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BY EMAIL

February 22, 2021

Ms. Christine E. Long  
Registrar  
Ontario Energy Board  
2300 Yonge Street, 27<sup>th</sup> Floor  
Toronto, ON M4P 1E4  
[Registrar@oeb.ca](mailto:Registrar@oeb.ca)

Dear Ms. Long:

**Re: Ontario Energy Board (OEB) Staff Response to Undertaking JT 3.10(B)  
Enbridge Gas Inc. – Integrated Resource Planning Proposal  
OEB File Number: EB-2020-0091**

Please find attached the response to undertaking JT 3.10(B), undertaken by OEB staff at the IRP technical conference on February 12, 2021.

The attached documents have been forwarded to Enbridge Gas Inc. and to all other parties to this proceeding.

Yours truly,

Michael Parkes  
Project Advisor, Application Policy & Conservation

Encl.



# **Natural Gas Integrated Resource Planning in New York State and Ontario**

Response to Undertaking No. JT3.10 (B)

Prepared for:

**Ontario Energy Board**

**Submitted by:**

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## Introduction

The Ontario Energy Board staff (the OEB staff) contracted Guidehouse Canada Ltd. (Guidehouse) to provide expert support to contribute to the OEB's review of integrated resource planning (IRP) for Enbridge Gas in the regulatory proceeding EB-2020-0091. Guidehouse prepared a report "Natural Gas Integrated Resource Planning in New York State and Ontario" to provide a summary of key IRP activities in New York State, a side-by-side comparison with each of the IRP issues in the Issues List for the EB-2020-0091 proceeding (Issues List) and Enbridge Gas's original IRP proposal in that proceeding (Enbridge Gas IRP Proposal), as well as Enbridge Gas's Additional Evidence filed with the OEB on October 15, 2020.

The original report was filed as OEB staff evidence on November 12, 2020 (OEB File Number: EB-2020-0091). In January 2021, several organizations filed interrogatories directed towards the Guidehouse report. During the Technical Conference for EB-2020-0091 on February 12, 2021, Guidehouse was assigned the following undertaking:

UNDERTAKING NO. JT3.10 (B): TO HIGHLIGHT THE DIFFERENCES AS THEY ARE  
IN THE TABLE AND PROVIDE SUPPLEMENTARY INFORMATION, PARTICULARLY ON THE  
DISCOUNT RATES THAT WOULD BE USED FOR EACH OF THE THREE APPROACHES.

This document contains Guidehouse's response to this undertaking, as well as the related IR response to 1-BOMA-13, which included the original table and supporting information on which the undertaking was based.

### **1.1 Guidehouse Response to 1-BOMA-13**

**Reference:** Guidehouse, 2020, Pages 15/16, Table 1 and Table 2

#### **Preamble:**

Table 1 and 2 from Guidehouse report

#### **Question(s):**

(a) Please provide a combined table with 3 columns, including in the third column, the current use of benefit/costs categories required by the OEB's current requirements of Enbridge.

#### **Guidehouse Response:**

The OEB's current requirements for benefit-cost analysis (BCA) for Enbridge Gas differ for transmission and distribution system expansion projects and DSM programs. The table below summarizes the key BCA tests and guidance documents for each.

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Benefit-Cost Test	Use	Guidance Document
Total Resource Cost +	DSM programs	Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributors (2015-2020) <sup>1</sup>
E.B.O. 134 (three-stage analysis)	Transmission system expansion	Filing Guidelines on the Economic Tests for Transmission Pipeline Applications <sup>2</sup>
E.B.O. 188	Distribution system expansion	Guidelines for Assessing and Reporting on Natural Gas System Expansion in Ontario <sup>3</sup>

Within Section 4.1 of the Guidehouse report, we summarized the original and revised Con Edison BCA Handbook for Non-Pipeline Solutions. The 2020 BCA updates are generally consistent with the original list of benefits and cost categories and reflect further specificity of the NPS opportunities and proposed framework (e.g., addition of shareholder incentives / earnings adjustment mechanisms [EAMs]). As such, we will respond to the question with a focus on the revised version from September 2020. Con Edison proposes to use a Societal Cost Test as its primary test, with UCT and RIM tests as secondary tests. As noted in section 3.1 and Table 3.1 of the BCA Handbook, all listed costs and benefits shown in the table below with the exception of lost utility revenue and shareholder incentives would be considered in the Societal Cost Test. These two categories are not included in the Societal Cost Test as they are considered transfers between stakeholder groups that have no net impact on society as a whole. The UCT and RIM tests would be conducted, but would serve in a subsidiary role to the SCT test and would be performed only for the purpose of arriving at a preliminary assessment of the impact on utility costs and ratepayer bills of measures that pass the SCT analysis. See Green Energy Coalition-6 for further details.

