EB-2019-0170

PUC Distribution Inc.
Application for electricity distribution rates effective
May 1, 2020

2020 Incremental Capital Module

VECC Submissions January 24, 2020

PUC Distribution Inc. (PUC) filed an incentive rate-setting mechanism (IRM) application with the Ontario Energy Board (OEB) on October 15, 2019 under section 78 of the *Ontario Energy Board Act*, *1998*, S.O. 1998, c. 15, (Schedule B) seeking approval for changes to its electricity distribution rates to be effective May 1, 2020.

PUC's application includes a request for incremental capital funding for the renewal of Substation 16. VECC's submissions relate to this Incremental Capital Module (ICM) request.

Background & Project Description

PUC identified the need to rebuild Substation 16 in its 2018 Cost of Service application (EB-2017-0071). PUC's 2018 to 2022 Distribution System Plan included $420,179 in capital in 2018 related to the rebuild of Substation 16.[1] As part of the Settlement Proposal[2] in EB-2017-0071, PUC agreed to reduce its Test Year capital additions by $420,179 to reflect the removal of the costs associated with Substation 16 Rebuild[3] in the Test Year given that Substation 16 would not be in service in 2018.

In this application, PUC requests OEB approval for the revenue requirement related to an ICM for the renewal of substation 16 that is now proposed to be in-service in 2020.

PUC's evidence is that Substation 16 has been in service for over 50 years, is in very poor condition and has reached end of life. Due to the state of the existing station infrastructure, the switchgear is deemed to be unsafe to operate while energized and must be isolated and de-energized prior to operation. This results in isolation out on the 34.5kV distribution lines, which significantly reduces reliability and contingency buffers for connected customers, while increasing operating efforts and costs.[4]

The planned Substation 16 rebuild is an upgrade from a 34.5k -12.47/7.2kV, 15MVA station to a 34.5kV - 12.47/7.2kV, 26.6MVA substation that will have two incoming 34.5kV supplies, two 10/13.3 MVA power transformers, and four outgoing 12.47kV feeders supplied by arc resistant metalclad switchgear.

[1] EB-2017-0170 Exhibit 2 Page 53Exhibit 2/App. G/Project #7
[2] EB-2017-0170 Settlement Proposal P11
[3] Exhibit 2/App. G/Project #7
[4] Manager's Summary P5

ICM ELIGIBILITY

The OEB's current policy for ICM funding is set out in the *Report of the Board New Policy Options for the Funding of Capital Investments: The Advanced Capital Module*, September 18, 2014 (the "ACM Report") and the subsequent *Report of the OEB New Policy Options for the Funding of Capital Investments: Supplemental Report*, January 22, 2016 (the "Supplemental Report") which made changes to the materiality threshold on which ACM and ICM proposals are assessed.

The ICM is available to electricity distributors that are filling for an adjustment to their distribution rates under the Price Cap Incentive Regulation ("Price Cap IR"). The ICM is intended to address the treatment of capital investment needs that arise during the rate-setting plan which are incremental to the materiality threshold defined in the ICM. The ICM is available for discretionary and non-discretionary projects. The ICM is also available for capital projects that were not included in the distributor's last filed Distribution System Plan.[5]

In order to be eligible for ICM funding, the requested amount must fit within the total eligible incremental capital, which is the difference between the total capital budget for the subject year and the OEB-defined materiality threshold, and satisfy the eligibility criteria of materiality, need and prudence.[6]

For the following reasons, VECC submits PUC's request for ICM funding for the renewal of Substation 16 meets the above eligibility criteria and should be approved.

Materiality

The ICM materiality threshold is a capital expenditure threshold, which reflects the level of capital expenditures that a distributor should be able to manage with its current rates. A capital budget is deemed to be material, and as such reflects eligible projects, if it exceeds the OEB-defined materiality threshold. Any incremental capital amounts approved for recovery must fit within the total eligible incremental capital amount and must clearly have a significant influence on the operation of the distributor; otherwise they should be dealt with at rebasing.

PUC's 2020 capital budget of $9,100,376 includes $4,728,229 for the renewal of Substation 16,[7] and exceeds the OEB-defined materiality threshold. PUC calculated a materiality threshold of $5,665,251[8], which has been updated to $6,497,525 based on the 2020 IPI of 2%.[9]. PUC is expected to manage $6,497,525 of capital expenditures with its current rates. VECC submits this is reasonable given PUC's average DSP capital expenditures.[10]

As shown in Table 1 below, PUC is eligible for incremental capital of $2,602,851 and PUC is applying for this maximum amount resulting in an incremental revenue requirement request of $195,553.

