

Summary of EAC Consensus Feedback

Natural Gas Demand Side Management Evaluation Advisory Committee (EB-2022-0295)

Proposed Net-to-Gross Updates for 2025 Program Year

Purpose

These notes summarize the Evaluation Advisory Committee's (EAC) consensus feedback supporting Enbridge Gas's (EGI) proposed updates to Net-to-Gross (NTG) values to be used when determining final net savings for certain measures during the OEB's annual verification process.

EGI proposed NTG values for two measures:

- 1) Commercial Adaptive Thermostats and
- 2) Residential Attic Insulation (single measure).

Summary of EGI's Proposal:

In October 2025 EGI Gas proposed NTG values for the following two measures:

- 1) **Commercial – Small and Medium Business Adaptive Thermostat:** EGI proposed to apply the following NTG values beginning with 2025 natural gas savings in the following commercial offerings:
 - a. 85% NTG value for adaptive thermostats for small and medium sized businesses in the commercial prescriptive downstream offer
 - b. 97% NTG value for adaptive thermostats for small and medium sized businesses in the commercial direct install offer

EGI Gas intends to incorporate adaptive thermostats as a prescriptive measure within its commercial program offering, targeting small and medium-sized businesses. This inclusion is supported by recent research into natural gas savings potential and aims to address market barriers while aligning with NTG benchmarks from other jurisdictions. Appendix A includes the supporting data that EGI used to develop the NTG value for this measure. This supporting information was reviewed and discussed with the EAC.

EAC Response: The non-utility EAC members provided consensus support of the proposed NTG values and their use in relation to determining final, net 2025 natural gas savings as part of the OEB's Annual Verification process.

- 2) **Residential - Attic Insulation (Single Measure):** EGI proposed applying a NTG value of 89% beginning with 2025 natural gas savings. The NTG value is based on

jurisdictional research. Attic insulation was launched as a single measure offer in August 2025. Previously, attic insulation was included as part of the broader whole home offer.

EGI intends to include attic insulation as a single prescriptive measure within its residential program, targeting homes built before 2005 that are typically under-insulated. This inclusion is supported by recent substantiation research and market insights and aims to overcome awareness and decision-making barriers while aligning with NTG benchmarks from other jurisdictions. Appendix B outlines the data EGI used to support this recommendation, applicable to savings calculations starting in 2025

EAC Response

The non-utility EAC members reached consensus supported of the proposed the NTG value and their use in relation to determining final, net 2025 natural gas savings as part of the OEB's Annual Verification process.

Next Steps

The updated NTG values: 85% (prescriptive) and 97% (direct install) for the Commercial Adaptive Thermostat, and 89% for the Residential Attic Insulation measure will be incorporated by the OEB's Evaluation Contractor to determine final, net natural gas savings as part of the application Annual Verification processes.

***These notes are for the purposes of the DSM EAC only and do not represent the view of the OEB.*

Appendix A: Proposal: Net-to-Gross for Commercial – Small and Medium Business Adaptive Thermostat

Measure: Commercial – Small and Medium Business Adaptive Thermostat

Date: October 2025

Background: In 2016, the IESO, in partnership with Union Gas (now part of Enbridge) and Waterloo North Hydro, launched a smart thermostat pilot program, which was designed to test the effectiveness of smart thermostats in commercial settings, particularly for small and medium-sized businesses. Part of the program goals were to explore cross-fuel savings (electricity and natural gas), although natural gas savings were not formally analyzed in the final evaluation report that was conducted by Resource Innovations (formerly Nexant Inc.) in partnership with NMR Group, Inc.

In 2022, following the merger of Union Gas and Enbridge Gas in 2019, Enbridge Gas Distribution engaged Resource Innovations (RI) to study the natural gas impacts of smart thermostat installations under the pilot program for small and medium businesses. Resource Innovations was tasked with developing a substantiation document (subdoc) focused on natural gas savings from smart thermostats. This work was intended to complement the IESO's electricity-focused evaluation, which did not include gas savings.

