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December 1, 2021

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Our File No. 213224

**VIA RESS AND EMAIL**

Ontario Energy Board  
2300 Yonge Street  
27th Floor  
Toronto, Ontario  
M4P 1E4

Attention: Christine E. Long,  
Registrar

Dear Ms. Long:

**Re: EB-2021-0002: Enbridge Gas Inc., Multi-Year Demand Side Management Plan  
(2022 to 2027)**

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Pursuant to Procedural Order No. 5, please find attached BOMA's evidence.

Yours truly,

**FOGLER, RUBINOFF LLP**

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Albert M. Engel

AME/dd

Encl.

cc: All Parties (*via email*)

# 1 Executive Summary

This report identifies and characterizes leading whole building pay for performance (P4P) programs from experiences in Ontario, phone interviews with a number of program administrators and a scan of recent and current practices. The evidence focuses on 3 specific areas of current practice in other jurisdictions around the developed world including Canada, the United States, the UK, the EU and Australia. These are:

- Adoption and success of pay for performance (Performance-Based Conservation) natural gas demand side management (DSM) and electricity conservation and demand management (CDM) programming.
- Close coordination and integration of DSM and CDM and carbon reduction programming which focuses on outcomes and customer experience rather than individual utilities.
- Successful community-led strategic energy management initiatives developed or supported by gas and electric utility companies which have achieved substantial, sustained energy and emissions reductions.

Most whole building pay for performance programs were found in the US, with one in Ontario. Reports from other jurisdictions (UK, Europe, Australia) cite US programs as well as Ontario's Independent Electricity System Operator (IESO) Energy Performance Program (EPP) as case studies and we found no evidence of this type of programming in those jurisdictions. Of the whole building P4P programs identified, many rely on third parties to develop and deliver them. Existing whole building P4P programs are primarily targeted at industrial or commercial facilities. [1] Only Pacific Gas and Electric (PG&E) has a residential whole building P4P pilot. [1]

## 1.1 Conclusions

Interest in P4P programs is growing across the world, driven by customer demand and goals of deeper energy reductions and promoting innovation, although significant direct experience appears to be limited to North America. The commercial sector has seen the greatest number of P4P programs, as large customers and high savings potential can justify the measurement and verification requirements. [1] Comprehensive whole building P4P programs are reported to achieve higher energy savings and can get at savings left behind in deemed savings programs. From the customer's perspective, many P4P programs are administratively simpler than traditional energy efficiency programs. [2]

From our scan of whole building P4P programs in these jurisdictions, we found 8 programs that had similar program attributes to Enbridge's proposed Whole Building Pay for Performance ("P4P") Offering. A side-by-side comparison of comparable P4P programs is outlined in Appendix A. Although K-12 schools met the success criteria for the programs, as outlined in Consortium for Energy Efficiency's (CEE) Comparative Analysis of Meter Data-Driven Commercial Whole Building Energy Efficiency Programs [3], none of the programs we examined targeted the K-12 schools' segment specifically or had any K-12 school participants.

Other comparable programs generally have lower energy savings expectations for customers than the proposed Enbridge Offering, ranging from 5% to 20% of whole building energy consumption, with several programs targeting 15%. This is in comparison to the 20% reduction planned for the Enbridge's Offering.

However, none of these programs prescreen participating organizations for high savings potential buildings, as Enbridge proposes to do.

Given many of other whole building P4P pilots and programs have successfully targeted the office and retail segments of the commercial sector, it is recommended that these building types be considered for the pilot beyond the K-12 schools segment within this program period, after completing the initial pilot as per Section 8 of Ontario Energy Board (OEB) File EB-2021-0002 Multi-Year Demand Side Management Plan (2022-2027) September 29, 2021 Updated Evidence [4].

## 1.2 Report Authors

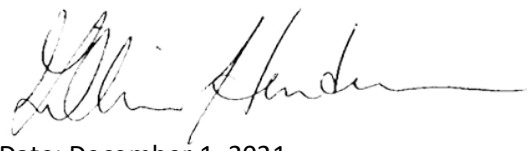
This report was prepared by Ian Jarvis P.Eng, President, Enerlife Consulting Inc. and Gillian Henderson, MBA, Vice President, Enerlife Consulting Inc.