The tables below provide a side-by-side comparison of the benefits and costs within the revised Con Edison BCA Handbook for Non-Pipeline Solutions and the OEB guidance documents for natural gas DSM programs (TRC+), transmission expansion projects (E.B.O. 134), and distribution expansion projects (E.B.O. 188).

<sup>1</sup> [https://www.oeb.ca/oeb/Documents/EB-2014-0134/Filing\\_Guidelines\\_to\\_the\\_DSM\\_Framework\\_20141222.pdf](https://www.oeb.ca/oeb/Documents/EB-2014-0134/Filing_Guidelines_to_the_DSM_Framework_20141222.pdf)

<sup>2</sup> [https://www.oeb.ca/oeb/Documents/Regulatory/Filing\\_Guidelines\\_Tx\\_Pipelines\\_Applications.pdf](https://www.oeb.ca/oeb/Documents/Regulatory/Filing_Guidelines_Tx_Pipelines_Applications.pdf)

<sup>3</sup> <https://www.oeb.ca/sites/default/files/uploads/documents/regulatorycodes/2019-01/EBO-188-AppB-Guidelines-Gas-Expansion-19980130.pdf>

**Comparison of Benefit Categories between  
Con Edison BCA Handbook and OEB BCA Guidance Documents**

Benefit Categories from Con Edison Revised BCA Handbook	Considered in EBO 134 Stage 1 / EBO 188? <sup>4</sup>	Considered in DSM Framework (TRC+ test)?
Avoided Peaking Services	Yes	Yes, Avoided Supply Costs (capital, operating and commodity costs)
Avoided Pipeline and Storage Capacity Costs	Yes	Yes, Avoided Supply Costs (capital, operating and commodity costs)
Avoided Commodity Costs	No	Yes, Avoided Supply Costs (capital, operating and commodity costs)
Avoided On-System Capacity Expense	Yes	Yes, Avoided Supply Costs (capital, operating and commodity costs)
Reliability / Resiliency	Not specifically defined	Not specifically defined
External Benefits (e.g., Avoided CO2 and Other Emissions, Land and Water Impacts)	Not in stage 1, potentially in stages 2 or 3	<ul style="list-style-type: none"> <li>• Avoided CO2 emissions are monetized as Avoided Supply Costs</li> <li>• Non-Energy Benefit Adder may also consider environmental, societal, utility and other participant benefits</li> </ul>

<sup>4</sup> This column was based on the guidance for E.B.O. 188. Guidance for stage 1 of E.B.O. 134 is less detailed, but appears to be essentially identical in terms of the costs and benefits that should be included.

### Comparison of Cost Categories between Con Edison BCA Handbook and OEB BCA Guidance Documents

Cost Categories from Con Edison Revised BCA Handbook	Considered in EBO 134 Stage 1 / EBO 188? <sup>5</sup>	Considered in DSM Framework (TRC+ test)?
Program Administration	Yes	<ul style="list-style-type: none"> <li>• Yes, Program costs (Development, promotion, delivery, EM&amp;V, administration).</li> <li>• Incentives to participants are not included in program costs</li> </ul>
Incremental On-System Capacity Expenses	Yes	Yes, Avoided Supply Costs (capital, operating and commodity costs)
Lost Utility Revenue	Yes	Not as part of TRC+ test, however, Framework includes Lost Revenue
Shareholder Incentives	Not applicable	Not as part of TRC+ test, however, Framework includes Shareholder Incentive
Incremental Participant NPS Cost	Not in stage 1, potentially in stages 2 or 3	Yes, Net Equipment Costs (Installation, O&M, fuel cost)
Alternative Fuel Cost (e.g., Electricity)	Not in stage 1 (assuming that utility is not provider of the alternative fuel), potentially in stages 2 or 3	Yes, Net Equipment Costs (Installation, O&M, fuel cost)
External Costs (e.g., Alternative Fuel CO2 and Other Emissions, Land and Water Impacts)	Not in stage 1, potentially in stages 2 or 3	Indirectly through Non-Energy Benefit Adder (which assumes net external impacts are benefits)

Guidehouse notes several caveats regarding the interpretation of the EBO 134/EBO 188 economic tests. These tests are intended to assist the OEB in making determinations regarding potential transmission/distribution system expansion, by outputting a Net Present Value (NPV). They were not designed to compare alternative options to meet a system need. However, it is possible to repurpose either of these tests as an options analysis, by comparing the NPV produced by the EBO 134/188 tests for different options to meet a system need, and determining which option has the highest NPV (note that all options for meeting a system need may yield a negative NPV).