[5] Chapter 3, Filing Requirements for Electricity Distribution Rate Applications – 2018 Edition for 2019 Rate Applications, page 23.
[6] ACM Report, P16
[7] Incremental Capital Module Manager's Summary P9
[8] Incremental Capital Module Manager's Summary P9
[9] Staff-9
[10] Incremental Capital Module Manager's Summary P9

Table 1: Eligible Incremental Capital

	As Filed	Updated
Total 2020 Capex	$9,100,376	$9,100,376
Less Materiality Threshold	$5,665,251	$6,497,525
Maximum Eligible Incremental Capital	$3,435,125	$2,602,851

Project-Specific Materiality

The ACM Report introduced a second project-specific materiality threshold, which requires that individual projects be material in relation to the overall capital budget. Minor expenditures in comparison to the overall capital budget should be considered ineligible for ACM or ICM treatment. A certain degree of project expenditure over and above the Board-defined threshold calculation is expected to be absorbed within the total capital budget.[11]

The cost of Substation 16 is $4,728,229[12] which represents 52% of PUC's 2020 capital budget. VECC submits the renewal of Substation 16 represents a significant expenditure in comparison to PUC's overall 2020 capital budget and meets the Project-Specific Materiality test.

Need

The ACM Report requires that a distributor satisfy the eligibility criteria of need, comprised of:

a) passing the means test (defined below);

b) amounts to be incurred must be based on discrete projects and should be directly related to the claimed driver; and

c) amounts to be incurred must be clearly outside of the base upon which rates were derived.[13]

a) Means Test

Under the means test, the ICM is not available for incremental funding if a distributor's regulated return exceeds 300 basis points above the deemed return on equity embedded in the distributor's rates.

PUC's Return on Equity (ROE) between 2016 and 2018 did not exceed the dead band of 300 basis Points and PUC's ROE projections for 2019 and 2020 do not exceed the dead band of 300 basis points. The deemed ROE built into rates is 9.00%.[14]

VECC submits PUC's ICM request passes the Means Test.

b) Discrete Project Criterion

[11] ACM Report P17
[12] Staff IR#10
[13] ACM Report P17
[14] Incremental Capital Module Manager's Summary P10

The ACM Report adopted the Discrete Project Criterion.[15] Projects proposed for incremental capital funding during the IR term must be discrete projects, and not part of typical annual capital programs.

VECC submits PUC has met this criterion. The amount being requested for approval are based on a discrete substation renewal project that is directly related to the claimed driver and is not be part of a typical annual capital program.

c) Outside of Base Rates

The need for the renewal of Substation 16 was identified in PUC's Cost of Service application with costs expected to be incurred in 2018 and 2019. At that time, PUC indicated that it has planned for distribution station replacements within the five-year cost of service rate horizon that it believes would require rate increases. PUC stated it plans to file Incremental Capital Modules at the appropriate time to address the funding of the distribution station rebuilds.[16] However, PUC did not believe it was prudent at that time to put Substation 16 forward as an ACM as part of the Cost of Service application given that only high-level plans and estimates were developed.[17]

As noted above, the proposed 2018 capital costs for the renewal of Substation 16 were excluded from rate base in the 2018 Cost of Service application (EB-2017-0071) as per the Settlement Proposal and not included in 2018 base rates.

PUC indicates the key investment objectives are to mitigate the risk of power outage duration and frequency (SAIDI/SAIFI) falling below PUC's performance targets as outlined on its OEB annual local distribution company (LDC) scorecard, improve operating conditions, and mitigate environmental risks. The condition of the existing assets at Sub 16 has been determined as poor or very poor, presenting a high risk of failure.

The renewal of Substation 16 will benefit the only major hospital, an acute care facility, within PUC's service area. The hospital is supplied by dual 34.5kV lines and one of the 34.5kV supplies to the hospital is radially interconnected to Substation 16. Any planned or unplanned interruption of the supply to Substation 16 results in a loss of one supply to the hospital.[18]

The Substation 16 rebuild includes an upgrade from this radial, single feed 34.5Kv supply to a dual feed configuration, with integral bypass switching. This new configuration eliminates the loss of supply to the hospital for any planned work at Substation 16 and ensures that the hospital maintains both of its parallel feeds.

[15] ACM Report P13
[16] EB-2017-0071 Exhibit 2 P65
[17] Incremental Capital Module Manager's Summary P11
[18] Staff-11

The $4,728,229 renewal of Substation 16 involves capital costs in 2018, 2019 and 2020 with the majority of the costs in 2020. Actual costs incurred to date total $1,014,403: $118,016 in 2018 for consulting/engineering and $918,006 in 2019[19] for consulting/engineering, construction, switchgear and transformer costs.[20]

The estimated budget submitted with the EB-2017-0170 Cost of Service application (Appendix D, P1) for the renewal of Substation 16 was $3,910,244 and with the subsequent Substation 16 ICM application (EB-2019-0170, P8), the estimated budget was revised to $4,728,229.

The difference identified in the updated estimate is attributable to the inclusion of tendered pricing for major equipment (power transformers and switchgear) and power transformer on-load tap changers.

