Ontario Energy Board | Commission de l'énergie de l'Ontario

BY EMAIL

March 22, 2021

Ms. Christine E. Long
Registrar
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4
Registrar@oeb.ca

Dear Ms. Long:

Re: Ontario Energy Board (OEB) Staff Submission
PUC Distribution Inc.
2022 Incremental Capital Module Application – Sault Smart Grid Project
OEB File Number: EB-2020-0249/EB-2018-0219

Please find attached OEB staff's submission in the above referenced proceeding, pursuant to the OEB's Decision on Confidentiality and Procedural Order No. 7.

Yours truly,

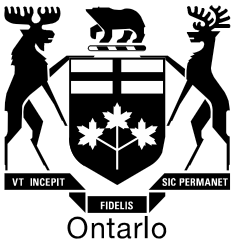
Georgette Vlahos

Digitally signed by Georgette Vlahos
Date: 2021.03.22 16:20:37 -04'00'

Georgette Vlahos
Electricity Distribution: Major Rate Applications & Consolidations

Encl.

cc: All parties in EB-2020-0249/EB-2018-0219



ONTARIO ENERGY BOARD

OEB Staff Submission

PUC Distribution Inc.

2022 Incremental Capital Module Application – Sault Smart Grid Project

EB-2020-0249/EB-2018-0219

March 22, 2021

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Background

PUC Distribution Inc. filed a restated and amended application (Amended Application) with the Ontario Energy Board seeking approval for rate riders to be effective May 1, 2022. PUC Distribution requested OEB approval to recover incremental capital to implement the Sault Smart Grid (SSG Project).

The Amended Application is a continuation of an earlier proceeding related to the SSG Project and the two proceedings were therefore combined, as indicated in the OEB's letter of November 12, 2020.[1]

The Incremental Capital Module (ICM) is a mechanism available to electricity distributors whose rates are established under the Price Cap IR regime. An ICM is a means by which a distributor can collect additional revenue from customers to fund capital expenditures in the years between cost of service applications. In order to qualify for ICM funding, a distributor must satisfy the OEB's eligibility criteria of materiality, need and prudence as outlined in the *Report of the Board – New Policy Options for the Funding of Capital Investments: The Advanced Capital Module* (ACM Report).[2]

The SSG Project proposed is a community wide smart grid in Sault Ste. Marie, Ontario which will cover PUC Distribution's entire licensed service territory. Implementation of the project is predicated on the objective of a "no net bill increase" to PUC Distribution's customers. The SSG Project is scheduled to go in-service by December 31, 2022.

The OEB issued a Decision on Confidentiality and Procedural Order No. 7[3] which established dates for a Technical Conference, the filing of an Argument-in-Chief by PUC Distribution, submissions by OEB staff and intervenors, and a reply submission by PUC Distribution.

[1] In EB-2018-0219, PUC Distribution filed an incentive rate-setting mechanism (IRM) application with the OEB seeking approval for changes to its electricity distribution rates to be effective May 1, 2019. As part of its 2019 IRM application, PUC Distribution applied for an ICM to recover costs associated with the implementation of the SSG Project. The OEB bifurcated the application and issued a Partial Decision and Order on the IRM portion of the application on June 20, 2019. The ICM portion was placed in abeyance by the OEB in response to a letter from PUC Distribution on June 28, 2019 advising that it would be amending the ICM application. After the Amended Application was filed, the OEB issued its completeness letter dated November 12, 2020 in which the OEB stated that it was appropriate to combine the two proceedings and both dockets numbers should be referenced in all filings and correspondence.
[2] Report of the Board – New Policy Options for the Funding of Capital Investments: The Advanced Capital Module, EB-2014-0219, September 18, 2014
[3] Issued on February 3, 2021

Application Summary

The SSG Project is comprised of three key components: Voltage/VAR Optimization (VVO), Distribution Automation (DA), and Advanced Metering Infrastructure (AMI) Integration. These are described below:

- **VVO:** Allows the utility to operate at the lower end of the acceptable voltage ranges and reduces reactive power in the feeders resulting in lower system losses, lower energy consumption, and an overall system energy and demand reduction. VVO can help avoid future investments in traditional infrastructure upgrades and reduce the need for manual switching operations. Deployment of VVO is proposed for all of the utility's 12.5 kV circuits.[4]
- **DA:** Provides better monitoring and control of the distribution system. DA would provide real time data as well as the capabilities to remotely locate faults and remotely operate equipment to restore service in the event of fault or loss of upstream power. DA deployment is proposed for the utility's entire system (12.5 kV and 34.5 kV).[5]
- **AMI Integration:** Allows the utility to leverage its AMI for better data analytics and reporting such as an Outage Management System which will automate reporting outage information, reliability data, restoration verification, and improved customer communications.[6]

Project Cost

The total cost of the SSG Project is $32,938,213[7] and is broken down between the Engineering, Procurement, and Construction (EPC) contract price and PUC Distribution's own engineering (including the acquisition of preliminary engineering works), project management and legal costs.[8]

Due to a pending contribution from Natural Resources Canada (NRCan), PUC Distribution anticipates that the SSG Project can be implemented at a "no net bill increase" to its customers.[9]

NRCan funding is contingent on OEB approval of the SSG Project. In its submission, PUC Distribution stated that the amended Contribution Agreement[10] provides that

[4] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Pages 25, 47
[5] Ibid, Pages 26-28
[6] Ibid, Pages 29-30
[7] EB-2020-0249/EB-2018-0219, PUC_Undertakings_TC_20210226, February 26, 2021, Appendix JTC1.7
[8] Breakdown can be found in PUC_Amended APPL_ICM_20201028, October 29, 2020, Appendix AA12-2, Page 6
[9] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Page 47
[10] Ibid, Appendix AA4-2

NRCan will fund the lesser of 25% of the total project costs incurred or $11,807,000.[11] OEB staff notes that the amended Contribution Agreement with NRCan indicates that funding will not exceed the lesser of 25% of total project costs incurred, or $10,626,500.[12] PUC Distribution should confirm the correct amount as per the current version of the NRCan Contribution Agreement in its reply submission. PUC Distribution stated that any necessary amendments to the NRCan Contribution Agreement, for example to account for updated project estimates and timelines, will be arranged once the OEB rate process is complete.[13] Under the Materiality section of this submission, OEB staff is proposing certain updates to be addressed as part of PUC Distribution's 2022 IRM application. If the OEB approves this project, and requires that any updates be made, PUC Distribution should clarify if the necessary amendments to the NRCan Contribution Agreement will be made after the current proceeding is complete, or if it will follow the completion of PUC Distribution's 2022 IRM application.

PUC Distribution is requesting to recover through the ICM mechanism the net of the total project cost and the NRCan funding contribution which, amounts to $24,828,660.[14] As PUC Distribution is scheduled to rebase in 2023 and is requesting ICM funding in 2022, it has applied the half-year rule and calculated its annual incremental revenue requirement to be $875,610.[15]

EPC Contract

An EPC contract was awarded to Black & Veatch and was executed by Overland Contracting Canada, a subsidiary of Black & Veatch, following a Request for Proposal (RFP) process. The EPC Contract is styled as a "maximum price limit" project consisting of two steps. Step 1 is defined as the Upfront Engineering for which pricing has been fixed at $5,086,378. Step 2 is defined as the Balance of Work and is set at a maximum limit of $22,658,667. The total maximum price for the EPC Contract is therefore $27,745,044. PUC Distribution confirmed that there is a possibility that actual costs for Step 2 may be lower than the maximum limit.[16] A more detailed description of each step is provided below:

- Step 1 – Upfront Engineering: An engineering package will be developed to a level of detail (~30%) to provide enough information to estimate Step 2 for a firm

[11] EB-2020-0249/EB-2018-0219, PUC_ARGChief_20210312, March 12, 2021, Page 4, Footnote 3
[12] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Appendix AA4-2 Contribution Agreement (amended), Page 2
[13] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Page 10
[14] EB-2020-0249/EB-2018-0219, PUC_ARGChief_20210312, March 12, 2021, Page 9
[15] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Pages 39-40
[16] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, Page 45 (Staff-24(c))

price. A project execution plan would also be finalized to confirm the scope and deliverables for Step 2.[17]

