

Whole Home Pilot Program: Draft Program Design

For Feedback

July 26, 2016

Purpose of Today's Session

- IESO will present a draft program design for the new whole home residential pilot program, including:
 - Background
 - Rationale
 - Key principles for program design
 - Customer input to program design
 - Customer experience overview
 - Proposed incentives
 - Terms of participation
- IESO seeks written feedback from interested parties on all aspects of the proposed program design

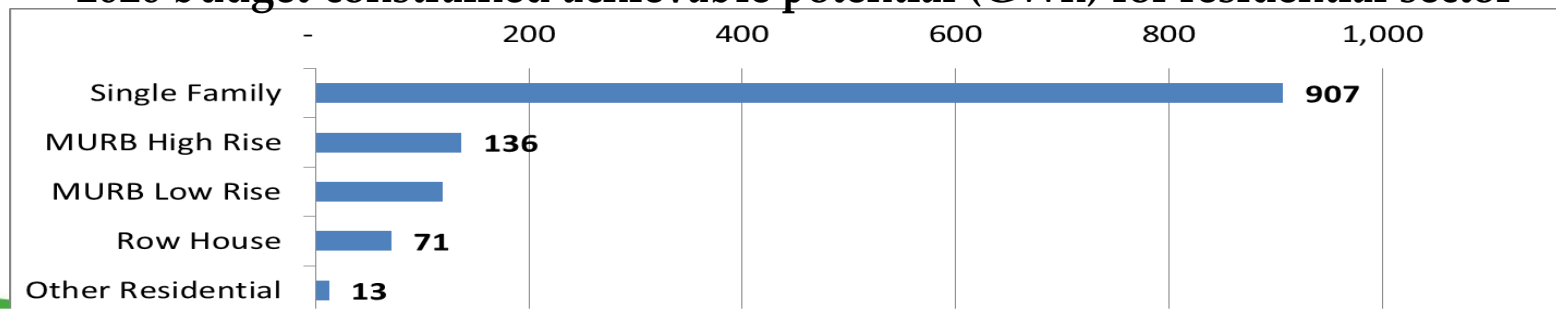
Background - June 10, 2016 Direction to Independent Electricity System Operator (IESO) from Minister of Energy

- Per the Direction, the IESO shall, in consultation with Distributors, centrally design, fund and deliver...
 - “a province-wide whole home Conservation and Demand Management (CDM) pilot program for residential consumers”
- Energy savings achieved through the program count towards Local Distribution Company (LDC) CDM targets
- IESO shall, where appropriate, deliver the program in coordination with natural gas distributors
- Implementation of the program shall commence by end of Fall 2016

Rationale for new Whole Home Pilot program

- There are approximately 3.2 million single-family homes in Ontario; 3 million are served by gas and electric utilities
 - 197,000 homes are served by electricity only
- Per the achievable potential study completed on June 30, 2016, there is significant potential for electricity use reductions in single family homes in Ontario through 2020
 - Single family homes account for 12% of the overall budget-constrained (based on the existing Conservation First Framework budget) achievable potential of approximately 7.4 TWh of electricity savings available in Ontario through 2020
 - See Appendix F for more information regarding achievable potential

2020 budget-constrained achievable potential (GWh) for residential sector



Rationale for new Whole Home Pilot Program

Feedback from marketplace	Anticipated Impact of New Programs
Challenges of coordination between multiple electric and gas distributors (19 LDCs have whole home program in CDM Plan)	<ul style="list-style-type: none"> • Will mitigate delivery challenges of coordination between multiple organizations targeting homeowners • Provide consumers with integrated, multi-fuel approach to home energy efficiency • Support cost-efficiencies through coordinated electric/gas program delivery • Create attractive new offer to residential consumers • Incremental funding of programs outside of LDC CDM Plan budgets provides additional resources to support LDC target achievement
Consumer support for simple, choice-based one-stop shop approach to whole home program	
Limited residential energy efficiency offerings from LDCs	