Ian Jarvis  
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Date: December 1, 2021

Gillian Henderson,  
Vice President, Enerlife Consulting Inc.

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Date: December 1, 2021

## 2 Whole building pay for performance

Pay for performance energy efficiency programs come in a wide range of incarnations, broadly defined as below:

“There is a diverse spectrum of pay-for-performance programs but, at the most basic level, these programs track and reward energy savings as they occur, usually by examining data from a building’s energy meters—as opposed to the more common approach of estimating savings in advance of installation and offering upfront rebates or incentives in a lump-sum payment.” [5]

Our research focused on the experience of penetration of “whole building pay for performance” energy efficiency programs that closely matched the defined whole building pay-for-performance (P4P) program by Enbridge on pg. 448, Section 8. of the Updated Evidence, [4] with the following program attributes:

- Whole building approach to energy savings with multiple measures bundled/implemented
- Multiple years of customer engagement
- Payment based on utility savings measured at the meter
- Savings determined using IPMVP Option C (or similar whole-building normalized meter/bill analysis)
- Administered by utility companies

This is supported by CEE’s Comparative Analysis of Meter Data-Driven Commercial Whole Building Energy Efficiency Programs study that identified key program elements as bundling of energy measures, minimum customer engagement of 2 or more years, consistent use of meter data and using statistical metrics and similar criteria for addressing savings uncertainty. [3]

### 2.1 Adoption and success of pay for performance (Performance-Based Conservation) DSM/CDM programming

Whole building pay for performance programs are administered by utilities, system operators, public authorities or not-for-profit public service organizations that oversee energy efficiency programs. The primarily US-based P4P programs are being piloted and implemented to get to deeper building energy savings, better use of digital energy meter data and analytics for energy efficiency, capturing energy efficiency as a grid resource, to broaden the reach of a CSM/DSM portfolio, and engage private markets to innovate and scale up energy efficiency. As indicated by IESO and others, P4P programs have been put in place in those jurisdictions to meet customer demand (IESO and PG&E), achieve energy efficiency savings in sectors where savings have proved elusive (Bonneville Power) and as a means of encouraging commissioning, retro-commissioning and capturing savings from low cost/no cost energy efficiency measures (typically with payback in less than a year) [1]. Most examples are initially relatively small programs with a limited number of participants – for example up to 25 participants in New Jersey’s Commercial and Industrial (C&I) P4P program and National Grid’s Pay for Performance Program. [1]

Appendix A summarizes 8 whole building P4P programs comparable to the Enbridge Offering. Four of these targeted both electric and gas savings, two targeted just electricity savings and one only gas savings. Two of these programs are administered by PG&E who are expanding their whole building P4P programs

due to the adoption of AB 802 in 2015 in California, which included the simplified means of counting energy efficiency savings using M&V 2.0 and Normalized Metered Energy Consumption (NMEC). [6]

The identified programs are aimed at a wide range of building types. They include small industrial facilities with an annual energy usage of at least 4 million kWh per site, university buildings of greater than 25,000 ft<sup>2</sup>, all commercial buildings with peak demand of 200kW or greater, and individual houses. The nature of the programs varies in the degree of initial support and whether milestone payments are included as well as savings at the meter. The level of support ranges from Bonneville's Power Administration Strategic Energy Management – Energy Smart Industrial Partnership, which provides management, skills training, and technical support, to the IESO's Energy Performance Program (EPP) that is administratively simple for the customer with baseline setting and measurement of energy savings. [2]

Although P4P has a long history, whole building P4P is relatively new which means there is limited data available regarding actual energy savings achieved. Actual energy savings achieved that have been shared can be found in Table 1. Savings expectations range from 5% to 20% of whole building energy consumption, with a number of programs expecting 15%. [3] Individual program savings expectations are outlined where available in Table 1.