- Step 2 – Balance of Work: This is the detailed engineering, procurement and construction stage. Using the engineering package from Step 1, development of a firm scope of work will occur using an open-to-close book process to negotiate any adjustment in accordance with the EPC Contract maximum price.[18]

The original version of the SSG Project set out in the initial application was based on a 30% design completed by Leidos Engineering LLC (Leidos). Leidos was engaged to prepare preliminary design reports[19] for the smart grid components and to quantify the benefits of a smart grid.[20] According to the initial application, the SSG Project was to be financed through a public-private partnership (P3) model with Infrastructure Energy (IE) and Stonepeak Partners whereby the 30% design was to be fully funded by IE.[21]

The Amended Application indicates that PUC Distribution acquired the rights to the studies and preliminary engineering works from IE at a total cost of $1,023,695. These costs are included in the total project cost estimate.[22] PUC Distribution stated that this 30% design work has provided a:

> …level of detail sufficient to quantify the scope of work required to support fixed cost pricing for the level of detailed engineering needed for Step 1 of the EPC Contract. The design work also supported the equipment types, ratings, quantities, and scope of work estimate to support the fixed price limit for Step 2 of the EPC Contract. No additional design work will be done unless the OEB approves this Amended Application.[23]

Step 1 will include a review of the prior engineering work in the Leidos preliminary design reports for the feeders studied to confirm the scope and requirements, and to update for any changes since the original work was completed.[24] In essence, this will create a new 30% design stage.[25]

SSG Project Benefits

PUC Distribution provided the projected annual net benefit to its customers based on: i)

[17] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Page 31
[18] Ibid, Pages 31-32
[19] These reports were provided in the original application at Appendix C as well as the amended application in Appendix AA7.
[20] EB-2018-0219, PUC_APPL_IRM_ICM_Part 2_20190131, Page 7
[21] Ibid, Page 42
[22] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Appendix AA12-2
[23] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020 Page 18
[24] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, Page 45 (Staff-25(b))
[25] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020 Page 33

the 2019 RPP Price Report; and ii) the most recent RPP Price Report for January 2021. Based on the 2019 RPP Price Report the projected annual net benefit to customers is $616,897.[26] Based on the most recent 2021 RPP Price Report, the annual net benefit to customers is estimated to be $331,626.[27]

OEB staff notes that the actual net benefit to customers is dependent on energy consumption and on electricity prices (IESO HOEP pricing) going forward. The annual net benefit to customers will also be dependent on PUC Distribution's success in achieving 2.70% reduction in VVO energy savings. For illustrative purposes, OEB staff has reproduced the projected annual net benefit to customers based on the 2021 RPP Price Report below:

Table 1: Annual Net Benefit Summary

Item	Annual Net Benefit with CoP Based on 2021 RPP Price Report
Cost of Power (CoP)	$72,294,335
Projected % Energy Savings	2.70%
Projected Customer Energy Savings (VVO)	**$1,951,947**
Projected System Loss Energy Savings (VVO)	$92,094
Total Purchased Power Savings (VVO)	**$2,044,041**
ICM Additional Revenue from Increased SSG Asset Base (Full Year)	$1,751,221
Benefit of Reduced Capital Expenditures with SSG	$(304,390)
Additional Operations and Maintenance (O&M) Expenses due to SSG	$296,400
Operating Efficiency Benefits due to SSG Implementation	$(30,816)
	$1,712,415
Annual Net Benefit to Customers	$331,626
Annual Projected Reliability Benefits to	$2,017,000

[26] Regulated Price Plan Supply Cost Report, May 1, 2019 to April 30, 2020; EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Appendix AA15 Cost of Power Forecast Spreadsheet
[27] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, Page 45 (Staff-6(b))

Customers	
Total Annual Projected Benefit to Customers with Reliability	**$2,348,626**

As shown in the table above, the bulk of the annual savings from the SSG Project is projected as VVO energy savings. By using the projected cost of power (inclusive of system losses), PUC Distribution has calculated what it anticipates will be avoided costs for customers (i.e. commodity costs not incurred due to reduced energy consumption). This is expected to be in excess of $2 million annually if PUC Distribution is able to achieve 2.70% in VVO savings.

In addition, PUC Distribution expects the SSG Project to reduce future capital expenditures, specifically avoided substation costs, and has calculated an equivalent annual benefit of $304,390. OEB staff notes that the $304,390 is a calculation of the net present value of future savings on an annual basis.[28] PUC Distribution explained that it does not expect actual reductions in its capital expenditures to occur until more than five years after the SSG Project is implemented.[29]

PUC Distribution states that it has also taken into consideration the SSG Project's expected impact on its Operation, Maintenance and Administration (OM&A) expenses. As a result of the SSG Project, PUC Distribution anticipates an increase of $296,400 to its OM&A expenses[30], netted against a decrease of $30,816 in anticipated reduced truck rolls[31] for a net annual OM&A increase of $265,584.

PUC Distribution has netted all the sources of savings and costs noted above against the incremental revenue requirement of the SSG Project. Using the cost of power based on the 2021 RPP Price Report, this results in a positive annual benefit of $331,626.

PUC Distribution also discussed other benefits resulting from the SSG Project, such as improved resiliency, integrated data management systems, a platform to support renewable energy and new technologies, increased operational intelligence to meet new demands (i.e. distributed energy resources and electric vehicle requirements), economic opportunities for the community, reduced greenhouse gas emissions and increased data availability.[32]

[28] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, Appendix AA5, Undertaking JTC1.1
[29] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, Appendix AA1, Part i)
[30] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, Appendix AA13, Pages 10-11 - For one full-time equivalent supervisor and 1.5 hourly staff (system operator, substation electrician)
[31] Ibid - The automation aspect of the SSG Project is expected to reduce truck rolls i.e. less patrols/manual switching required for faults.
[32] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Pages 22-23

OEB Staff Submission

Introduction

OEB staff supports the ICM request. OEB staff believes that the proposed benefits of the SSG Project are in the public interest including direct benefits to customers from a reduction in energy consumption, reliability improvements and improved systems for the utility's planning and data reporting to customers going forward. OEB staff believes the SSG Project will ultimately change the way PUC Distribution operates going forward. OEB staff agrees with PUC Distribution's submission that, while none of the components of the SSG Project are "innovative" technologies, the "innovative" aspect of this proposal is that it will cover the entire service area of PUC Distribution and that it is supposed to be accomplished at a "no net bill increase" to its customers.[33]

OEB staff has assessed the proposed ICM for the SSG Project in the context of the OEB's criteria for ICM funding – materiality, need, and prudence. OEB staff submits that the SSG Project meets those criteria. There are certain matters that are distinctive to this application, namely in relation to the materiality criteria, which is discussed further in this submission in the Materiality section.

There are also other aspects of the SSG Project in addition to the ICM criteria that OEB staff discusses further in the sections below. For one, OEB staff notes that the benefits that are actually realized, in quantifiable terms, may not be easily assessed in the short term. OEB staff also notes there are also potential inherent risks of implementing such a project which are further outlined in the Prudence section of this submission. Generally speaking, if certain benefits do not materialize as expected, it is the customers of PUC Distribution that would be exposed to that risk.

As well, PUC Distribution provided the results of customer engagement surveys it conducted between the original filing and the Amended Application and, while the respondents seemed generally supportive of the project, it is unclear to OEB staff if the risks were sufficiently specified.[34] For example, it is not clear that customers were told that, in order to see an overall reduction in their bills, a certain level of benefits would need to be achieved.

[33] EB-2020-0249/EB-2018-0219, PUC_ARGChief_20210312, March 12, 2021, Page 10
[34] EB-2020-0249/EB-2018-0219, PUC_Undertakings_TC_20210226, February 26, 2021, Appendix JTC1.1: The customer survey lead-up discussion notes: "PUC Distribution is proposing to undertake a large, innovative capital project that will modernize the Sault Ste. Marie electrical grid, provide significantly increased reliability, lower energy consumption by customers, and provide a significant reduction in provincial carbon emissions. Natural Resources Canada (NRCan) has provided 8 million dollars towards the 33 million dollar Sault Smart Grid project. As a result of the funding and the energy savings customers will benefit from, the average PUC Distribution customer bill is expected to decrease. We'd like to know how you feel about the proposed project:"

OEB staff notes that its support for certain matters in this proceeding is not indicative of OEB staff's position in any subsequent application by PUC Distribution or any other applicant.

