Application.

Given the information provided in this proposal, Hydro One submits that the proposed cost responsibility approach is in the public interest. The proposed approach meets the need of the transmission system, improves quality of service and reliability with a focus on promoting economic efficiency in the industry and Indigenous Reconciliation.

Hydro One requests that a copy of all documents filed with the Board be served on the Applicant and the Applicant's counsel, as follows:

The Applicant:

Carla Molina
Sr. Regulatory Coordinator
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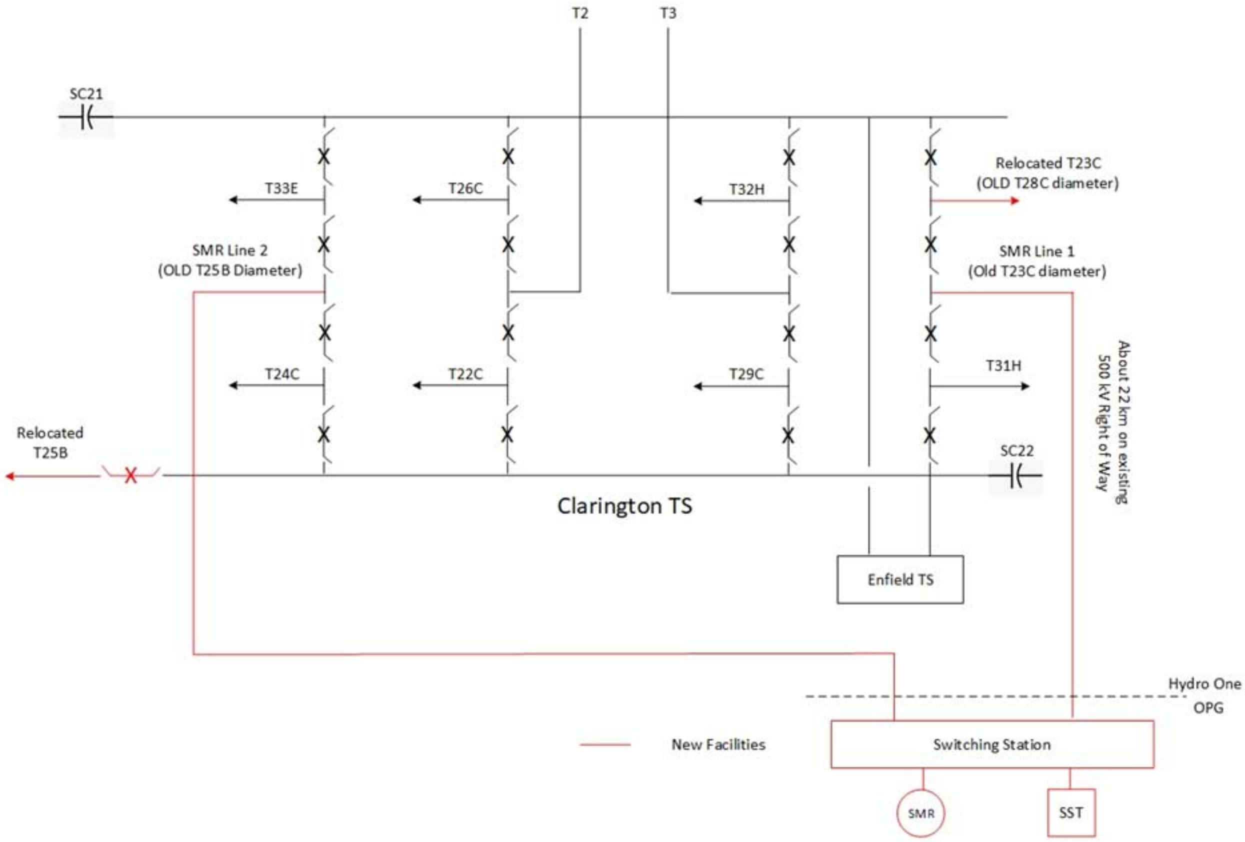
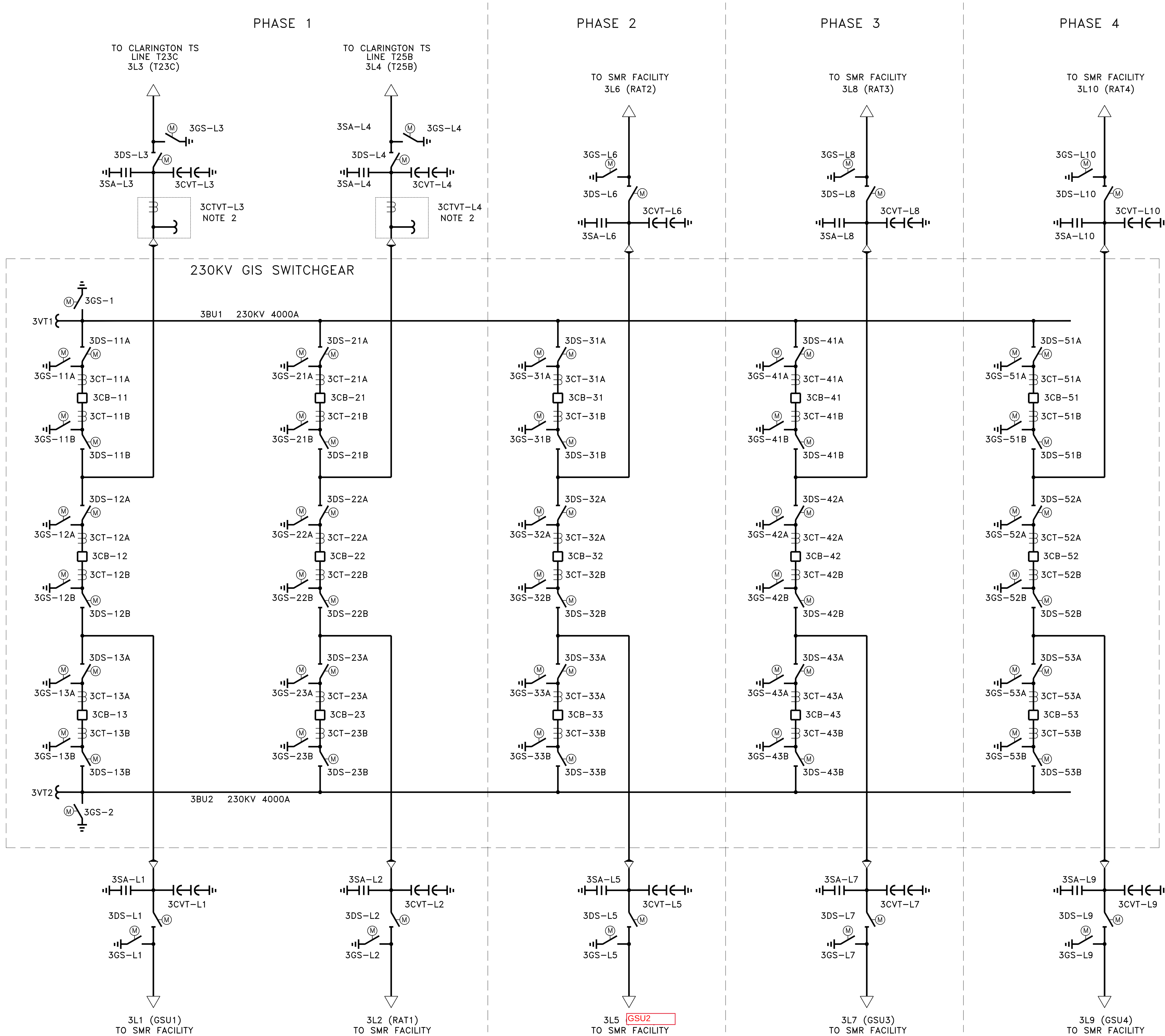
Appendix 1:

