ONTARIO ENERGY BOARD

EB-2020-0249/EB-2018-0219

IN THE MATTER OF the *Ontario Energy Board Act*, 1998, S. O. 1998, c. 15, Schedule B;

AND IN THE MATTER OF an Application by PUC Distribution Inc. under Section 78 of the Act for an order approving just and reasonable rates and other charges for electricity distribution to be effective May 1, 2022.

Submissions of Environmental Defence

PUC Distribution Inc. – Sault Smart Grid Project

March 22, 2021

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Summary

PUC Distribution Inc. ("PUC Distribution") filed an application on October 29, 2020 seeking approval of a 2022 ICM funding request related to the Sault Smart Grid project (the "SSG Project"). If approved, the SSG project would allow PUC Distribution to implement well-understood and tested distribution system improvements that would bring numerous net benefits for both consumers and the environment.

For the reasons that follow, Environmental Defence strongly supports PUC Distribution's SSG project. In short, the project will result in savings of over $33.6 million[1] and improve system reliability while also eliminating 103,786 tonnes of greenhouse gas emissions (CO2e)[2] and creating jobs and economic growth.

The SSG will provide net benefits to consumers

The SSG project will provide numerous net benefits to consumers. In addition to greater reliability and the net customer benefits identified by PUC Distribution in its application, the SSG project offers the following benefits over the term of the project and beyond:

a) *Supports the uptake of electric vehicles ("EVs")* – The SSG project will make it easier for PUC Distribution to carry out DER connections.[3] Among other things, this would ensure that customers that want to install EV charging stations are able to do so. Similarly, the SSG project would help the utility to capitalize on the storage capacity of electric vehicles to reduce distribution system costs by: (i) communicating directly with charging stations to reduce load during peak periods; (ii) communicating directly with charging stations to allow power to be drawn from batteries during peak periods; (iii) drawing energy from car batteries connected to charging stations during peak periods; and (iv) communicating directly with charging stations to ensure energy is drawn from the LDC's system at the optimal times.[4] For example, PUC Distribution's peak load for 2019 was 133MW. If 50% of all residential customers had EVs, the EVs could be used to offset 85% of such a peak for a duration of one hour.[5]

b) *Will create jobs* – The SSG project is anticipated to create up to 3 new permanent jobs and 60 jobs during the construction and implementation phases of the project. These would be skilled and green jobs created in northern Ontario and as the economy emerges from a pandemic. PUC Distribution further estimates that indirect jobs related to the construction of the project to be the equivalent of approximately 100 FTEs.[6]

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[1] This figure includes savings over 20 years from the net benefit to customers, avoided carbon emissions costs and NPV of avoided costs. See footnote 15 below for details.
[2] PUC IRR ED-1(a)
[3] PUC IRR ED-4(c)
[4] PUC IRR ED-4(b)
[5] *Ibid*.
[6] PUC IRR ED-4(f)

c) *Generate revenue for the government* – Over the next 20 years, the SSG Project is anticipated to generate more than $7 million in additional revenue, between income taxes, PILS and HST.[7] This is revenue that would not otherwise be generated.

d) *Contribute to the economic growth of the region* – The SSG project is likely to increase the economic attractiveness of the Sault Ste Marie region to industries requiring increased reliability and high-quality power, such as electronics manufacturing, e-commerce, telecommunication services, data centres, multi-modal shipping, and distribution hubs.

The SSG project will benefit the provincial system and the environment

The SSG project will also have benefits that extend beyond those benefits to PUC Distribution's direct customers. These benefits include the following:

a) *Reduced transmission grid and generation costs*: Greater efficiency and lower losses means that less energy will be delivered to the PUC distribution system. Based on IESO Annual Planning report, PUC Distribution estimates a 20-year NPV avoided cost savings of $6,164,335 between 2023 and 2042.[8]

b) *Reduction in greenhouse gas ("GHG") emissions*: The SSG project will result in energy savings and reduced losses. Accordingly, it will also result in avoided GHG emissions. Over the next 10 years, the SSG project is anticipated to result in 44,784 t CO_2e of avoided GHGs. Over the next 20 years, the amount of avoided GHGs is anticipated to be 103,786 t CO_2e.[9]

Net benefits have been conservatively estimated

PUC Distribution's calculation of net benefits have been conservatively estimated. Accordingly, many of the benefits attributable to the SSG project are likely to be greater than PUC Distribution has anticipated in its application:

a) *Greater net benefit for customers if demand for electricity increases*: The net benefit for customers was calculated based on current demand for electricity. However, if demand for electricity increases, the net benefit for customers also increases. For example, a 50% increase in electricity demand would more than double the annual net benefit to customers, from $620,538 to $1,734,460.[10] An increasing demand for electricity is not unlikely as electric vehicles increase and electrification is used to decarbonize space and water heating.