Background – Overview of existing gas utility whole home programs

- Enbridge and Union Gas each offer a whole home program for residential customers. See Appendix D for links to each program website
- To receive the gas companies' rebates for energy efficient home renovations consumers are required to complete:
 - a pre-renovation assessment by a certified energy advisor
 - at least two eligible upgrades (e.g. attic insulation upgrade and air sealing)
 - a post renovation assessment by a certified energy advisor within approx. 120 days of the pre-assessment.
- Incentives are determined by the program rules as follows:
 - Enbridge: performance-based incentives; participants must achieve a minimum threshold of annual gas savings. Instant rebate available for first assessment and reimbursement available of second assessment cost if minimum gas savings achieved
 - Union Gas: prescriptive measure incentives and reimbursement of first and second assessment costs, paid based on pre and post assessment and measures installed
- Enbridge and Union Gas will be delivering the whole home program throughout Ontario as funded by either the Government of Ontario's Green Investment Fund (GIF) or their Ontario Energy Board (OEB) approved demand side management (DSM) budgets

Key principles for Whole Home Pilot Program

- Provide an integrated, multi-fuel whole home program that provides a consistent positive experience for residential customers regardless of their home heating fuel type or location in Ontario, targeting approximately 10,000 homes (both electrically heated homes and homes eligible for gas programs)
- Employ existing gas utilities' program offers and infrastructure with added complementary electricity savings component to increase opportunities for overall energy savings in participating homes and to realize delivery cost efficiencies
- Electricity savings measures align with savings opportunities identified in the 2016 Achievable Potential Study
- Designed to be cost-effective as measured by Total Resource Cost (TRC) Test and Program Administrator Cost (PAC) Test
 - Design aims to achieve minimum TRC/PAC threshold of 1.3
 - For more information about cost-effectiveness, please see the IESO Conservation and Demand Management Energy Efficiency Cost Effectiveness Guide:
<http://www.ieso.ca/Documents/conservation/LDC-Toolkit/Guidelines-and-Tools/CDM-EE-Cost-Effectiveness-Test-Guide-v2-20150326.pdf>

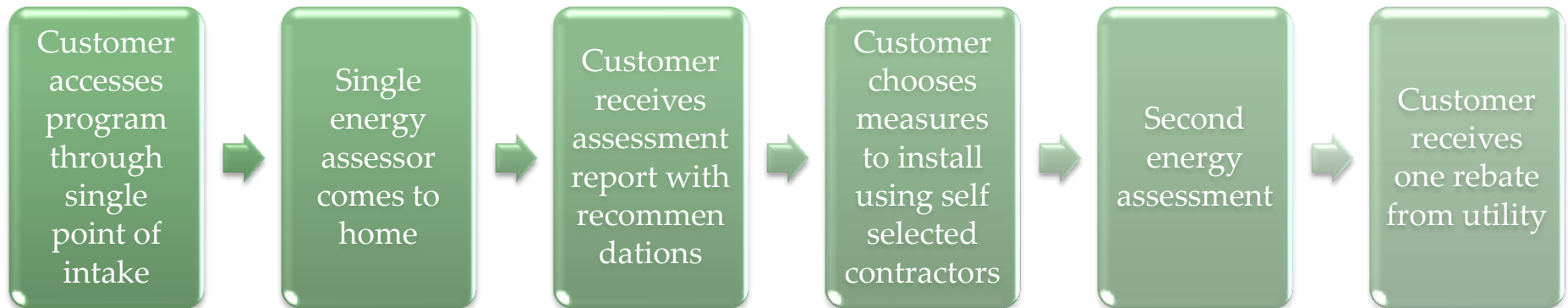
Customer input to draft design: lessons learned from February 2016 Whole Home Focus Groups

- IESO held focus groups in February 2016 to find out from residential customers what they wanted in a whole home program and test an LDC-proposed pilot concept
- Key feedback from the focus groups and complementary elements of draft design are highlighted in the table below (see Appendix A for details on focus groups)

Consumer Feedback	Program Design
Simple application; one stop shop	<ul style="list-style-type: none"> • One market facing program fully coordinated with gas utilities existing programs • Existing home energy assessors deliver an electric complement to existing gas assessment
Want home energy improvement plan	<ul style="list-style-type: none"> • Home energy assessment recommends savings opportunities
Choice and flexibility of vendor/retailer and measure mix	<ul style="list-style-type: none"> • Customer can choose contractor and measures
Willing to contribute to cost (varying opinion on right amount)	<ul style="list-style-type: none"> • Incentives available for several measures; participant will be able to select what to install based on their personal budget