Proposed Configuration at Clarington TS


T2
T3
SC21
T33E
T26C
T32H
Relocated T23C
(OLD T28C diameter)
SMR Line 2
(OLD T25B Diameter)
SMR Line 1
(Old T23C diameter)
T24C
T22C
T29C
T31H
About 22 km on existing
500 kV Right of Way
Relocated
T25B
SC22
Clarington TS
Enfield TS
Hydro One
OPG
New Facilities
Switching Station
SMR
SST

Appendix 2:

Proposed Configuration - Switching Facility



NOTES:

1. PRELIMINARY. NOT FOR CONSTRUCTION.

REFERENCE DRAWINGS:

230KV SLD PHASE 1	--------	4700-1101
SWITCHYARD LAYOUT	--------	4700-2100

LEGEND

SYMBOL	DESCRIPTION
	CIRCUIT BREAKER
	CAPACITOR VOLTAGE TRANSFORMER
	VOLTAGE TRANSFORMER
	CURRENT TRANSFORMER
	DISCONNECT SWITCH, MOTORIZED
	GROUNDING SWITCH, MOTORIZED
	SURGE ARRESTER
	BUSHING, SF6-AIR

NOT FOR CONSTRUCTION

mf roll number	rev no	date	particulars	dwn chkd	appd
	A	2022-08-04	ISSUED FOR REVIEW	M. C. A. F.	B. S.

DNNP -

DARLINGTON NEW NUCLEAR PROJECT
230KV SWITCHYARD
SINGLE LINE DIAGRAM
ULTIMATE

ONTARIO POWER GENERATION

Plant Design
Electrical Design

Work Order -	dwn K. A. chkd A. F.	grp leader -	designed by A. F.
date yr/month/day 2022-08-04	chief draftsman -		supv design engineer -
scale NTS	electrical design department STATION ENGINEERING		approved B. S.

dwg no 690633-4700-1100 rev A

CLASS No. 10

D: 610x914mm

250 300 millimetres

CAD File Name:

CAD file type DWG

Appendix 3:

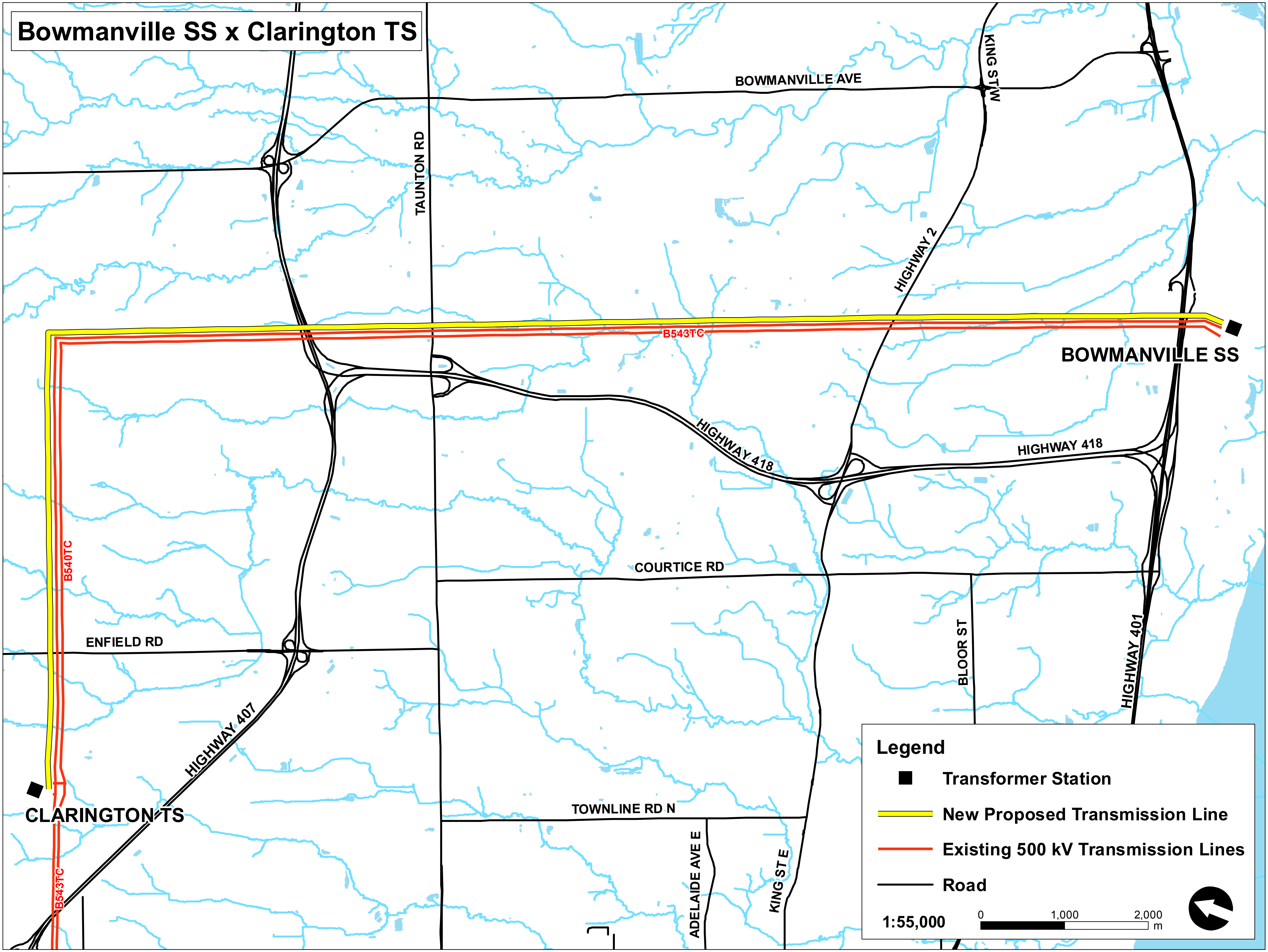
Project Schedule

PROJECT SCHEDULE

TASK	START	FINISH
OEB Asset Classification Exemption	15-Mar-23	15-Jun-23
Section 92 Hearing	3-Nov-23	14-Jul-24
LINES		
Detailed Engineering	6-Oct-23	12-Aug-24
Procurement	17-Jun-24	13-Jun-25
Receive Material	7-Oct-24	14-Nov-25
Construction	31-Nov-24	16-Feb-27
IN SERVICE		31-Mar-27
STATIONS		
Detailed Engineering	6-Oct-23	12-Aug-24
Procurement	26-Feb-24	17-Jun-24
Receive Material	26-Jul-24	12-Dec-24
Construction	21-Nov-24	03-Jun-26
IN SERVICE		31-Mar-27

Appendix 4:

Overview Map



hydro one

Produced By: HONI, GIS Services
Date: Nov 18, 2022 / Map22-087_Bowmanville_Clarington_COLOUR

Appendix 5:

Calculation Assumptions

Calculation Assumptions –APPENDIX 5

This differing cost of capital and resulting revenue requirement was determined in the following manner.

Since the Project is not expected to be placed into service until 2027, and both Hydro One rates and OPG payment amounts are approved on different years but expected to file for rate applications around the time period the Project goes into service, the following was completed to create an appropriate, levelized comparison of the long-term impact on rate payers depending on whether the project costs were recovered by either Hydro One or OPG.

For OPG's revenue requirement

- Equity component of capital structure was set to 45% as per EB-2020-0290.
- Return on equity aligned with Hydro One's recently approved rate of 9.36% as per EB-2022-0250 to facilitate comparison and the fact that the project will not go into service until 2027 (after OPG's next payment amounts application and close to Hydro One's next rate application)
- The long-term debt component of capital structure was set to 52.4% as per EB-2020-0290.
- Long term debt rate yield at 4.72%, 21 basis points higher than the recently approved Hydro One rate as per EB-2022-0250 utilizing the Indicative New Issue Spreads provided by ScotiaBank (see Appendix 6). The 30-year differential was chosen due to the longevity of the underpinning assets,
- The short-term debt component of capital structure was set to 2.6% as per EB-2020-0290
- Short term debt rate was set to 5.02%, 23 basis points higher than the recently approved Hydro One rate as per EB-2022-0250 utilizing the Indicative New Issue Spreads provided by ScotiaBank (see Appendix 6). The 3-year differential was chosen as a proxy of the potential differential that OPG may be required to finance

for additional short term debt **(**Incremental OM&A was excluded as it had no impact on the comparison as it would be equal under either scenario.