Purpose of this Document: This document provides key data to inform a proposed NTG value for the Commercial – Small and Medium Business Adaptive Thermostat substantiation document applicable to savings calculations in 2025 and beyond.

Measure Overview: Adaptive thermostats employ advanced features beyond conventional programmable thermostats. These more sophisticated, yet easier to use devices, address key usability and programming issues of traditional units. Functions may include monitoring weather, occupancy, and remote access for additional flexibility and control, an important feature when the business plans for the day have changed. This measure is applicable to commercial buildings, including industrial facilities, that use a natural gas heating system and have either a programmable or non-programmable/manual thermostat.

Main Benefits

- Ease of creating schedules
- Intuitive set up, typically using narrative & lifestyle related questions
- Pro-active or forced automatic energy savings adjustment features
- Greater control with remote web or app-based control over settings if schedule changes
- Maintenance alerts
- Ongoing "Learning" of schedules and preferences taking into account motion, humidity levels, occupancy and temperature preferences

Measure Details

- The TRM substantiation document is based on a Resource Innovations gas savings analysis on the Small and Medium Business Energy Management System Innovation Pilot conducted in May 2023.¹
- For an efficient technology to be eligible as a measure, the following four key automated features are required:
 - Proper setback scheduling

¹ Resource Innovations, Inc, "Memorandum – IESO's ECOBEE Pilot Natural Gas Savings Estimation – Results," Submitted to Enbridge Gas Inc., 2023.

***These notes are for the purposes of the DSM EAC only and do not represent the view of the OEB.*

- Occupancy based setbacks
- System performance optimization
- Encouragement of conservation behavior.
- This measure requires that one adaptive thermostat would replace a conventional programmable or non-programmable/manual thermostat serving a natural gas-fired space heating system in a commercial building. This subdoc does not apply to buildings that have or are in the process of installing a hybrid (dual-fuel) space heating system (e.g. an electric air-source heat pump with natural gas furnace backup, a ground-source heat pump with a natural gas furnace backup, etc.).
- EUL = 10 years
- Incremental Cost = \$235 CAD

Net-to-Gross Proposal

Prescriptive: 85%
Direct Install: 97%

Jurisdictional Information

Jurisdiction	Time Period	Measure Details	NTG	Methodology
Nicor Gas (Illinois)	2023	Small Business Commercial Smart Thermostats (Prescriptive)	96%	Guidehouse Research ²
New Jersey	2024-2026	Commercial Smart Thermostats (Prescriptive)	80%	NMR Group Report (value is intended to reflect the median of measure-group or program-wide values in the literature) ³
ComEd (Illinois)	2021	“HVAC Thermostat” within the Small Business portfolio (Direct Install)	100%	Guidehouse Research ⁴
IESO	2023	Small Business Program (Direct Install)	97.2%	Resource Innovations Research ⁵

Ontario Market Knowledge: Ontario’s commercial smart thermostat market is nascent and underdeveloped as supported by the following market insights:

- **Available data:** Ontario does not publish statistics showing the incidence of small businesses using adaptive thermostats. IESO’s Small Business Program installed 129 commercial smart thermostat units in PY2023, which can be used as a lower-bound and trend indicator rather than total penetration.⁶
- **What challenges affect adoption in North America?** Despite tech maturity, high deployment costs and cybersecurity concerns are limiting full-scale implementation.

² Small Business Program Impact Evaluation Report Energy Efficiency Plan: Program Year 2023 (1/1/2023-12/31/2023), May 15, 2024, pg 5.

³ New Jersey Recommended Net-to-Gross Ratios Overall Report, March 20, 2023, pg 49.

⁴ ComEd Small Business Impact Evaluation Report Energy Efficiency/Demand Response Plan: Program Year 2021 (CY2021) (1/1/2021-12/31/2021, April 4, 2022, page 101.