OEB staff's submission is outlined as follows:

- Timing of ICM Application
- Acquisition of Rights to Preliminary Engineering Works
- ICM Criteria
    - Materiality
        - Eligible Incremental Capital Amount
        - Significant Influence on Operations
    - Need
        - Discrete Project and Unfunded Through Base Rates
        - Claimed Driver
    - Prudence
        - Variable VVO Savings
        - Scope Reduction Risk for Distributed Automation
        - Direct Benefit of VVO Not Applicable to 34.5kV Customers
        - Variable Project Costs
- Metrics
- Accounting Order – NRCan Contribution
- Treatment of Liquidated Damages
- Bill Impacts

Timing of ICM Application

In the normal course, a distributor filing a 2022 ICM application (i.e., for rate riders effective in 2022) would be required to apply for the ICM as part of its 2022 IRM application. However, PUC Distribution stated that it requires regulatory approval in 2021 to be able to complete the SSG Project in 2022.[35]

OEB staff submits that, although the Amended Application has been filed for approval based on the OEB's ICM policies and criteria, the review of this project is more akin to an Advanced Capital Module (ACM) such that the need for and prudence of this incremental capital funding request must be determined in a year *before* the project goes into service.

As stipulated in the OEB's ACM Report, under the ACM, the review and approval for incremental capital requests should be made to coincide with the distributor's cost of service application. At that time, the need for and prudence of the ACM request will be

[35] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, (Staff-4(b))

determined in advance and cost recovery (rate riders) for qualifying ACM projects will be determined in the subsequent Price Cap IR application for the year in which the project comes into service.

In the present case, the SSG Project was not included in PUC Distribution's latest cost of service application in 2018 because the status of the NRCan funding was unknown at that time.[36]

Given the nature of this project, OEB staff is comfortable treating the current proposal akin to an ACM. If the OEB approves the SSG Project either as filed or in some modified form, OEB staff proposes certain updates that PUC Distribution should file as part of its 2022 IRM application. OEB staff has highlighted these items in the Materiality section of this submission. The application of any resulting ICM rate riders would need to be addressed and applied in PUC Distribution's 2022 IRM application. Therefore, there would be no Tariff of Rates and Charges and bill impacts as a result of this current proceeding.

OEB staff notes that, certain IRM applications are determined without a hearing. This approach to determining IRM applications includes applications for incremental capital rate funding for an approved ACM project that is going into service in the IRM year.[37] However, given that this is a unique case, OEB staff believes it would be reasonable that the OEB hold a hearing for the 2022 IRM proceeding, in relation to any required updates, including the review of any rate riders resulting from the current proceeding.

Acquisition of Rights to Preliminary Engineering Works

As noted earlier in this submission, the Amended Application is a continuation of the SSG Project proposed in the initial application but with a revised financing and project development structure. The initial application contemplated a P3 structure involving IE.

During the initial development work on the SSG Project under the P3 model, IE commissioned several studies and preliminary engineering works. These expenditures were made before the initial ICM application for the SSG Project was filed for the OEB's consideration and approval.

After the OEB placed the initial application into abeyance, PUC Distribution decided to conduct an RFP and enter into an EPC contract. The utility and its shareholder then made a decision to acquire the rights to the studies and preliminary engineering works from IE. The total cost to purchase these rights was $1,023,695 and included an administration fee paid to IE for its work to coordinate and administer the creation of the

[36] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Page 14
[37] See for example Wellington North Power Inc.'s 2018 IRM Application, EB-2017-0082

engineering works.[38] The cost of $1,023,695 is included in the total SSG Project cost.

OEB staff understands that the actual cost to produce these reports was higher (in the $1.4M range in 2020 dollars), however PUC Distribution negotiated to reduce the amount that it would pay.[39]

OEB staff also notes the reports are being used as the foundation of the SSG Project in the Amended Application. For example, the preliminary Leidos work was used to support the step 1 and step 2 engineering costs in the EPC contract.[40] The Leidos work is also the basis on which PUC Distribution based its calculation of the benefits of the SSG Project.[41]

For the reasons set out above, OEB staff considers it reasonable that these costs be recoverable from ratepayers.

ICM Criteria

Materiality

With respect to materiality, the ACM Report states ICM funding requests must:

- Fit within the total eligible incremental capital amount as calculated using the OEB's materiality threshold calculation and the distributor's capital budget.
- Clearly have a significant influence on the operation of the distributor; otherwise it should be dealt with at rebasing.
- Be material in comparison to the distributor's overall capital budget; minor expenditures in comparison to the overall capital budget should be considered ineligible for ACM or ICM treatment (project-specific materiality threshold).

Materiality Threshold

Distributors applying for an ACM or ICM must file the OEB's Capital Module Applicable to ACM and ICM (ICM Model). To assist in the assessment of the materiality criteria, the ICM Model calculates the maximum eligible incremental capital and the materiality threshold for the proposed ICM project.

As part of its interrogatories, OEB staff provided PUC Distribution with an updated ICM Model which included the updated OEB-approved inflation factor of 2.2% used for 2021 rate applications, as announced by the OEB on November 9, 2020.[42]

[38] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, (Staff-34)
[39] EB-2020-0249/EB-2018-0219, Transcripts_REVISED_PUC TC_Feb 17 2021, Page 86
[40] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Page 18
[41] Ibid, Page 54
[42] EB-2020-2049/EB-2018-0219, PUC_IRR_20210125, January 25, 2020, Staff-1(a) and Staff-3

PUC Distribution is forecasting a total capital budget of $33,495,218 for 2022 including the proposed ICM project. The OEB-defined materiality threshold for PUC Distribution is $5,414,316.[43] The maximum available eligible incremental capital amount is $28,080,902 calculated as the difference between the forecasted 2022 capital budget and the OEB-defined materiality threshold.[44]

As outlined in the Amended Application, after the NRCan capital contribution is applied to the total cost of the SSG Project, the net cost is $24,828,660, which is the amount for which PUC Distribution is seeking ICM funding.

PUC Distribution stated that, while it is very confident with the estimate of its 2022 capital budget, it would be reasonable for the OEB to include a condition of approval indicating that PUC Distribution be required:

> …to file an update to its forecasted 2022 capital budget as part of its 2022 IRM application and to re-calculate the maximum eligible incremental capital on the basis of this updated forecast. If the new maximum eligible incremental capital calculated based on 2022 capital budget minus the calculated materiality threshold for 2022 is less than the ICM approval for the SSG Project of $24,880,278 then the value of the approval will reduce to this new maximum eligible incremental capital.[45]

PUC Distribution also confirmed that it would be reasonable to include a condition of approval that the 2022 inflation factor be updated as well at the time of PUC Distribution's 2022 IRM application.[46]

OEB staff submits that if the OEB approves the SSG Project, PUC Distribution should be required to provide an updated ICM Model as part of its 2022 IRM application to update for the following:

- The OEB-approved inflation factor applicable for 2022 rates
- Any changes to PUC Distribution's forecasted 2022 capital budget
- Actual 2020 demand data on Tab 3 of the ICM Model

OEB staff submits that the above updates will ensure that both the materiality threshold and maximum eligible incremental capital are appropriately calculated based on the most up-to-date information, as well as any resulting changes in rate riders. Despite the forthcoming updates in 2022, OEB staff believes that the maximum amount of capital for

[43] The OEB-defined materiality threshold is the product of depreciation expense included in rates and the materiality threshold percentage ($5,414,316 = $3,780,329 x 143%). The materiality threshold is based on an updated price cap index of 1.90% (inflation rate of 2.2% minus a stretch factor of 0.3%)
[44] $28,080,902 = $33,495,218 – $5,414,316
[45] EB-2020-2049/EB-2018-0219, PUC_IRR_20210125, January 25, 2020, Staff-4
[46] EB-2020-0249/EB-2018-0219, Technical Conference,Transcripts_REVISED_PUC TC_Feb 17 2021, Pages 5-6

the SSG Project recoverable under the ICM is unlikely to change as a result of these updates. The net cost of the SSG Project being requested under the ICM is $24,828,660, which is well within the maximum eligible incremental capital amount of $28,080,902. There would need to be significant updates in 2022 for the maximum eligible incremental capital amount to be reduced below the total SSG Project cost requested for ICM funding. OEB staff expects that PUC Distribution will provide an update on the in-service date at the time of the 2022 IRM update.