For Hydro One's revenue requirement

- Equity component of capital structure was set to 40% as per EB-2022-0250.
- Return on equity set equal to the OPG analysis at the approved rate of 9.36% as per EB-2022-0250
- The long term debt component of capital structure was set to 56% as per EB-2022-0250.
- New long term debt rate was set to the 4.51%.
- The short term debt component of capital structure was set to 4% as per EB-2022-0250.
- Short term debt rate was set to 4.79% as per EB-2022-0250
- Incremental OM&A was excluded as it had no impact on the comparison as it would be equal under either scenario.

As noted, operating and maintenance expenses and property taxes (or in lieu of) were not included in the analysis since the TSC currently states that Hydro One is accountable for this expenditure and are expected to be recovered through the UTR. Based on system average, operating and maintenance costs would initially be less than $200k annually and increase gradually as the asset ages while property taxes (or in lieu of) may potentially be several hundred thousand dollars dependent on final design and route.

Both analyses assumed the same corporate tax, capital cost allowance and depreciation rate (Transmission) to calculate revenue requirement.

The assumptions can be summarized as follows:

Assumption	Hydro One	OPG	Hydro One vs OPG
Equity Component	40%	45%	Minus 5%
Equity Rate	9.36%	9.36%	-
Long Term Debt component	56%	52.4%	+3.6%
Long Term Debt rate	4.51%	4.72%	Minus 0.21%
Short Term Debt Component	4%	2.6%	+ 1.4%
Short Term Debt Rate	4.79%	5.02%	Minus 0.23%
Weighted Average Cost of Capital	5.74%	6.13%	Minus 0.39%
Initial UCC Pool	$187.0M Class 47	$187.0M Class 47	-
OM&A	-	-	-

As outlined in Table 3 of the application, the above assumptions result in a Hydro One revenue requirement of approximately 14.1M in the 2nd year of operations (after the half year rule) vs approximately $15.0M for OPG, nearly $1M savings that persists annually as the asset depreciates. The total savings to rate payers is estimated to be over $18.0M in 25 years.

This variance in revenue requirement between OPG and Hydro One is solely due to differing cost of capital. The cost of capital variance is driven by two reasons:

1. The equity component for OPG as per the OEB approved EB-2020-0290, will be 45% in 2027. Conversely, equity component of Hydro One's capital structure as per EB-2022-0250, is 40%.

2. Due to a variety of factors, as per **Appendix 6**, Hydro One's cost to issue new long-term debt to third-party public debt investors is less than OPG's cost. Therefore, Hydro One issuing incremental third-party long-term debt to finance the transmission line will benefit rate payers vs OPG requiring to issuing incremental third party long-term debt.

Given these two factors, if the cost of equity was set and debt was issued at similar times for both entities to fund the transmission expansion, the result would be that Hydro One would have a weighted cost of capital of 5.74% while OPG's rate would accumulate to 6.13%. The cost of capital difference is a direct benefit to all ratepayers.

Appendix 6:

Indicative New Issue Spreads

Hydro One Inc. / Ontario Power Generation Inc.

Indicative New Issue Spreads

Scotiabank

		Fixed Rate Notes				
Hydro One Inc.	**A(H)/A3/A-**	**3 Year**	**5 Year**	**7 Year**	**10 Year**	**30 Year**
Canada Benchmark Bond		0.50% 1-Sep-25	2.75% 1-Sep-27	2.25% 1-Jun-29	2.00% 1-Jun-32	1.75% 1-Dec-53
Interpolated Yield		3.37%	2.99%	2.91%	2.97%	2.98%
Indicative Spread		**+82**	**+102**	**+114**	**+129**	**+149**
Indicative Re-offer Yield		4.19%	4.01%	4.05%	4.26%	4.47%

		Fixed Rate Notes				
Ontario Power Generation Inc.	**A(L)/A3/BBB+**	**3 Year**	**5 Year**	**7 Year**	**10 Year**	**30 Year**
Canada Benchmark Bond		0.50% 1-Sep-25	2.75% 1-Sep-27	2.25% 1-Jun-29	2.00% 1-Jun-32	1.75% 1-Dec-53
Interpolated Yield		3.37%	2.99%	2.91%	2.97%	2.98%
Indicative Spread		**+105**	**+125**	**+140**	**+155**	**+170**
Indicative Re-offer Yield		4.42%	4.25%	4.31%	4.53%	4.69%

[1] Indicative pricing as of Jan 30, 2023