Prudence

The ACM Report requires that the amounts to be incurred must be prudent. This means that the distributor's decision to incur the amounts must represent the most cost-effective option (not necessarily the least initial cost) for ratepayers.

PUC appropriately evaluated the following six options for managing the risks associated with the current state of Sub 16 and determined the renewal of Substation 16 now (Option 3) was the most cost-effective option:

1. Do-Nothing.
2. Rehabilitate for another 5 years and then renew Sub 16 ($900,000)
3. Renew Sub 16 now ($4,728,229)
4. Non-wires alternative ($35 million)
5. Transfer load to other stations and remove Sub 16 from service ($9 million)
6. Renew Sub 16 like-for-like (technology is obsolete).

VECC takes no issue with PUC's analysis and determination that Option 3, Renew Substation 16 now, is the most cost-effective option.

VECC agrees the Do-Nothing Option (Option 1) is not appropriate given that most of the existing equipment is past its useful life. The two transformers at Substation 16, T1 and T2, are 54 and 53 years old, respectively, compared to a Life Expectancy of 40 years.[21] PUC indicates this option would result in unacceptable deteriorating reliability, increasing operating and maintenance costs, remediation costs associated with oil leaks, longer switching and restoration associated with day-to-day business. Additionally, PUC predicts it is likely that within the next 5 years, PUC will have to renew the substation and therefore this option becomes Option 2. Rehabilitating the Substation for another five years (Option 2) at a cost of $900,000 is not ideal given that the Substation has a history of rehabilitation, plus when existing end-of-life systems/components are rehabilitated/upgraded PUC states they must be brought up to today's design and safety standards. Therefore, most of the systems will require complete redesigns to meet ESA Regulation 22/04 compliance at that time which supports Option 3 – renew Substation 16 now. The Non-wires alternative (Option 4) is too expensive, transferring the load to other

[19] as of December 25, 2019
[20] Staff-10
[21] VECC-3

stations is not doable given that nearby stations do not have the capacity to support Substation 16 for long periods of time (Option 5). In addition, this option results in an estimated 50% increase in O&M associated with battery maintenance of energy storage. Lastly, the renewal of Substation 16 like-for-like (Option 6) is inconsistent with current standards as the existing technology is obsolete and parts are difficult to obtain.

PUC expects more than 2 MW of new load to come online over the next three years. PUC is concerned that Substation 16 may be operating close to or beyond its 15 MVA capacity. In response to Staff-12 PUC provided a list of new customers in the Substation 16 service area that PUC expects to connect over the next three years with a total load of 2.109 MW. Transformers and switchgear are in in "poor" or "very poor" condition with limited capacity to take on additional load and are unsuitable for providing contingency backup. The renewal of Substation 16 now (Option 3) appropriately responds to the capacity issue.

PUC proposes to install two 10/13.3 MVA power transformers as part of the renewal of Substation 16. In response to Staff-12, PUC explains that by installing a transformer one size smaller does not necessarily result in incremental savings as transformer pricing is a function of many factors. Further, PUC has standardized the use of 10/13.3 MVA transformers at all stations in order to match transformer capacities to the capacity of the 12.47 kV station riser cables and maximize the value leveraged from the assets.[22]

Deferral and Variance Account

PUC requests Board approval to create a deferral and variance account to track costs and recovery of costs related to the Substation 16 renewal with the intention of truing up the balance at PUC's next Cost of Service application.[23] In response to Staff-22 PUC clarified that it will use account 1508 as set out in Chapter 3 Incentive Rate Setting Applications Section 3.3.2.5 ACM/ICM Accounting Treatment (P28) and is not requesting additional accounts beyond what the OEB has already established.

VECC submits PUC's proposal to track costs and recovery of costs related to the Substation 16 renewal with the intention of truing up the balance at PUC's next Cost of Service application is appropriate given PUC's delay in completing the rebuild of Substation 10. In 2012, there was a variation of $1.2 million in the System Renewal capital category primarily due to delays experienced during the reconstruction of the 12kV Substation 10. Engineering resource constraints, equipment deliveries and poor winter weather were primary contributors to pushing completion of this project out into 2013.[24] PUC further explains the original schedule called for a two-year project across 2013 and 2014 but due to engineering resource constraints (unexpected personnel changes), equipment delivery timing and poor winter weather conditions some deficiency work was not completed until 2015.[25] PUC indicates the expected delivery date for the power transformers for Substation 16 is mid-July 2020.[26] Should the project be delayed and not in service in 2020, VECC submits this should be addressed at rebasing.

[22] Staff-12
[23] Incremental Capital Module Manager's Summary Page 27
[24] EB-2017-0071 Exhibit 2 Rate Base Appendix 2 - 2 Distribution System Plan 5.2 – P34
[25] VECC-10
[26] VECC-4