Guidehouse also notes that OEB guidance regarding stages 2 and 3 of the EBO 134 test is limited. The OEB indicates in its Filing Guidelines on the Economic Tests for Transmission Pipeline Applications that “the second stage should be designed to quantify other public interest factors not considered at stage one. All quantifiable other public interest information as to costs and benefits should be provided at this stage. The third stage should take into account all other relevant public interest factors plus the results from stage one and stage two.”

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<sup>5</sup> This column was based on the guidance for E.B.O. 188. Guidance for stage 1 of E.B.O. 134 is less detailed, but appears to be essentially identical in terms of the costs and benefits that should be included.

## 1.2 **Guidehouse Response to Undertaking No. JT3.10 (B)**

UNDERTAKING NO. JT3.10 (B): TO HIGHLIGHT THE DIFFERENCES AS THEY ARE IN THE TABLE AND PROVIDE SUPPLEMENTARY INFORMATION, PARTICULARLY ON THE DISCOUNT RATES THAT WOULD BE USED FOR EACH OF THE THREE APPROACHES.

### **Guidehouse Response:**

In the list below, Guidehouse summarizes the major differences of the benefits and costs within the Revised Con Edison BCA Handbook for Non-Pipeline Solutions and the OEB guidance documents for natural gas DSM programs (TRC+), transmission expansion projects (E.B.O. 134), and distribution expansion projects (E.B.O. 188).

#### ***Comparison of Benefit Categories between Con Edison BCA Handbook and OEB BCA Guidance Documents***

- **Reliability / Resiliency** is captured as a benefit category for Con Edison BCA Handbook, and is not captured in any of the Ontario tests (EBO 134 Stage 1, EBO 188, TRC+).
- **Avoided Commodity Costs** are included in the Con Edison BCA Handbook as well as the TRC+ test, but are not included in EBO 134 Stage 1 or EBO 188.
- **External Benefits** are considered differently across the set of tests.
  - The Con Edison BCA Handbook notes "To the degree these benefits exist but are not readily quantifiable, their impacts may be qualitatively assessed."
  - EBO 134 / EBO 188 do not consider external benefits in Stage 1, but may consider them in Stages 2 or 3, although guidance is limited.
  - The TRC+ test includes Avoided CO<sub>2</sub> Emissions directly and may also consider other external benefits as part of the Non-Energy Benefit Adder.

#### ***Comparison of Cost Categories between Con Edison BCA Handbook and OEB BCA Guidance Documents***

- **Program Administration** is included in Con Edison BCA Handbook as well as the EBO 134 Stage 1 / EBO 188, and TRC+ tests, although participant incentives are not included in the TRC+ test. The Con Edison BCA Handbook does include participant incentives in Program Administration costs.<sup>6</sup>

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<sup>6</sup> Page 12 of Con Edison BCA Handbook defines Program Administration Costs: "Administrative related costs directly associated with implementing a Gas BCA project or program. These can include costs associated with setting up a program, ongoing costs associated with monitoring and accounting for a program, and incentives paid to participants."

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- **Lost Utility Revenue** is included in Con Edison BCA Handbook as well as the EBO 134 Stage 1 / EBO 188, but not the TRC+ test. Note: Lost Utility Revenue does not apply to the SCT in the Con Edison BCA Handbook, as these are considered transfers between stakeholder groups that have no net impact on society as a whole. Lost Utility Revenue is included in the RIM test, which has a subsidiary role to the SCT test in the Con Edison BCA Handbook.
- **Shareholder Incentives** are included in Con Edison BCA Handbook, but neither of the Ontario tests. Note: Shareholder Incentives do not apply to the SCT in the Con Edison BCA Handbook, as these are considered transfers between stakeholder groups that have no net impact on society as a whole. Lost Utility Revenue is included in the RIM test, which has a subsidiary role to the SCT test in the Con Edison BCA Handbook.
- **Incremental Participant Cost** is included in Con Edison BCA Handbook as well as the TRC+ test. EBO 134 Stage 1 / EBO 188 does not consider this in Stage 1, but may consider them in Stages 2 or 3, although guidance is limited. The Con Edison BCA Handbook defines Incremental Participation Costs as costs that would be incurred by providers of Gas BCA services, less incentives recognized in Program Administration Costs with a floor of zero.<sup>7</sup>
- **Alternative Fuel Cost** is included in Con Edison BCA Handbook as well as the TRC+ test. EBO 134 Stage 1 / EBO 188 does not consider this in Stage 1, but may consider them in Stages 2 or 3, although guidance is limited.
- **External Costs** are considered differently across the set of tests, similar to External Benefits described above.
  - The Con Edison BCA Handbook notes "To the degree these [costs] exist but are not readily quantifiable, their impacts may be qualitatively assessed."
  - EBO 134 / EBO 188 do not consider external costs in Stage 1, but may consider them in Stages 2 or 3, although guidance is limited.
  - The TRC+ test may consider other external benefits as part of the Non-Energy Benefit Adder.