⁵ 2021-2024 CDM Framework Small Business Program PY2023 Evaluation Results, 09/03/2024, pg 21.

⁶ https://ieso.ca/-/media/Files/IESO/Document-Library/conservation/EMV/2023/PY2023_2021-2024-CDM-Framework_Small-Business-Program_Evaluation-Report.pdf

****These notes are for the purposes of the DSM EAC only and do not represent the view of the OEB.**

Additionally, outdated HVAC infrastructures in older buildings require expensive upgrades to be compatible with smart thermostats.⁷

- **Market perception:** Adaptive thermostats are seen almost exclusively as residential products by both contractors and end-users. This perception has significantly limited awareness, specification, and uptake in the commercial market.⁸
 - “Adaptive Thermostats are seen by the market almost exclusively as residential products, despite technical applicability in commercial uses. End users are rarely interested in them, with additional cost and complexity outweighing any perceived benefits, especially when simple and functional thermostats may be provided as standard with HVAC equipment. As such distributors generally aren’t tracking commercial sales numbers.”⁹

Program Design

This measure is intended to be included in both of the following commercial offerings:

- Prescriptive Downstream
- Direct Install

In order to influence the customer’s decision, Enbridge Gas developed an approach to market intended to overcome the barriers addressed above, as follows:

- High deployment costs:

While applicable to both offers, Enbridge’s approach to incenting this measure will be consistent. The Company plans to provide 100% incentives to cover all incremental project costs, inclusive of C-wire costs (with an additional allowance of up to \$150 per unit, not to exceed the overall project cost).

Enbridge considers this approach warranted given the benefits of the measure:

1. **Gateway to Deeper Savings:** The adaptive thermostat can serve as a gateway measure, encouraging participants to adopt additional energy efficiency measures once initial engagement is established.
2. **Engagement of New Participants:** The measure has the potential to attract previously non-participating customers and contractors, introducing them to the benefits of collaborating with Enbridge on demand-side management initiatives.
3. **Reaching Harder-to-Serve Markets:** The measure can extend participation to harder-to-reach market segments, such as tenants, who have limited control over decisions associated with other types of capital equipment upgrades

- Market Perception Challenges:

To address perception barriers and boost awareness and adoption of the technology, Enbridge will prioritize educating and engaging HVAC contractors to advocate for the technology and Enbridge’s incentive offer when working with Enbridge customers.

⁷ [\(16\) Commercial Smart Thermostats Market Key Insights, Trends, Drivers, and Regional Growth Factors | LinkedIn](#)

⁸ “2021 Foodservice & HVAC Supply Chain Research”, CLEARRESULT, October 8, 2021, pg 5.

⁹ Ibid, pg 8.

***These notes are for the purposes of the DSM EAC only and do not represent the view of the OEB.*

Comprehensive sales support materials, including brochures, qualified product lists (QPLs) and quick savings calculators, will be developed to highlight benefits of the technology, eligible units and the available incentives.

These resources will also address common cybersecurity concerns and emphasize the importance of activating the internet connection to unlock the technology's full potential.

Additionally, efforts will focus on raising customer awareness of the smart thermostat offer and its benefits. This will be achieved through targeted promotions on the Enbridge Gas website, as well as direct communications such as inclusion customer newsletters, ensuring customers are well-informed and motivated to adopt the technology.

***These notes are for the purposes of the DSM EAC only and do not represent the view of the OEB.*

Appendix B: Proposal: Net-to-Gross for Residential – Attic Insulation

Measure: Residential – Single Measure Attic Insulation

Date: October 2025

Background: Research to support the creation of the Residential Attic substantiation documents began in May 2023 by Posterity Group and was submitted to the OEB in September 2024. Incremental costs were calculated by Posterity using 2023 Enbridge Gas data and the substantiation document was reviewed by Dunskey as per the OEB's review process and approval in 2025. The measure has been in market as of August 2025.