OEB staff also notes that the SSG Project (net of the NRCan contribution) makes up more than 74% of the forecasted 2022 capital budget.[47] On this basis, OEB staff submits that PUC Distribution's ICM project makes up a significant portion of its capital budget and therefore, in OEB staff's view, satisfies the project-specific materiality threshold.

Significant Influence on Operations

The ACM Report states that any amounts being requested for ICM funding must clearly have a significant influence on the operation of a distributor. PUC Distribution's as-filed ICM revenue requirement is $875,610. While the ACM Report does not define what constitutes "significant influence", OEB staff notes that the materiality threshold, as defined in Chapter 2 of the Filing Requirements used for cost of service applications, is approximately $109,000 for PUC Distribution.[48] On this basis, OEB staff submits that the as-filed ICM project would, absent other factors, have a significant influence on the utility's operations.

However, OEB staff notes that the as-filed revenue requirement applies legacy capital cost allowance (CCA) rules, rather than accelerated CCA, to the Payments in Lieu of Taxes (PILs) component of the ICM revenue requirement.

Bill C-97 introduced the Accelerated Investment Incentive program (AIIP), which provides for a first-year increase in CCA deductions (accelerated CCA) on eligible capital assets acquired after November 20, 2018. In its July 25, 2019 CCA letter, the OEB provided accounting direction on the treatment of the impacts from accelerated CCA resulting from the AIIP.[49] The OEB established a separate sub-account, Account 1592 - PILs and Tax Variances, Sub-account CCA Changes, to track the impact of any differences that result from the CCA change to the tax rate or rules that were used to

[47] 74% = $24,828,660/$33,495,218
[48] Based on a revenue requirement of approximately $19.1 million as per PUC Distribution's 2018 cost of service rate application (EB-2017-0071), PUC Distribution's materiality threshold as defined in Chapter 2 of the Filing Requirements is approximately $109k, calculated as 0.5% of PUC Distribution's approved 2018 revenue requirement.
[49] *Accounting Direction Regarding Bill C-97 and Other Changes in Regulatory or Legislated Tax Rules for Capital Cost Allowance*, July 25, 2019 (CCA Letter)

determine the tax amount that underpins rates.

The Amended Application applied legacy CCA rules to calculate the proposed revenue requirement of $875,610, rather than accelerated CCA. PUC Distribution proposed that any variances in revenue requirement as a result of Bill C-97 be captured in Account 1592, Sub-account CCA Changes.

OEB staff notes that the OEB's Filing Requirements generally require accelerated CCA to be excluded from the ICM calculation and the OEB would assess the impact of accelerated CCA on all capital investments at the time of rebasing to minimize the complexity of the review. However, they also state:

> The materiality criteria for an ICM includes a requirement that any incremental capital amounts must clearly have a significant influence on the operation of the distributor. The OEB may take the accelerated CCA into consideration in assessing the impact of the proposed capital project(s) on the operations of the utility in determining if ICM funding is warranted.[50]

OEB staff calculates that PUC Distribution's proposed ICM revenue requirement of $875,610 would be reduced by $837,398[51] if accelerated CCA is applied. The revenue requirement reflecting accelerated CCA would be $38,212.

i) Application of Accelerated CCA in Prior Proceedings

In consideration of the Filing Requirements' policy on accelerated CCA referenced above, OEB staff highlights two OEB decisions that are relevant to this proceeding. The first is PUC Distribution's ICM for funding to support its Substation 16 renewal, which was included as part of its 2020 IRM rate application.[52] The second decision to note is Burlington Hydro's ICM for a Customer Information System (CIS) replacement project and a Geographical Information System (GIS) replacement project.[53]

Regarding PUC Distribution's ICM for its Substation 16 renewal, accelerated CCA was excluded from the approved ICM revenue requirement.[54] In that ICM application, the revenue requirement including accelerated CCA was $195,553 and the revenue requirement excluding accelerated CCA was $237,816.[55] In both cases, OEB staff is of

[50] Filing Requirements for Electricity Distribution Rate Applications – 2020 Edition for 2021 Rate Applications – Chapter 3 Incentive Rate-setting Applications, May 14, 2020, Pages 30-31
[51] Accelerated CCA for 2022 would be $3,684,076 instead of $1,361,479 per EB-2020-0249, PUC_IRR_20210125, January 25, 2021, (SEC-12). Revenue requirement reduction equals to grossed up tax impact from difference in CCA [($3,684,076-$1,361,479)*26.5%/(1-26.5%)].
[52] EB-2019-0170
[53] EB-2019-0023
[54] EB-2019-0170, Decision and Rate Order, April 16, 2020, Pages 9-11
[55] Ibid.

the view that the revenue requirement would have been considered to have significant influence on PUC Distribution's operations when compared to its cost of service materiality threshold of $109,000. As discussed in the following section, the circumstances in that case differ from the ICM request in the current proceeding. In this proceeding, OEB staff is of the view that the requested ICM does not appear to have significant influence on PUC Distribution's operations when accelerated CCA is applied to the revenue requirement. However, OEB staff is of the view that accelerated CCA should also be excluded from the revenue requirement of the SSG Project for the reasons outlined in the following section.

In Burlington Hydro's ICM application, accelerated CCA was considered in the OEB's denial of the ICM funding request.[56] In its findings, the OEB stated:

> While the OEB has provided general guidance to electricity distributors to record the effects from the [AIIP] during an IRM term in Account 1592 for future consideration, this approach is for regulatory simplicity and efficiency. Burlington Hydro will actually be able to take this higher deduction in 2020 to reduce its taxes paid. This deduction is essentially an additional source of funding for Burlington Hydro. The OEB concludes that the need for additional funding for the CIS and GIS projects is not significant for 2020 when the [AIIP] is considered. However, on this basis, the OEB has determined that Burlington Hydro does not have to record the effect of the [AIIP] for the CIS and GIS projects in Account 1592.[57]

OEB staff observes that, in making its decision on Burlington Hydro's ICM request, the tax implications from accelerated CCA was only one of the factors that the OEB considered.

ii) Application of Accelerated CCA for this ICM

As noted above, the Filing Requirements indicate that the OEB **may** consider accelerated CCA in assessing the impact of the proposed capital project on the operations of the utility in determining if ICM funding is warranted. PUC Distribution's materiality threshold is approximately $109,000. Therefore, in OEB staff's view, the $38,212 of ICM funding reflecting accelerated CCA would not appear to have a significant influence on the operations of PUC Distribution in 2022. However, as discussed below, OEB staff submits that accelerated CCA should not be applied to the ICM revenue requirement for 2022. Instead, the ICM revenue requirement impact from accelerated CCA should be recorded in Account 1592, Sub-account CCA Changes.

[56] EB-2019-0023, Decision and Rate Order, April 16, 2020, Page 26
[57] Ibid.

OEB staff notes that the application of accelerated CCA only shifts a greater amount of CCA deductions to the first year an asset goes into service. Total CCA deductions over the life of the asset remain the same. Therefore, when accelerated CCA is applied, there will be a lower PILs cost passed on to ratepayers in the first year that the SSG Project goes into service, but this benefit will be offset by higher PILs costs passed on to ratepayers in future years. Reflecting legacy CCA rules in 2022, PUC Distribution calculated the revenue requirement relating to the SSG Project to be approximately $2,070,000[58] in 2023, the year in which PUC Distribution is expected to file its next cost of service application. Reflecting accelerated CCA in 2022, OEB staff calculates the revenue requirement relating to the SSG Project to be approximately $2,098,000[59] in 2023. In both scenarios, revenue requirement for 2023 is in the $2 million range. Accordingly, the rate relief that ratepayers receive in the year the SSG Project goes into service is temporary in nature.