Customer experience: an integrated home energy assessment and rebate process for residential consumers

- Single point of intake
 - assessors engaged by service organizations under contract to Enbridge and Union Gas
- Single home energy assessment process to identify gas and electric savings opportunities
- Customer chooses which measures to undertake
- Single rebate cheque for incentives from gas and electric programs



Design will leverage existing gas and electricity program offerings

Program structure/delivery

- Proposed design includes electric measure checklist/walkthrough assessment and Natural Resources Canada (NRCAN) HOT2000 based assessment
- The supplementary electricity assessment is designed to align with the updated NRGuide Rating System 15.2 (to be implemented by home energy assessors in the gas utilities' programs beginning in January, 2017)
- Pilot implementation will provide the necessary training and educational material energy advisors require to implement the modified pre ('D') and post ('E') home assessments.

Incentives:

- Incentives for electricity measures are **complementary and non-duplicative with existing incentives** available through current Save on Energy programs.
 - For example through the home assessment, consumers would receive recommendations to upgrade lighting using the existing Save on Energy residential programs. Whole home pilot will provide education on energy efficient lighting rather than additional financial incentives.

Home energy assessment: electric component to complement existing HOT2000/EnerGuide home energy assessment

Modified D Pre-Assessment*

1. Introduce and drop off all-fuel energy efficiency/conservation educational material including program information
2. Review and record lighting type installed in main rooms of the home (kitchen, dining room, living room, common area, bedrooms)
3. Record age of appliances (home owner question coupled with manufacturer and model identity)
4. Provide a five-ten minute summary of findings to home owner along with suggested next steps

Modified E Post-Assessment

1. Introduction
2. Review and record lighting type installed in main rooms of the home (kitchen, dining room, living room, common area, bedrooms)
3. Survey regarding other Save on Energy measures to assist spillover determination
4. Survey regarding Save on Energy Heating & Cooling measures to assist spillover determination
5. Collect required documentation
6. Provide estimated rebate amount to customer

*Designed to be consistent with the Household Operating Condition Questionnaire in the new EnerGuide Rating System. Further discussion with NRCAN and Energy Advisors needed to clarify the new audit procedures.

Proposed design offers customers with electrically heated homes incentives matching existing gas program incentives

- Electrically heated homes in Union Gas' service area are anticipated to receive prescriptive based incentives per Union Gas' existing program
- Electrically heated homes in Enbridge's service areas are anticipated to receive performance based incentives per Enbridge's existing program
- Electrically heated homes outside of either Enbridge or Union Gas' existing service area are anticipated to align with incentives provided via the Green Investment Fund

Measure	Estimated Savings per year per home (kWh)	Union Gas Incentive	Enbridge Gas Incentive
Audit	NA	\$500	\$500
Insulation	1400-6000	Up to \$1500	\$1450 – customer must achieve between 25%-49% reduction in gas savings \$1950 – customer must achieve 50%+ reduction in gas savings
Air Sealing	1040	Up to \$150	
Window/Door/Skylight	1560	\$40/unit	
Furnace (incented through Save on Energy)	1230	\$500	
Water Heaters (gas-heated)	NA	\$200	
Drain Water Heat Recovery	NA	NA	

Proposed design offers consumers new or incremental incentives for measures with electricity savings

Measure	Estimated Savings per year per home (kWh)	Proposed Incentives	Rationale for Inclusion in Pilot
Smart Thermostat	233	\$50-\$100	New technology with potential to accelerate uptake
Air Source Heat Pump (for electric heat only)	3,500-8,200	\$500-\$2000 (TBD)	To help overcome first-cost challenges
Fridge – early retirement/replacement	750	\$75	To complement existing Save on Energy province-wide program offerings
Freezer-early retirement/replacement	890	\$75	
Dehumidifier-early retirement/replacement	630	\$30	
Window Air Conditioner- early retirement/replacement	140	\$25	
Lighting	N/A	Education Only – customer to be offered residential program	
Furnace/Central Air Conditioning	N/A	Education Only – customer to be offered residential program	Save on Energy Heating and Cooling Program (where available)