Purpose of this Document: This document provides key data to inform a proposed Net to Gross (NTG) value for the Residential – Attic Insulation substantiation documents (both Attic Insulation and Cathedral/Flat Roof Insulation)¹⁰ applicable to savings calculations in 2025 and beyond.

Measure Overview: The attics referred to in this measure are unconditioned, meaning the attic is not livable. Because attics sit above the conditioned spaces of a home, the floor of the attic is often insulated to prevent heat loss. In unfinished attics, the air cavity above the insulated attic floor is vented, allowing moisture and other contaminants to escape the space.

Attics are relatively straightforward to insulate compared to other building features because of their ease of accessibility. There are several types of attic insulation available including batt, blown-in, and spray foam insulation. A combination of these options may also be appropriate, depending on the application. It may be possible to add additional insulation on top of the existing insulation, such as adding a layer of batt or rigid foam insulation on top of an existing layer of insulation. In some cases, the existing insulation should be removed first, such as when the existing insulation is damaged or poses a potential health risk.

Increasing the insulation of the attic enhances its thermal resistance (R-value) and minimizes heat transfer, thus reducing the energy needed to compensate for heat loss in the heating season, and for heat gains in the cooling season. Increasing the insulation of the attic assembly also reduces air leakage, thus reducing the energy needed to heat or cool the replacement air.

The baseline technology refers to the existing attic insulation conditions, categorized into four levels of nominal insulation:

1. No insulation
2. >R-0 to R-12
3. >R-12 to R-25
4. >R-25 to R-35

Main Benefits: Energy savings are achieved because of the difference in thermal resistance between the upgraded condition (R-50) and the baseline condition (various) of the attic. The increased insulation reduces the rate of heat flow between the conditioned space and the outdoor air, reducing the amount of energy needed to heat or cool the conditioned space of the home. In addition, insulation can contribute to air leakage reduction.

¹⁰ TRM V9.0 (May 23, 2025), pg 102 of 432 PDF:

<https://www.rds.oeb.ca/CMWebDrawer/Record/899387/File/document>

***These notes are for the purposes of the DSM EAC only and do not represent the view of the OEB.*

Measure Details

- The energy efficient case is an attic with a minimum of nominal R-50 insulation.
- EUL = 30 years
- Incremental Cost
 - Attic Insulation: \$1.84 CAD/ft² across all baseline and upgrade scenarios
 - Cathedral/Flat Roof Insulation: Ranging from \$2.94 - \$7.96 CAD/ft² depending on baseline and upgrade scenario, with full outline in substantiation documents
- Uses and Exclusions:
 - This measure does not apply to:
 - Hybrid-fuel space heating systems (i.e., an electric heat pump satisfying a portion of the space heating load).
 - Residential buildings used for major occupancies classified as: medium hazard industrial occupancies and low hazard industrial occupancies.
 - This measure requires a member of the implementation staff to evaluate the pre- and post project R-values and to measure the retrofitted attic area.

Net-to-Gross Proposal: 89%

Jurisdictional Information

Jurisdiction	Time Period	Measure Details	NTG	Methodology
New Jersey - statewide	2024	Attic/Roof/Ceiling Insulation	0.87	Median of 11 values in literature for envelope insulation ¹¹
Illinois – Nicor Gas	2023	Attic Insulation	0.89	Guidehouse Primary Evaluation Research ¹²
British Columbia – Fortis BC	2024-2027	Attic Insulation	0.80	Fortis BC DSM Expenditures Plan (not clear on how value was chosen) ¹³
Michigan – DTE	2024-2025	Attic Insulation	0.92	Deemed value ¹⁴
Massachusetts	2021	Insulation	0.95	Guidehouse Primary Evaluation Research ¹⁵
AVERAGE of above			0.89	

Ontario Market Knowledge

- **Market Penetration:** Anecdotal evidence and discussion among industry professionals show that “Across Ontario, countless homes are under-insulated or missing proper air sealing, which means heat is escaping in the winter and unwanted heat is pouring in during the summer.”¹⁶ However, there is a lack of province-level surveys or audits that randomly sample Ontario homes and measure their attic insulation depth or R-value.