OEB staff further notes that PUC Distribution is expected to file its next cost of service application one year after the SSG Project goes in service. OEB staff submits that the disposition of Account 1592 in relation to the SSG Project can be addressed at that time. OEB staff acknowledges that the Account 1592 amount relating to the SSG Project will not be audited by the time of PUC Distribution's 2023 cost of service application, but OEB staff is of the view that PUC Distribution should have a relatively reasonable forecast of the amount at that time. Disposition of Account 1592 in PUC Distribution's 2023 cost of service application would also minimize the time lag between the time when PUC Distribution receives the accelerated CCA benefit through claiming the accelerated CCA deductions in its 2022 tax return, and returning the benefit received to ratepayers in 2023. OEB staff further submits that disposition of Account 1592 in relation to the SSG Project in PUC Distribution's 2023 cost of service application along with consideration of any ICM true-up required and the inclusion of the SSG Project into rate base would assist in providing a more complete picture of the SSG Project. Therefore, OEB staff submits that accelerated CCA should be excluded from PUC Distribution's ICM revenue requirement at this time. This approach would be consistent with the Filing Requirements and also generally be consistent with other ICMs approved to date.[60]

Notwithstanding the above, OEB staff notes that even though the SSG Project may not appear to have a significant influence over PUC Distribution's operations in 2022 based

[58] EB-2020-2049/EB-2018-0219, PUC_IRR_20210125, January 25, 2020, SEC-11
[59] The 2023 revenue requirement calculation assumes accelerated CCA is applied in 2022 and uses the same assumptions as provided in EB-2020-0249, PUC_IRR_20210125, January 25, 2021, (SEC-11). Note the half-year rule applicable to PUC Distribution's ICM in 2022 (as the ICM occurs in the final year of the distributor's IRM plan term) is no longer applicable in the rebasing year.
[60] Examples include Brantford Power Inc./Energy+ Inc. (EB-2019-0022/EB-2019-0031), Alectra Utilities Corporation (EB-2020-0002)

on the inclusion of accelerated CCA (i.e. revenue requirement of $38,212), it will be a significant influence on the utility's operations over the life of the project (i.e. revenue requirement of approximately $2,100,000 commencing in 2023). OEB staff also notes that PUC Distribution stated that "In the event that the OEB does not approve this ICM, PUC Distribution would not proceed with the SSG Project and any NRCan funding would be forfeited."[61]

OEB staff is of the view that the ICM materiality criteria for PUC Distribution's ICM should not be the predominant factor in determining whether ICM funding is warranted in this particular case, given the unique circumstances of this ICM. Rather, the materiality criteria should be balanced with consideration of the need and prudence of the project, as well as consideration of the merits of this SSG Project, as discussed in the Need and Prudence sections further in this submission.

In conclusion, OEB staff supports the ICM project with a revenue requirement excluding accelerated CCA based on i) the merits of the project, ii) the ICM project having significant influence on PUC Distribution's operations over the life of the project, and iii) the forfeiting of NRCan funding if the ICM is not approved.

Need

In order to qualify for ICM funding for a particular project, a distributor must demonstrate that there is a need for the incremental funding.

The OEB's ACM Report requires a three-fold test to demonstrate need including a need threshold as follows:[62]

> The distributor must pass the Means Test (as defined in the ACM Report). Amounts must be based on discrete projects, and should be directly related to the claimed driver. The amounts must be clearly outside of the base upon which the rates were derived.

Under the Means Test, if a distributor's regulated return on equity (ROE) exceeds 300 basis points above the deemed ROE embedded in the distributor's rates, the funding for any incremental capital project will not be allowed. PUC Distribution's current deemed ROE is 9.00% as determined during its 2018 cost of service application. PUC Distribution's historical and projected ROE information is provided below: [63]

[61] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Page 24
[62] Report of the Board – New Policy Options for the Funding of Capital Investments: The Advanced Capital Module, EB-2014-0219, September 18, 2014, Page 17
[63] EB-2020-0249/EB-2018-0219, PUC_ARGChief_20210312, March 12, 2021, Page 12 and PUC_Amended APPL_ICM_20201028, Footnote 11

Table 2: PUC Distribution's ROE

Year	Deemed ROE (%)	Achieved ROE (%)
2015	8.98%	4.46
2016	8.98%	0.98
2017	8.98%	1.78
2018	9.00%	4.25
2019	9.00%	8.87
2020	9.00%	7.89 - forecasted
2021	9.00%	7.04 - forecasted
2022	9.00%	7.60 - forecasted

As indicated above, PUC Distribution's achieved ROE does not exceed 300 basis points above the deemed ROE (for both actual and forecasted years). Under normal circumstances a distributor applying for a 2022 ICM would have 2020 actual ROE results. However, given the timing of the filing of the Amended Application, 2020 actuals are not yet available. In this case, PUC Distribution provided its 2019 actuals which are the most recent available. OEB staff submits that, given that PUC Distribution did not over-earn in its last actual historical year (2019), and is not forecasting to over-earn in 2020, PUC Distribution passes the Means Test.

The following addresses the remaining two components of the needs test.

Discrete Project and Unfunded Through Base Rates

As discussed above, the requested ICM funding relates specifically to the SSG Project. PUC Distribution confirmed that the SSG Project will not affect any of its already planned capital projects as contemplated in its current DSP, nor will it duplicate any capital expenditures already included in its DSP.[64]

While PUC Distribution's current DSP did not include any costs related to the SSG Project, it did discuss investments forecasted for the DSP period related to system renewal projects that included smart grid features to facilitate the future adoption of smart grid technologies.[65] PUC Distribution clarified that its spending towards these "smart grid features" are immaterial and fundamentally different technologies than those proposed as part of this SSG Project.[66] As explained by PUC Distribution, the SSG Project is unrelated to anything currently implemented in its distribution system and

[64] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, SEC-4; EB-2018-0219, Interrogatory Responses, May 31, 2019, Staff-26, Staff-27
[65] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, Attachment 9, DSP, Pages 98, 103, 107
[66] EB-2018-0219, Interrogatory Responses, May 31, 2019, Staff-25

would introduce new classes of assets related to voltage control and distribution automation.[67]

OEB staff agrees that the SSG Project would introduce certain new smart grid technologies (e.g. VVO, self-healing circuits) that are not currently implemented anywhere in PUC Distribution's system. OEB staff submits that the SSG Project is discrete and unfunded through base rates.

Claimed Driver

In relation to the "need" criteria, PUC Distribution described the expectations of customers for cost control, improved reliability, and communication with their utility. PUC Distribution also discussed how it believes the SSG Project will contribute to the four main performance outcomes of the OEB's Scorecard (i.e., Customer Focus, Operational Effectiveness, Public Policy Responsiveness, and Financial Performance).[68]

Based on PUC Distribution's estimates, it expects to reduce customers' total energy consumption by 2.70%, which will translate to cost savings because customers would pay less for electricity commodity costs. The DA component of the project is estimated to improve reliability and will introduce automated capabilities that could deal with certain types of outages and eliminate the need for physical intervention by field staff. It will also provide accurate data to help field staff pinpoint the location of faults for the outages that do require physical intervention by field staff. The AMI Integration component of the project is purported to help with PUC Distribution's internal capital and OM&A planning by providing improved data reporting and data analytics on the distribution system. As well, with the improved data analytics, PUC Distribution expects to be able to provide increased access to energy consumption data to customers.

PUC Distribution further noted that the specific driver(s) in relation to the "need" criteria is demonstrated by certain objectives set out in the *Ontario Energy Board Act, 1998*: to promote economic efficiency and cost effectiveness in the distribution of electricity; to promote electricity conservation and demand management while having regard to the consumer's economic circumstances; and to facilitate innovation in the electricity sector.[69] PUC Distribution specifically noted that the smart grid would provide better operational system reporting that would help facilitate the development of distributed energy resources and electric vehicles.[70]

OEB staff accepts that there are generally increasing expectations from customers for

[67] Ibid.
[68] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Page 47
[69] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, (Staff-47)
[70] EB-2020-0249/EB-2018-0219, PUC_ARGChief_20210312, March 12, 2021, Page 11

cost control, improved reliability and increased choice with respect to communication and interaction. OEB staff agrees that these are potential benefits of the SSG Project that may be realized. There are proposed direct benefits to customers by reducing energy consumption, introducing reliability improvements, and improving systems for capital/OM&A planning and data reporting to customers. There are also potential benefits in a prospective sense in meeting certain energy demands that may arise in the future.