Proposed LDC Role in Whole Home Pilot

- Whole Home Pilot program savings count towards LDC CDM Plan targets
 - Program is funded through IESO incremental to LDCs existing CDM Plan budgets and savings count towards LDC targets (based on the LDC where the home assessment and upgrade takes place) with no updates to CDM Plans required
- Local marketing
 - To solicit whole home program participation by LDC customers, with opportunities such as LDC co-branding
 - IESO to solicit input from LDC Marketing & Sales Working Group on marketing
- Development of local programs to complement energy assessment model
 - Potential for development of relationships with participating local energy assessors and contractor network to promote/offer new local programs
 - E.g. in-home lighting design consultation and retrofits
 - E.g. complementary demand reduction focused programs to address local system needs

Key questions for engagement participants

Design Considerations:

1. What opportunities and challenges does the proposed design offer to:
 - a) residential customers?
 - b) home assessment service organizations and assessment providers?
 - c) LDCs role in the pilot (for complementary local program development, local marketing etc)
 - d) other service providers for complementary service provision?
2. What are your thoughts on the proposed incentive levels?

Future Opportunities:

3. What other opportunities should be considered for the design/delivery of the program?

Request for engagement participant input

- Engagement participants are invited to provide written feedback on the proposed pilot design by Wednesday, August 10, 2016 to engagement@ieso.ca
- IESO will communicate results of the engagement, including response to feedback, by August 31, 2016.

Appendix A. Results of February 2-3, 2016 focus groups on whole home concept

Results of Customer Focus Groups undertaken by IESO (in Mississauga, ON), indicated the following:

- Homeowners rated themselves at ~50% when it comes to knowledge of their home's energy use and do not always have a solid plan in completing home upgrades. Having a "home energy improvement plan" customized for their home presented along with available incentives help foster the decision for energy upgrades.
- In testing the concept, homeowners liked the idea of being provided with an actionable plan customized for their home, which they can then use to make an informed decision on their approach to the home energy improvement
- Homeowners want a one-stop shop for accessing program information and applicable incentives
- Customized information specific to their home is extremely important and likely to make them take action,
- Application process needs to be simple
- Homeowners feel they need to be empowered with the following information to make informed decisions.
- Customers wanted choice and flexibility regarding contractor, vendor/retailers, and measure mix.
- Homeowners were generally receptive to having to contribute to the cost of the audit but had varying opinions on what the "right" amount should be.

Appendix B. Relationship between existing LDC local programs/pilot programs and whole home pilot program

- LDCs may offer complementary local programs to help customer optimize opportunities identified through the home energy assessment and address local/regional system needs

Existing LDC Local Programs/Pilot Programs	Potential relationship between LDC local program and Whole Home Pilot
<p>Toronto Hydro local program (approved): Contribution toward smart thermostat incentives available to Enbridge customers.</p>	<p>Whole home pilot incentive values aligned with current program and pilot incentives values. Consumers can choose to participate based on their preference to participate in a whole home assessment versus purchasing a specific measure.</p>
<p>HONI/Enwin pilots (approved): Provision of incentives towards the installation of an air source heat pump system for households with electric baseboards or electric furnaces.</p>	
<p>Canadian Niagara Power Inc. & Algoma Power Inc. Pilot (approved): Provision of fully customizable Energy Saving Kits to help reduce household energy consumption via an online platform; free to participants.</p>	<p>Ability to participate in both offerings based on consumers preferences.</p>
<p>Westario pilot (approved): Provision of a free home energy audit, recommendations for energy efficient measures and direct installation of eligible measure to increase awareness of and help reduce household energy consumption.</p>	<p>Customer experience have some overlaps thus consumers would not likely want to participate in both offerings unless more comprehensive upgrades are being considered such as insulating the home. If applicable, customers can choose to participate in both offerings.</p>
<p>Customer First (approved): Home energy assessment and direct installation of high efficiency measures for electrically heated homes; free to participants.</p>	
<p>Toronto Hydro (approved): Decommissioning of eligible working condition electronics in exchange for an Advanced Power Strip(APS) plus an instant rebate in the case of televisions.</p>	<p>These exchange events do not overlap with the whole home customer experience.</p>

Appendix C. Jurisdictional scan – multi-fuel whole home programs delivered collaboratively by separate utilities