In the list below, Guidehouse summarized the prescribed discount rates within the Revised Con Edison BCA Handbook for Non-Pipeline Solutions and the OEB guidance documents for natural gas DSM programs (TRC+), transmission expansion projects (E.B.O. 134), and distribution expansion projects (E.B.O. 188).

### ***Con Edison Discount Rate from Revised Con Edison BCA Handbook for Non-Pipeline Solutions:***

Page 9 of Handbook: Apply the appropriate discount rate to perform a cost-effectiveness test for a specific project or portfolio. The discount rate is set in CECONY's rate cases at the utility's cost of capital.<sup>6</sup> Benefit and Cost streams should be discounted at the

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<sup>7</sup> Page 13 of Con Edison BCA Handbook defines Incremental Participant Cost: "Total incremental costs incurred by Gas BCA providers relative to their baseline costs, including equipment and participation costs assumed by participants or providers, net of payments to provider or incentive/rebates to participants with a floor of zero. For example, if an energy efficiency program included an upgraded natural gas water heater, the participant cost included would reflect the difference between the higher and lower efficiency natural gas water heaters, net of incentives."

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Weighted Average Cost of Capital ("WACC") unless specified otherwise. (Footnote 6: CECONY's Weighted Average Cost of Capital is currently 6.61% for the twelve months ending December 31, 2020. See CECONY Gas Case 19-G-0066)

***TRC+ Discount Rate from Filing Guidelines to the Demand Side Management Framework for Natural Gas Distributors (2015-2020)***

Page 35: Traditionally, the natural gas utilities have used a discount rate that is equal to their Board approved weighted average cost of capital ("WACC"). The Board is of the view that the gas utilities should use a discount rate (real) of 4% when screening prospective DSM programs to determine if they are cost-effective for considerations part of the new 2015 to 2020 multi-year DSM plan.

***E.B.O. 134 Discount Rate from 1987 OEB Staff Report (June 1, 1987), referenced in Filing Guidelines on the Economic Tests for Transmission Pipeline Applications<sup>8</sup>***

Guidehouse notes that the E.B.O. 134 guidance does not explicitly define a discount rate and leaves room for interpretation, particularly with regard to Stages 2 and 3.<sup>9</sup>

Page 53 of PDF:

The Board directs all utilities to employ DCF analysis as part of its assessment of the feasibility of projects for system expansion.

Page 54: The Board finds that Union's three-stage test has considerable merit. The Board requires each utility to develop a three-stage process as outlined below to aid the Board in its determination of the public interest.

The first stage is a test based on a DCF analysis.

The second stage should be designed to quantify other public interest factors not considered at stage one. All quantifiable other public interest information as to costs and benefits should be provided at this stage.

The third stage should take into account all other relevant public interest factors plus the results from stage one and stage two.

***E.B.O. 188 Discount Rate from Guidelines for Assessing and Reporting on Natural Gas System Expansion in Ontario***

Page 4: a discount rate equal to the incremental after-tax cost of capital based on the prospective capital mix, debt and preference share cost rates, and the latest approved rate of return on common equity;

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<sup>8</sup> Ontario Energy Board. In the matter of the Ontario Energy Board Act, R.s.o. 1980, Chapter 3321 and in the matter of a Review by the Ontario Energy Board of the Expansion of the Natural Gas System in Ontario. E.B.O 134. Report of the Board. June 1, 1987 <http://www.rds.oeb.ca/HPECMWebDrawer/Record/177859/File/document>

<sup>9</sup> Guidehouse is also aware that Enbridge Gas described how discount rates would be applied in their proposed cost-effectiveness tests on Page 66-67 of the transcript for the Technical Conference for EB-2020-0091 on February 11, 2021.

Page 66-67 MR. SZYMANSKI: Yes, we are. So stage 1 would represent the utilities' incremental after-tax cost of capital, which -- and what we are proposing for stage 2 and stage 3 is to use a societal discount rate, which is the 4 percent.

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Page 10: Discounted at the Company's discount rate for the customer revenue horizon. Mid-year discounting is applied.

Page 11: PV is calculated with an incremental, after-tax discount rate.