OEB staff agrees that the objectives that the SSG Project seeks to achieve are reasonably in line with certain objectives of the OEB Act. The VVO aspect of the project can have a direct impact on the cost effectiveness of electricity distribution by lowering the total bills of PUC Distribution's customers. Further, VVO can promote electricity conservation and demand management by reducing the amount of energy consumed by PUC Distribution's customers.

OEB staff submits that the need for the SSG Project has been reasonably established.

Prudence

The third criteria that must be met in order for a project to qualify for ICM funding is that the amounts to be incurred must be prudent, i.e. the distributor's decision to incur the amounts must represent the most cost-effective option (although not necessarily the least initial cost) for ratepayers.[71]

PUC Distribution considered three options before coming to the determination to proceed with the SSG Project and provided a discussion of each option.[72] The options considered included:

1. Pursue and develop the SSG Project over two years following OEB approval, as contemplated in this ICM.
2. Pursue and develop the SSG Project over ten years in order to spread out the costs of the SSG Project on PUC Distribution's ratepayers.
3. Not pursue or develop the SSG Project at all.

Option 2 was not considered acceptable as it would result in PUC Distribution forfeiting NRCan funding and therefore the total project cost would be borne by PUC Distribution's ratepayers. Additionally, the anticipated benefits would be delayed by up to nine years. Option 3 was not recommended because it would keep PUC Distribution from modernizing its grid and keeping up with the technological advances facing all

[71] Report of the Board – New Policy Options for the Funding of Capital Investments: The Advanced Capital Module, EB-2014-0219, September 18, 2014, Page 17
[72] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Pages 49-56

utilities which would be contrary to good utility practice.[73] PUC Distribution also stated that the smart grid technologies proposed in the SSG Project would in some form likely still need to be implemented sometime in the future in order to ensure that the utility's grid is able to meet future needs. Option 1 is proposed by PUC Distribution as it allows customers to realize the benefits of the project sooner and the current project timing allows for access to the NRCan funding, thereby reducing the capital cost of the project.

OEB staff agrees that the availability of the NRCan funding under option 1 is a key factor in considering the SSG Project as a prudent expenditure. The NRCan funding significantly decreases the cost of the SSG Project for PUC Distribution's customers. As indicated throughout the Amended Application, the NRCan funding makes it possible to implement the SSG Project with a "no net bill increase" to customers.

For option 2, PUC Distribution provided calculations showing that completing this project in 2022 represents a savings of approximately $4M.[74]

OEB staff agrees that it would not be prudent to pay more later for the same type of project that can be implemented now at a "no net bill increase'. Over the long term, option 1 with NRCan funding would provide the most value to customers.

For option 3, OEB staff accepts that PUC Distribution may need to undertake these types of investments in some capacity in the future.

The key factor in PUC Distribution's decision to undertake the SSG Project now rather than at some undetermined point in the future is again the availability of the NRCan funding which makes it more advantageous to PUC Distribution and its customers.

PUC Distribution provided a summary of customer engagement survey results on the SSG Project which posed the question to its customers regarding their thoughts on which option they would support. The survey results indicate that almost 80% of customers support Option 1.[75]

Based on the discussion above, OEB staff agrees that, at a high level, option 1 appears to be the most prudent option. However, OEB staff submits that there are a number of risks and unknowns associated with the SSG Project beyond the comparison of the three options listed above that should also be taken into consideration. The potential risks outlined below are not exhaustive and are intended to highlight some of the

[73] Ibid, Page 52
[74] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Page 51 – PUC Distribution provided the net present value of the project cash flow over 10 years adjusted for CPI of 2%. Two different discount rates of 3% and 5% were used to arrive at the present value of future cash flows. The $4M figure represents the savings at the 5% discount rate.
[75] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, (Staff-11 and Attachment 5 – Summary of Survey Results, Question 1)

inherent risks that the OEB may wish to consider in determining the prudence of the SSG Project.

Variable Savings

The total net benefit to customers is highly dependent on how much energy consumption the VVO implementation will be able to achieve. The actual VVO energy consumption cost savings are yet to be determined – customers will not know their exact energy savings until the SSG Project is in-service and energy savings are realized.

As well, OEB staff expects that the benefits of the SSG Project will vary amongst customers.[76] For example, PUC Distribution indicated that low consumption customers will not receive as much of the benefit given that VVO savings are dependent on overall energy consumption.[77]

Furthermore, PUC Distribution's estimate of 2.70% in VVO savings is only an estimate. The expected benefits of the SSG Project will vary depending on energy commodity prices[78] and the effectiveness of the actual VVO implementation. OEB staff notes that part of the scope of the Step 1 engineering work is to re-evaluate the expected VVO savings (2.70% or otherwise).[79]

PUC Distribution filed several reports discussing the benefits of VVO implementation and the level of achievable savings in energy consumption. OEB staff summarizes some of the conclusions of the reports as follows:

- **Leidos Preliminary Design Report, October 17, 2014:** This report was part of the 30% engineering that was originally conducted by Leidos. Leidos used a Conservation Voltage Reduction (CVR) Factor of 0.5.[80] This corresponds to total VVO energy savings of 1.50%.[81]
- **Navigant Report #1 – Review of Business Case for Smart Grid Project for**

[76] See EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, Staff-52; and EB-2020-0249/EB-2018-0219, Technical Conference Transcripts, February 17, 2021, Pages 50-51; The 2.70% in savings is an estimate of aggregate savings averaged across PUC Distribution's entire system. For each individual customer, the amount of energy savings will vary and will depend on factors such as the customer's load types and the location on the feeder they are located.
[77] EB-2020-0249/EB-2018-0219, Technical Conference Transcripts, February 17, 2021, Pages 99-100
[78] In its sensitivity analysis, PUC Distribution used Ontario Long Term Energy Plan Report 2017 to forecast future electricity commodity costs.
[79] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Appendix AA3-7, Appendix A, Page 13; EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, Staff-26
[80] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, Appendix AA7 – Leidos Preliminary Design VVM, Page 14
[81] EB-2018-0219, Appendix H, Page 1

PUC Distribution, April 15, 2015: Navigant reviewed the overall SSG Project business case for PUC Distribution, including the Leidos Report. Navigant noted that Leidos' use of a 0.5 CVR Factor is conservative in estimating energy savings.[82]

- **Navigant Final Report – Considerations for Deploying In-Front-of-the-Meter Conservation technologies in Ontario (Navigant Final Report), July 18, 2017:** In this report, prepared for the Ontario Ministry of Energy, Navigant reviewed a number of VVO pilot projects that had been implemented in North America. The results were varied, with an average voltage reduction of 2.7% and average CVR factor of 0.91.[83]
- **Pacific Northwest National Laboratory – Evaluation of Conservation Voltage Reduction (CVR) on a National Level, July 2010:**[84] This report was developed for the U.S. Department of Energy and provided an estimate of the amount of potential energy savings from implementing CVR (i.e. VVO) in the U.S. If implemented at the national level, this report estimated 3.04% reductions in annual energy consumption.
- **Utilidata Case Study:**[85] This is a case study on one of its pilot projects in Columbus, Ohio. In that pilot project, Utilidata's system achieved 4.27% in energy savings.

The literature noted above provides a range of CVR Factor and energy consumption savings estimates. OEB staff agrees that PUC Distribution's estimate of 2.70% in savings, which appears to be around the middle of the range of possibilities cited in the literature, is not unreasonable. That said, OEB staff's view is that a more conservative estimate of around 2.00% may be more appropriate.

OEB staff notes that the literature summarized above largely contains analysis on pilot projects, which by their nature involve only a small subset of feeders and substations. For proof-of-concept purposes, these pilot projects may have selected areas of the distribution system that would be the best candidates for VVO implementation. The Navigant Final Report, which raised both these points, concluded that the results of

[82] EB-2020-0249, Appendix AA8 – Navigant Report #1, Page 26
[83] EB-2018-0219, Interrogatory Responses, May 31, 2019, Appendix 5, Navigant Report on Considerations for Deployment of In-Front-of-the-Meter Technologies in Ontario, Page 159; The % in energy consumption savings can be calculated by multiplying the CVR Factor with the amount of voltage reduction. Using the average values noted here, the % in energy savings would be (2.7% * 120 V) * 0.91 = 2.95% reduction in energy consumption.
[84] This Report is noted as item 4 in Undertaking JTC2.8 of Appendix AA5 in the original filed application of EB-2020-0249/EB-2018-0219.
[85] This Case Study is noted as item 6 in Undertaking JTC2.8 of Appendix AA5 in the original filed application of EB-2020-0249. Please note, there are a number of other items listed in JTC2.8 that OEB staff has not discussed here. Many of the links to the other reports were broken and OEB staff therefore could not review those reports.