Customer success is driven by several factors. According to Cory Cook of the IESO, the whole building P4P programs are most successful in the commercial sector and in predictable buildings with consistent schedules such as groceries, big box stores, and commercial offices where the baseline model is stable. [2] Other customer success factors, as identified in the Consortium for Energy Efficiency's Comparative Analysis of Meter Data-Driven Commercial Whole Building Energy Efficiency Programs, are buildings with regular unoccupied hours or downtime which provide greater operational and maintenance savings opportunities for whole building P4P programs. Better leverage for whole building programs can be found in organizations where a single individual can make energy and operations decisions for multiple similar sites. [3]

None of the programs targeted the K-12 schools segment specifically, although K-12 schools meet all the success criteria outlined on pg. 16 of the Comparative Analysis of Meter Data-Driven Commercial Whole Building Energy Efficiency Programs [3]. Only the IESO's Energy Performance Program has had K-12 school participants in the program measuring electrical energy savings. Alison Erlenbach of PG&E [6] indicated that K-12 schools met the building type requirements for their respective whole building P4P programs.

Of all programs surveyed, only one program focused on buildings with high savings potential (as is the case with the proposed Enbridge Offering). The ComEd Recommissioning – Energy Advisor program uses a third-party vendor who uses interval meter data and other sources to identify buildings with potential for significant energy savings from operations, maintenance, or behaviour changes. The vendor tool also allows ComEd to identify the best candidate buildings within a customer portfolio to focus the customer's attention on buildings with the greatest reduction opportunities. However, this program does not meet the criteria for a whole building P4P program because customers are not given incentives for saving energy. [3]

## 2.2 Close coordination/integration of DSM/CDM and carbon reduction programming

In every case, building owners have specific objectives to sustainably reduce long-term utility costs and carbon emissions. In response, programs where utilities or administrators have gone beyond coordination

between gas and electricity savings to integrate programs could help owners achieve these objectives most effectively with the least administrative burden.

We scanned whole building P4P programs across the US and Canada to find examples of close coordination or integration of DSM and CDM, possibly with carbon reduction programming. Most of the research has been conducted from a utility company or program administrator perspective and focuses on measurement and verification of savings. A few programs target both natural gas and electrical conservation and demand management and have been developed either by utilities providing both services internally such as PG&E or not-for-profits that provide energy efficiency programs to both utilities such as Energy Trust of Oregon. Joint or partnership programming focusing on outcomes and customer experience were not found.

No examples of whole building P4P programs with carbon reduction programming were found. The report 'Experience and lessons learned from P4P pilots for energy efficiency' cites the necessity of integrating P4P programs with broader climate and energy objectives, as below:

*"At the same time, though, there is a risk that programmes limited in their ambition by considerations of cost-effectiveness to ratepayers may be inconsistent with the achievement of broader climate and energy objectives that take account of broader societal costs and benefits. In the buildings sector, this risk could materialise in the "cream-skimming" of only the most cost-effective measures through the P4P programme, making the more costly but necessary measures more difficult to fund through other programmes." Pg. 56 [7]*

At least one of the entities with P4P experience has focused their whole building P4P programs on outcomes and customer experience. PG&E developed their Commercial and Public Sector Whole Building Performance Based Retrofit Program Offering with "the intention of eliminating barriers, improving transparency, verifying persistence, and increasing overall energy savings. The Program offering's design produces a more comprehensive approach focused on savings persistence." [8] Some of these interventions include audit and submetering costs in allowable project capital costs, providing a simplified participation process, and the "pay for performance approach that shifts energy efficiency incentives to the actual measured achievement of savings over the detailed up-front savings estimates and payments." [8]

### 3 Community-led initiatives

Ontario has pioneered internationally recognized collaborative sectoral energy efficiency programs including the Race to Reduce (commercial office buildings), Greening Health Care (hospitals) and the City of Toronto's STEP program (multi-residential buildings) which have achieved remarkable, wide-scale energy reductions. These initiatives have been supported to varying degrees by both gas and electric utilities. No comparable initiatives were found in other jurisdictions.