Jurisdiction	Utilities (fuel)	Program Name/Description
British Columbia	BC Hydro (electricity) Fortis natural gas	Home Energy Rebate Offer/ Provides rebates for various electricity and gas-saving measures. Pre- and post upgrade EnerGuide home evaluation required in order to qualify for select measures.
Illinois	ComEd Nicor Gas, People's Gas, North Shore Gas	Smart thermostat rebates/Coordination and cost-allocation agreements between utilities. Utilities contract with third party service providers for implementation.
Minneapolis and St. Paul	Xcel Energy (electricity and gas) Centerpoint Energy (gas)	Home Energy Squad/Direct installation of high-efficiency measures in a single at-home visit. Customers pay a flat \$70 fee (with an optional \$30 add-on blower-door test)
California	Pacific Gas and Electric	Pay-for-Performance Residential Pilot (proposed)/ Would allow third-parties to sell efficiency services to customers, bundle those projects and have the aggregate savings measured and purchased by the utility.

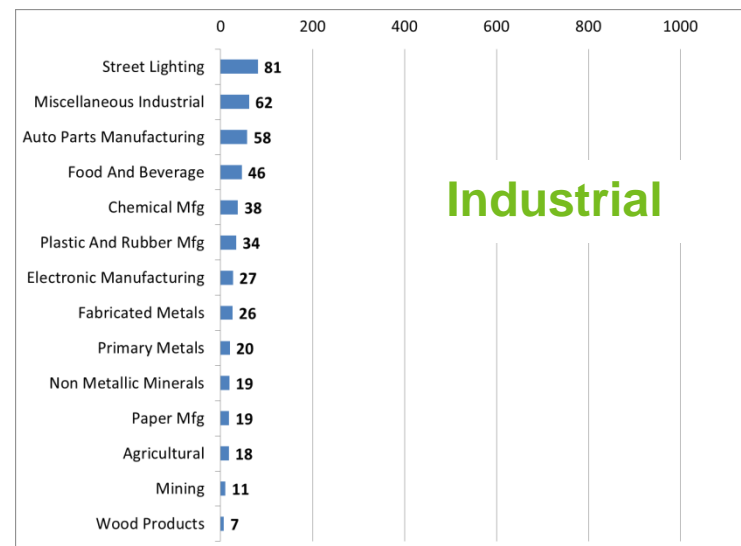
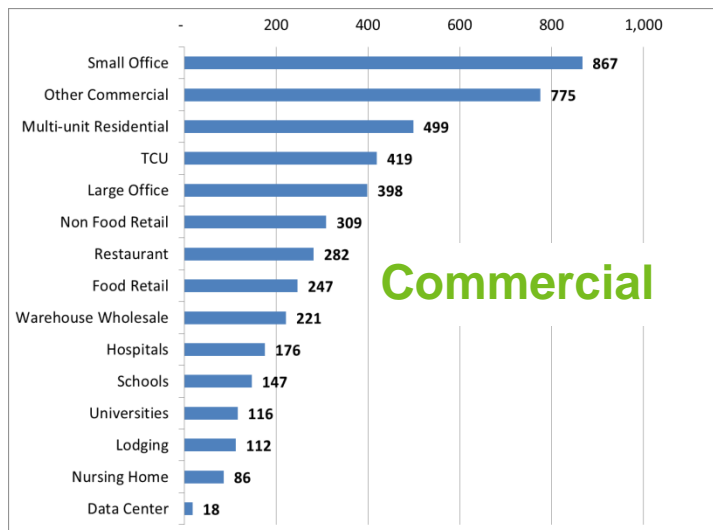
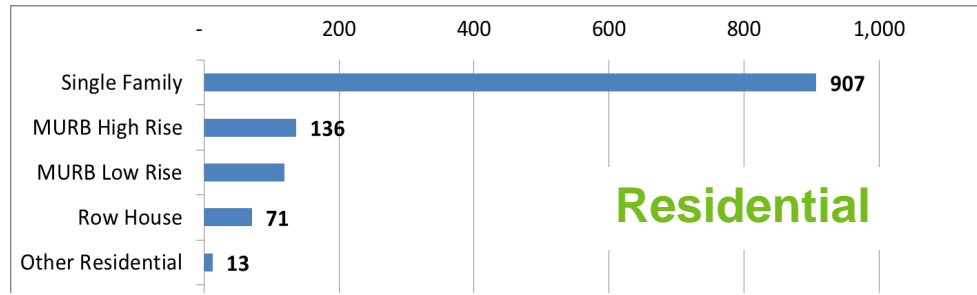
Appendix D. Gas Utilities' Whole Home Program Links