VVO implementation discussed in its report should not automatically be assumed to be applicable to an entire jurisdiction.[86] For PUC Distribution, which intends to implement the VVO across its entire distribution system, OEB staff believes that it is likely there are parts of the distribution system that would experience less than 2.70% in energy savings, which would reduce the aggregate amount of savings to less than 2.70%.

The Navigant Final Report also noted that, based on the differences in the types of loads typically used in rural versus urban areas, it is expected that rural feeders would experience a lower CVR Factor and therefore lower energy savings than urban feeders.[87] Given that PUC Distribution's system is majority rural, OEB staff submits that it may be appropriate to adopt a more conservative estimate to the CVR Factor.

PUC Distribution provided a sensitivity analysis on the net benefits to customers, including if VVO savings are 2.00% instead of 2.70%.[88] Although the sensitivity analysis demonstrates a net bill increase for customers in earlier years of implementation, it also shows that benefits outweigh the increased costs associated with the project in the long term because the costs of the project depreciate over time, but the benefits do not.[89] Over a 20-year horizon, PUC Distribution's analysis shows that the SSG Project provides net positive value to customers. According to PUC Distribution's calculations, the net present value of 2% energy savings is $3,729,534.[90] OEB staff also notes that there are some assurances built in the EPC contract related to the commitment to 2.70% energy savings.[91]

Based on the discussion above and the evidence that PUC Distribution provided, OEB staff submits that the SSG Project can reasonably be expected to deliver positive value to customers (on aggregate) in the long run and is therefore a prudent investment.

Scope Reduction Risk for DA

The scope of work that can be completed during Step 2 of the EPC Contract will not be finalized until Step 1 is completed. PUC Distribution stated that VVO will be implemented fully, but the scope of the DA component may be reduced as necessary to keep the costs within the maximum price of the EPC contract. Given that the DA component is associated with the purported reliability benefits, it is more difficult to determine the prudence and cost-effectiveness of the DA component fully because it is unclear what the final scope, price and anticipated reliability benefits will be.

[86] Navigant Final Report, Page 161
[87] Ibid
[88] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, SEC-12
[89] Ibid
[90] Ibid; EB-2020-0249/EB-2018-0219, Argument-in-Chief, March 12, 2021, Page 19
[91] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, CCC-12

However, PUC Distribution has stated that it does intend to implement DA in some form, even if the budget under the EPC contract is not enough to fully implement DA across its entire system.[92] Given that the reliability benefits of DA are not part of PUC Distribution's "no net bill increase" calculation, OEB staff submits that this is a reasonable approach to the implementation of DA.[93]

Direct Benefit of VVO Not Applicable to 34.5kV Customers

The cost benefits of VVO only apply to customers fed from the utility's 12.5kV distribution system. There are seven GS>50 kW customers that are connected to PUC's 34.5kV system that would not receive any of the cost benefits of VVO. These customers, however, will receive the benefit of increased reliability from the implementation of the DA.

OEB staff agrees that the SSG Project will provide net positive benefits to PUC Distribution's customers as a whole, with the seven 34.5kV customers potentially receiving some increased benefits (e.g. reliability) from the implementation of DA and AMI.

Project Costs are Variable

As noted previously in this submission, the structure of PUC Distribution's contract with its EPC contractor is that Step 1 is fixed cost and is intended to provide enough initial engineering to provide an estimate for Step 2 of the SSG Project. The cost of Step 2 of has a maximum price set.

OEB staff notes that there is a portion of the total project cost that is related to PUC Distribution's own engineering (including preliminary engineering works), project management and legal costs. OEB staff notes that this portion of the project cost is not subject to a fixed or maximum price and therefore it is reasonable to assume that a portion may change in some manner.

While the project costs are variable in some way, OEB staff notes that this is not unlike other ICM proposals filed with the OEB. At the time of rebasing, any distributor that has an approved ICM from a previous application must compare actual capital spending with the OEB-approved amount and provide an explanation for variances. At that time, the OEB would make a determination on any true-up treatment for variances between forecast and actual capital spending during the IRM plan term.

OEB staff also notes that the current project costs are based on estimates of unit costs for all the equipment required for the various components of the SSG Project (VVO, DA

[92] EB-2020-0249/EB-2018-0219, Technical Conference Transcripts, February 17, 2021, Pages 21-23
[93] Ibid, Pages 102-103

and AMI).[94] PUC Distribution explained that these estimates were provided by its EPC contractor as part of the RFP process for selecting an EPC contractor.[95] Part of the scope of Step 1 engineering is to obtain quotes for all equipment required for the SSG Project.[96] The uncertainty of the costs is an inherent risk to the SSG Project in its current form as it is only based on a 30% engineering design, and the Step 1 engineering to finalize the scope of the project has not yet been completed.

Although there is some uncertainty in the project costs, OEB staff does not consider the estimated unit costs unreasonable given that they are based on estimates provided by the EPC contractor, Black & Veatch.

OEB staff submits that the benefits of the NRCan funding offsetting part of the revenue requirement of the SSG Project outweighs the risks of having some uncertainty of project costs. OEB staff submits that the SSG Project as a whole is a prudent investment for PUC Distribution's customers.

Metrics

The Contribution Agreement with NRCan contains three key performance indicators. OEB staff has reproduced these below:[97]

Table 3: Key Performance Indicators

GHG Emissions Reductions	Reduction in greenhouse gas emissions Reduced energy losses from GHG emitting supply (kWh)

Improved Asset Utilization and Increased Efficiency	Reduction in peak demand on utility assets
	Reduction in energy losses
	$ savings from deferred system upgrades
	$ energy savings to customers

Increased Reliability and Resilience	# event Fault Location, Isolation and Restoration responded to # customer calls/complaints avoided due to fewer outages $ revenue loss avoided from outages avoided

The Contribution Agreement indicates that PUC Distribution is required to provide the results of the performance indicators and an explanation on the methodology for calculating each of these indicators six months following the project completion date or

[94] EB-2020-0249/EB-2018-0219, Appendix AA12-1
[95] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, Staff-33
[96] Ibid
[97] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Appendix AA4-2 – Contribution Agreement (Amended), Schedule A, Page 8

the date the project is deemed to be operational.[98]

Additionally, PUC Distribution provided a table in response to interrogatories listing further proposed metrics, many of which are only partially quantified or remain to be determined.[99] OEB staff understands that the method for collecting, analyzing and reporting metrics related to the SSG Project has not been fully determined and will be developed by PUC Distribution as part of the project design and implementation in coordination with the EPC contractor. This was confirmed in the Technical Conference by PUC Distribution.[100]

OEB staff submits that the reporting of performance metrics is a key component in assessing the realized benefits and outcomes that the SSG Project is seeking to achieve. Customers should be able to see, in quantifiable terms, the benefits they are receiving for their investment in this project.

In addition, OEB staff submits that if the OEB approves this project, it would be appropriate to establish metrics that links performance measures to revenues. In OEB staff's view it is not unreasonable to hold PUC Distribution accountable for the overall effectiveness of its investments relative to what it has promised in terms of benefits to customers.

OEB staff understands that it may be premature to establish such performance targets. However, as noted above, additional metrics are proposed to be developed during the design stage of this project. OEB staff recommends that PUC Distribution file all available information on the proposed metrics that it intends to track in relation to the SSG Project as part of its 2023 rebasing application. In fact, OEB staff is of the view that PUC Distribution should be required to propose performance targets in its 2023 rebasing application, including how much risk PUC Distribution believes is reasonable for it to bear if it does not deliver on its savings forecasts (net of any liquidated damages for performance discussed below). One example could be the commitment to achieve a given level of energy savings for its customers (for instance, the 2.7% initially identified by PUC Distribution, or the 2% OEB staff has proposed as potentially more appropriate) and what implications should arise if this target is not met.