#### 3.1 Race to Reduce (CivicAction)

Launched in 2011, Civic Action's Race to Reduce was a 4-year, large-scale, collaborative program among commercial office landlords and tenants aiming to substantially improve the energy and environmental performance of office buildings. According to the program's final report [9], 196 buildings took part in the challenge, with 64 achieving over 10% energy savings. The collective energy reduction was estimated at 12% (almost 193 million kWh) over 4 years, which exceeded the program's goal of 10% collective energy

use reduction. The program was supported by IESO and Union Gas and won numerous awards. Race to Reduce benchmarking highlighted the large natural gas savings potential of many participating buildings, leading to more in-depth analysis, sponsored by Enbridge, of 24 buildings totaling 12 million sf belonging to 8 landlords.

### 3.2 Greening Health Care (Climate Challenge Network)

Greening Health Care is a collaboration between 26 healthcare organizations with 55 hospital facilities across Ontario and Alberta. Founded in 2004, the program engages its members in workshops, forums and webinars and shares resources to provide the knowledge and tools needed to become leaders in energy efficiency. The program includes research, pilot and cohort projects, produces best practices guides and checklists, and monitors member hospitals' monthly savings to verify actual savings made. According to the most recent program report [10], member hospitals achieved over \$4 million in weather-normalized energy and water savings in 2020 over the prior year (with an estimated 8,000 tonnes CO<sub>2</sub>e in greenhouse gas emissions reductions). The program has been supported by IESO and Enbridge Gas.

### 3.3 Sustainable Towers Engaging People (STEP) Program (City of Toronto Tower Renewal)

The Sustainable Towers Engaging People (STEP) Program helps property owners and managers reduce operating costs, improve building value and improve the quality of life for residents. Owners and property managers are supported to improve in six key areas, energy, water, waste, safety, operations and community, through a free benchmarking of their property's performance in energy, water and waste, an on-site assessment and a customized action report. Over 370 buildings are currently taking part in the program. According to program's website [11], of apartment buildings that have been benchmarked, 80% achieved 1%-35% reductions in energy usage (with an average of 8% energy savings and 9% water savings). Toronto Hydro and Enbridge provided financial incentives to program participants for up to 50% of the cost of an energy audit. The program also provides extensive resources on other incentive programs available through IESO and Enbridge.

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Table 1 Pay for performance programs reviewed

Organization	Name of Program	Comparable to Proposed Enbridge Program	Utilities	Sector Served	Participant Criteria	Targeted High Potential Savings	Payment Structure	Length of Program	Led By	Expected savings per building	Results
Bonneville Power Administration	Strategic Energy Management – Energy Smart Industrial Partnership [1] [12] [13]	Yes	Electricity/Gas	Industrial	Customers with annual energy usage of at least 4 million kWh per site	No	Milestones and energy savings performance	Multi-year	Utility Company		Since 2010, over 900 facilities achieved more than 180 MW of energy savings and over \$400 million in total cost savings (as of 2019)
Enbridge	Whole Building P4P (proposed) [4]	Yes	Gas	Commercial	High savings potential schools	Yes	Energy savings performance	3 years	Utility Company		
IESO	Energy Performance Program (EPP) [14]	Yes	Electricity	Commercial, Institutional	Minimum annual consumption of 1,500,000 kWh per facility	No	Milestones and energy savings performance	3 years	Utility Company	10%	136 facilities reported 30,827 MWh gross estimated first year savings (2019)
PG&E	Commercial whole-building pilot program [1] [8]	Yes	Electricity/Gas	Commercial, Institutional	Facilities between 10,000 and 100,000 sq ft	No	Milestones and energy savings performance	1 year	Utility Company	15% or more	Average number of EE measures installed: 4; customer kWh savings > 20% on average; average estimated reported kWh savings using a code baseline is 12%.
PG&E	Residential Pay for Performance Pilot Program [1]	Yes	Electricity/Gas	Residential		No	Energy savings performance	2 years	Utility Company	6% electricity/ 16% gas	
Seattle City Light	Commercial Pay for Performance Pilot Program [1] [15]	Yes	Electricity	Commercial	Buildings with >50,000 sq ft., minimum of 85% office-type occupancy	No	Energy savings performance	3 years	Utility Company	At least 15%	3 buildings in the pilot achieved savings of 13%-20% (over 8 million kWh)