¹¹ <https://nj.gov/bpu/pdf/publicnotice/4.%20EE%20T2%20Technical%20Reference%20Manual%202023.pdf>

¹² [Nicor-Gas-Home-Energy-Savings-NTG-Memo-2023-09-27-Final.pdf](#)

¹³ [2024-27 DSM Expenditures Plan \(fortisbc.com\)](#)

¹⁴ [DTE - 6.29.2023 - 2024-25 Energy Waste Reduction Plan - U-21322.pdf \(esource.com\)](#)

¹⁵ [MA20R28-B-NTGRCDP Report](#)

¹⁶ “Attic Insulation in Ontario- Why It Matters and How Advanced Basement Systems Does it Right”, Advanced Basement Systems, August 14, 2025. <https://www.advancedbasementsystems.net/about-us/news-and-events/51379-attic-insulation-in-ontario-why-it-matters-and-how-advanced-basement-systems-does-it-right.html>

****These notes are for the purposes of the DSM EAC only and do not represent the view of the OEB.**

- **Awareness:** Customer awareness and knowledge about home energy efficiency remains low, especially regarding insulation in the home. According to the 2024 Enbridge Residential End Use Study (REUS), 84% of customers who have an attic believe their attic to be adequately insulated or well insulated, despite data showing that almost all homes built before 2005 are under-insulated.¹⁷ Therefore, the majority of customers are not looking to upgrade their attic and require education and motivation in the form of marketing, contractor discussions and financial incentives to complete this type of upgrade.
- **Contractor Knowledge:** Given the critical role that contractors play in driving customer participation when completing attic insulation upgrades, Enbridge ensures that all Participating Contractors receive mandatory training. This training equips contractors with advanced knowledge of attic insulation and air sealing best practices, while also providing guidance on effectively communicating program benefits to homeowners. By providing accessible and standardized contractor education, Enbridge strengthens its market presence and enhances the customer experience, ultimately increasing uptake of the attic insulation measure.
- **Decision Making:** The program incentive is a key motivating factor for the customer to increase their insulation, particularly as insulation is typically “out of sight, out of mind”. Enbridge’s Post Participant Survey confirms that the primary reason customers choose to participate in the program is to receive a rebate that helps offset the cost of the project. Further, anecdotal contractor feedback identified that customers often become aware of the need for insulation when discussing renovations with their contractors. Consequently, Enbridge Gas’s Participating Insulation Contractors further influence a customer’s decision making.

Program Design

A new residential single measure offering was designed to drive incremental customer action. Enbridge plays a pivotal role in influencing customer decisions, through program awareness, contractor engagement, and financial incentives, thereby enabling energy-saving upgrades that would not otherwise be undertaken.

This offering addresses barriers by:

- Eliminating the need for pre and post audits, making participation simple and accessible
- Leveraging a trusted network of trained contractors, ensuring quality and confidence in installation
- Providing rebates

The rebate is calculated at 50% of the total attic insulation cost (after tax), up to the maximum Rebate amounts listed in the table below.

Attic

¹⁷ “An Analysis of Under-Insulated Houses in the Existing Canadian Housing Stock”, 2016, Page 13.

***These notes are for the purposes of the DSM EAC only and do not represent the view of the OEB.*

Level of Insulation at the time of the in-home visit	Minimum Insulation Level to Reach	Maximum Rebate
Less than or equal to R-12	R-50	\$1,000
Greater than R-12 to R-25	R-50	\$750
Greater than R-25 to R-35	R-50	\$550

Cathedral Ceiling/Flat Roof

Level of Insulation at the time of the in-home visit	Minimum Insulation Level to Reach	Maximum Rebate
Less than or equal to R-12	R-20	\$400
Less than or equal to R-25	R-28	\$500

***These notes are for the purposes of the DSM EAC only and do not represent the view of the OEB.*