Given the substantial scope, OEB staff expects the SSG Project to have a significant impact on PUC Distribution's system and capital planning going forward. PUC Distribution has not provided an updated DSP as part of this ICM application that reflects the impact of the SSG Project. Taking into consideration the timeline on the

[98] EB-2020-0249/EB-2018-0219, PUC_Amended APPL_ICM_20201028, October 29, 2020, Appendix AA4-2 – Contribution Agreement (Amended), Schedule C, Page 12
[99] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, (Staff-46)
[100] EB-2020-0249/EB-2018-0219, Transcripts_REVISED_PUC TC_Feb 17 2021, Page 13

availability of NRCan funding, OEB staff is not opposed to this ICM request despite there not being an updated DSP at this time; however, OEB staff expects PUC Distribution to file an updated and comprehensive DSP in its next rebasing application in 2023 with capital plans that reflect the inclusion of the SSG Project. OEB staff believes that it would be a good opportunity, at the time of PUC Distribution's 2023 rebasing application, for the OEB to assess the SSG Project in the context of an updated DSP for the purposes of assisting in determining the appropriate performance measures to be put in place.

In the event that PUC Distribution elects to defer rebasing for 2023, it should be required to file a stand-alone application to complete the performance measurement component of this project, including the updated DSP.

Accounting Order – NRCan Contribution

In its application, PUC Distribution indicated that it would record actual ICM amounts in the generic Account 1508 sub-accounts established for ICMs. In response to interrogatories, PUC Distribution indicated that it would require three new sub-accounts to record amounts relating to the capital contribution from NRCan and provided a draft Accounting Order.[101] In its undertaking responses, PUC Distribution provided an updated draft Accounting Order to reflect all ICM related sub-accounts that will be used and the journal entries that will be recorded if the ICM is approved for inclusion in rate base at rebasing.[102]

OEB staff reviewed the updated draft Accounting Order and has no concerns.

Treatment of Liquidated Damages

The EPC Contract contains provisions for "Liquidated Damages for Performance" and "Liquidated Damages for Delay" to be paid by the EPC Contractor.

PUC Distribution confirmed that, "to the extent the performance measures are not achieved pursuant to the EPC contract, PUC Distribution will exercise its rights to claim liquidated damages for performance, and those liquidated damages will go to reduce the cost of the SSG Project for customers and help ensure that "no net bill increase" is maintained."[103] At the Technical Conference, PUC Distribution confirmed that any liquidated damages, if applicable, would reduce the capital expenditures associated with this project, and would be settled at the time of the utility's next cost of service rebasing.[104] OEB staff agrees with this approach.

[101] EB-2020-0249, PUC_IRR_20210125, January 25, 2021 (Staff-42)
[102] EB-2020-0249, PUC_Undertakings_TC_20210226 (Appendix JTC1.2)
[103] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, (CCC-17)
[104] EB-2020-0249/EB-2018-0219, Transcripts_REVISED_PUC TC_Feb 17 2021, Page 14

With respect to any Liquidated Damages for Delay, it was noted that these would protect PUC Distribution from losses associated with the EPC Contractor's failure to complete the project within the timeframe required under its funding arrangement with NRCan.[105]

OEB staff submits that if there are any Liquidated Damages for Delay paid in accordance with the EPC Contract, they should also be applied towards reducing the capital expenditures associated with this project at the time of PUC Distribution's 2023 rebasing application.

Bill Impacts

As noted in the ACM Report, distributors applying for a typical ICM or ACM must provide bill impacts in a Price Cap IR application.[106] Given that this application has been filed earlier than it would be typically, and on a "stand-alone" basis, OEB staff requested estimated bill impacts effective May 1, 2022 taking into account the proposed ICM rate riders and a 1.90% proxy price cap index adjustment for 2022.[107] In response to that request, PUC Distribution provided estimated bill impacts for its Residential, General Service < 50 and General Service > 50 rate classes.[108]

In its Argument-in-Chief, PUC Distribution replicated a table from its application of the estimated bill impacts resulting solely from the proposed ICM riders (i.e. with no price cap adjustment), again for its Residential, General Service < 50 and General Service > 50 rate classes.[109]

OEB staff notes that there appears to have been an oversight in that PUC Distribution did not include the estimated impacts for its Unmetered Scattered Load, Sentinel Lighting and Street Lighting rate classes in both versions of the bill impacts. Additionally, for the impacts that were provided, OEB staff notes that PUC Distribution used the 2019 RPP prices and the outdated Ontario Electricity Rebate of 31.8%, which is now set at 21.2%.

OEB staff notes that on March 3, 2021, the OEB issued a draft Decision and Rate Order in PUC Distribution's 2021 IRM application for rates effective May 1, 2021.[110] Utilizing the most current information available on Tab 20 – Bill Impacts, OEB staff has

[105] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, (Staff-57)
[106] Report of the Board – New Policy Options for the Funding of Capital Investments: The Advanced Capital Module, EB-2014-0219, September 18, 2014, Page 24
[107] This was based on PUC Distribution's 2021 IRM application before the OEB in EB-2020-0051 and assumed all else being equal (for example, no deferral and variance account disposition, no change in RTSR rates etc.).
[108] EB-2020-0249/EB-2018-0219, PUC_IRR_20210125, January 25, 2021, (Staff-37)
[109] EB-2020-0249/EB-2018-0219, PUC_ARGChief_20210312, March 12, 2021, Page 20
[110] EB-2020-0051, Decision and Rate Order (draft), March 3, 2021

calculated the following proxy impacts effective May 1, 2022 using a 1.90% proxy price cap index adjustment for 2022, and including the proposed ICM rate riders and assuming all else being equal (for example, no deferral and variance account disposition, no change in RTSR rates etc.).

Table 4: Estimated Bill Impacts – Effective May 1, 2022 – With Consumption Savings

Class	Consumption (kWh)	Consumption (kW)	Total Bill Increase/Decrease $	Total Bill Impact %
Residential	750		(0.42)	(0.36)
Residential	825		(0.64)	(0.51)
Residential	367		0.76	1.03
Residential	2,000		(4.23)	(1.64)
GS<50	2,000		(3.37)	(1.13)
GS<50	272		0.62	1.07
GS<50	3,000		(5.65)	(1.30)
GS>50	19,740	55	(52.62)	(1.30)
GS>50	57,220	145	(175.85)	(1.56)
GS>50	142,465	452	(145.05)	(1.40)
GS>50	169,620	468	(518.91)	(1.54)
Unmetered Scattered Load	3600		(10.38)	(1.28)
Sentinel Lighting	50	1	2.50	4.52%
Street Lighting[111]	199,852	585	283.29	0.47%

Table 5: Estimated Bill Impacts – Effective May 1, 2022 – Without Consumption Savings

Class	Consumption (kWh)	Consumption (kW)	Total Bill Increase/Decrease $	Total Bill Impact %
Residential	750		1.88	1.61
Residential	825		1.88	1.50
Residential	367		1.88	2.56
Residential	2,000		1.88	0.73
GS<50	2,000		4.18	1.41
GS<50	272		1.65	2.82

[111] Assumes 8,070 connections

GS<50	3,000		5.63	1.30
GS>50	19,740	55	35.95	0.89
GS>50	57,220	145	80.90	0.72
GS>50	142,465	452	234.20	0.81
GS>50	169,620	468	242.18	0.72
Unmetered Scattered Load	3,600		11.35	1.40
Sentinel Lighting	50	1	2.72	4.93
Street Lighting[112]	199,852	585	1,182.47	1.96

OEB staff submits that these impacts are for illustrative purposes and not representative of the true impact that will occur effective May 1, 2022 if the OEB approves this application. As noted previously, there are updates to the ICM Model that OEB staff believes would be appropriate as part of PUC Distribution's 2022 IRM application (i.e. the inflation factor applicable for 2022 applications, any changes to PUC Distribution's forecasted 2022 capital budget, and actual 2020 demand data). Additionally, any ICM impacts would be combined with the actual IRM impacts to be determined as part of PUC Distribution's 2022 IRM application. As such, the bill impacts effective May 1, 2022 will include the impact of any deferral and variance account disposition, change in RTSR rates, and other matters addressed in a typical IRM. OEB staff notes the cost of power would also be further updated at that time.

~All of which is respectfully submitted~

[112] Assumes 8,070 connections