b) *Greater net benefit for customers when system peak losses are accounted for*: PUC Distribution does not currently have the capacity to calculate system losses that occur during peak hours; however, losses during peak hours are greater than during off-peak

[7] PUC IRR ED-4(g)
[8] PUC IRR ED-2
[9] PUC IRR ED-1(d)
[10] PUC IRR ED-1(c)

hours.[11] Therefore, the financial benefits of the SSG Project would be greater if PUC Distribution was able to account for this increase in system losses.[12]

c) *Savings from increases in carbon pricing* – The federal government recently announced that the cost of carbon will increase between 2022 and 2030, from $50/ t CO_2e in 2022 to $170/ t CO_2e in 2030.[13] During the 10-year period of 2023 to 2032, avoided GHG emissions resulting from the SSG project would save PUC Distribution and its customers $6,035,311.[14]

d) *Other system benefits* – PUC Distribution estimates the annual net benefits equaling $620,538. However, as noted above, this figure does not include savings from avoided carbon emissions and savings from reduced transmission grid and generation costs. If those savings are accounted for, the benefits for 2023 would be $1,145,756 and the benefits over 20 years would be more than $33.6 million.[15] These savings still do not account for the value of reliability savings or savings from reduced systems losses at peak demand.

PUC should not bear additional risks

The SSG project is an innovative project. However, PUC Distribution should not be required to bear additional risks merely because innovation involves some risk. Innovation should be encouraged, not discouraged. In addition:

a) *Risks are inherent in any project* – Even more "traditional" wires-based infrastructure projects involve some risk. For example, there is always a risk that any infrastructure investment will be underutilized because forecasted demand does not materialize. Utilities do not bear that risk in relation to traditional infrastructure projects and so should not be made to bear the risk of less-than-expected benefits here. Indeed, by increasing energy efficiency and reducing system losses, implementing the SSG project now may reduce the risk of investing in unnecessary infrastructure expansions in the future.

b) *The technology in this project is well-understood* – As with any project, the SSG project involves some risk; however, the project as proposed is not *risky*. Smart grid technologies

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[11] Revised Final Transcript EB-2020-0249 – 0218 PUC TC - Feb 17 2021 at page 121, lns 9-13.
[12] *Ibid* at lns14-20.
[13] John Paul Tasker, "Ottawa to hike federal carbon tax to $170 a tonne by 2030" (11 December 2020), LINK.
[14] PUC Undertaking Responses - JTC1.8.
[15] These figures were calculated as follows: PUC IRR ED-2 + PUC IRR ED-1(c) + PUC Undertaking Response – JTC1.8

$1,145,756 = $338,660 + $620,538 + $186,558
$33,604,116 = $6,164,335 + ($620,538 x 20 years) + ($6,035,311 + ($899,371 x 10 years))

Assumptions: PUC only provided carbon pricing savings for avoided GHG emissions until 2032. To calculate the savings over 20 years, we assumed that: (1) the annual GHG emissions reductions would be the same for each year between 2033 and 2042 as the year 2032; and (2) that the price per tonne of t CO2e would remain at $170/tonne for the years between 2033 and 2042. Therefore, to the extent that the price of carbon per t CO2e increases post-2032 and/or that PUC's GHG reductions annually between 2033 and 2042 are greater than 5290 t CO2e /year, this calculation is a conservative estimate of the total savings over a 20-year period.

such as those proposed in the SSG project have been implemented by other utilities in Ontario and are well-understood.[16]

c) *The SSG project is a valuable test case* – Other utilities and their customers can benefit from the experience of the SSG project. The project will demonstrate the benefits and results of modernizing the distribution system of a relatively small utility in a northern Ontario market. Given that these utilities tend to have smaller customer bases, older infrastructure, involve longer distribution distances and experience higher system losses, the SSG project can provide valuable insights into how the distribution systems of similar utilities can be improved to realize similar benefits.

Conclusion

PUC Distribution's Sault Smart Grid project will result in savings of over $33.6 million and improve reliability while also eliminating 103,786 tonnes of greenhouse gas emissions (CO_2e) and creating jobs and economic growth. The estimates of these benefits are conservative as they do not include the value of reliability savings or the increased savings from reduced systems losses at peak hours, both of which are difficult to calculate. Environmental Defence strongly supports this project as it will bring environmental and economic benefits to the local community and to the province.

[16] PUC Distribution Argument-In-Chief at para 37.