Organization	Name of Program	Comparable to Proposed Enbridge Program	Utilities	Sector Served	Participant Criteria	Targeted High Potential Savings	Payment Structure	Length of Program	Led By	Expected savings per building	Results
Union Gas	Runsmart [16]	Yes	Gas	Commercial		No	Energy Savings Performance	1 year	Utility Company		35 projects completed in 2017, with annual net gas savings of 72,252 m3, cumulative net savings of 376,261 m3, and average utility cost reductions estimated at 1.61%
University of California/California State University	Utility Energy Efficiency Partnership Monitoring-Based Commissioning Program [1]	Yes	Electricity/Gas	Institutional	Buildings greater than 25,000 square feet or clusters of smaller buildings	No	Energy savings performance	1 year	Utility Company	9% kWh	From 2009 through 2011, program achieved savings of 20 million kWh/year and 1.7 million therms/year. Median participating building savings: 9% for kWh savings, 4% for demand savings.
BC Hydro	Continuous Optimization [3]	No	Electricity	Commercial	Buildings with >50,000 sq ft., that are equipped with building automation systems	No	Milestones and energy savings performance	3.5 years, option to renew for additional 4 years	Utility Company		Buildings that completed the implementation phase showed a 7.3% cost reduction on average with a simple payback of 1.7 years
Commonwealth Edison	Retro Commissioning - Energy Advisor [3]	No	Electricity	All	High savings potential (third party selection process, using interval data and firmographic data)	Yes	Energy savings performance	M&V after project implementation occurs for 2-6 months depending on the customer.	Utility Company		
Duke Energy	Smart Saver Performance Incentive [3]	No	Electricity/Gas	Commercial, Industrial	No criteria	No	Milestones and energy savings performance	Typically 3-6 months, maximum 1 year	Utility Company		

Organization	Name of Program	Comparable to Proposed Enbridge Program	Utilities	Sector Served	Participant Criteria	Targeted High Potential Savings	Payment Structure	Length of Program	Led By	Expected savings per building	Results
Efficiency Maine	Long Term Care Building Tune-Up [3]	No	Electricity/Gas	Residential	Long-term care facilities	No	Milestones and energy savings performance	1 year	Community - Government		
Efficiency Vermont	Continuous Energy Improvement (CEI) Pilot program [1] [3]	No	Electricity	Commercial, Industrial	Large commercial and industrial with a focus on industrial	No	Energy savings performance	3 years	Community - Government		
Efficiency Vermont	Power Saver [3]	No	Electricity	Commercial, Industrial	Small and Medium sized customers using <100,000 kWh	No	Energy savings performance	Up to 1 year	Community - Government		Results not available due to the challenges with comparison between the participants in the study and those in the control group
Enbridge	Run it Right [16]	No	Gas	Commercial, Institutional		No	Milestones	1 year	Utility Company	Minimum 5%	84 projects completed in 2016. 39 participants achieved annual net gas savings of 387,468 m <sup>3</sup> , cumulative net savings of 1,937,342 m <sup>3</sup> , and average utility cost reductions of 6.1%
Toronto Hydro	OPSaver [16]	Yes	Electricity	Commercial, Institutional	Minimum 1 GWh annual electricity use	No	Milestones and energy savings performance	1 year	Utility Company		
Energy Trust of Oregon	Pay for Performance Pilot [3] [17]	No	Electricity/Gas	Commercial	Minimum 50,000 square feet	No	Energy Savings Performance	3 years	Utility Commission		Phase 1 included 1 project, reduced energy use by nearly 20% in the first year of PfP participation. Phase 2 did not receive enough candidates