- Program information is available here:
 - Enbridge Gas Distribution Home Energy Conservation Program
<http://knowyourenergyscore.ca/home-energy-conservation/>
 - Union Gas Home Reno Rebate Program
<https://www.uniongas.com/homereno>
- Current gas utilities' incentives:

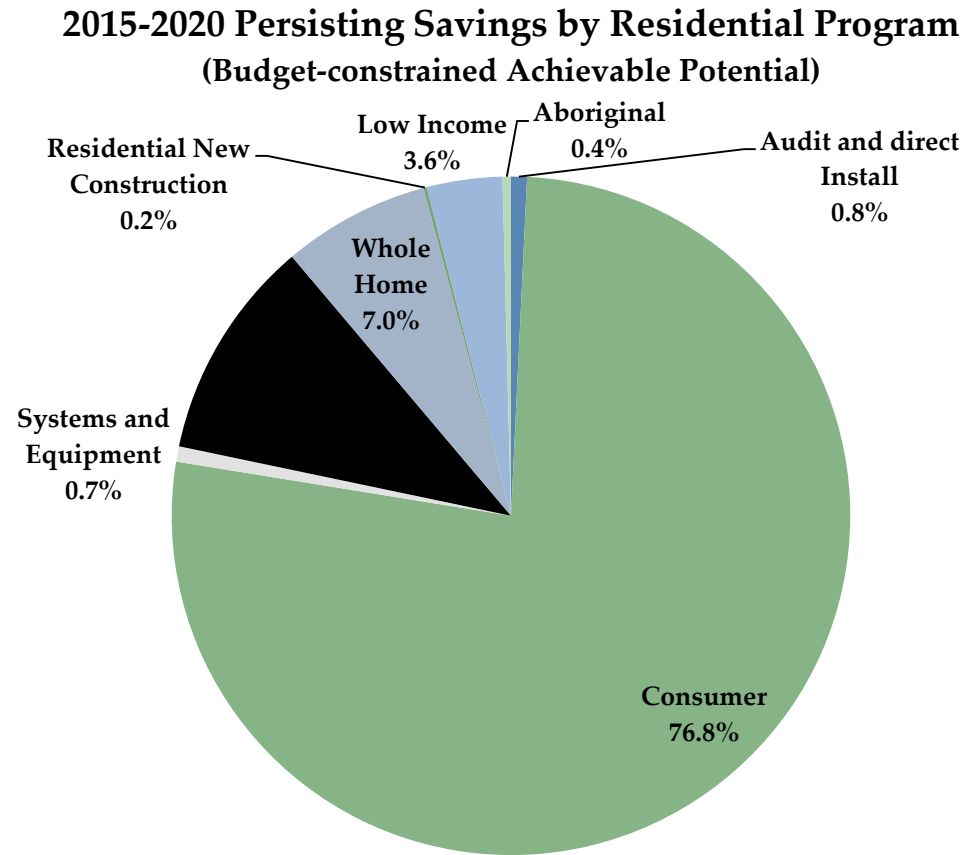
Measure	Union Gas Incentive	Enbridge Gas Incentive
Audit	\$500	\$500
Furnace	\$500	\$1450 – 25%-49% gas savings
Water Heaters	\$200	
Insulation	Up to \$1500	\$1950 – 50%+ in gas savings
Air Sealing	Up to \$150	
Windows	\$40/unit	
Drain Water Heat Recovery	NA	

Appendix E: 2016 Achievable Potential study indicate single-family residential and commercial office have greatest opportunity

2020 Budget-constrained achievable potential (GWh) by subsector



Appendix F: 2016 Achievable Potential study indicates whole home archetype program has the second greatest opportunity



For more information on the achievable potential study see:

<http://www.ieso.ca/Pages/Participate/Stakeholder-Engagement/Working-Groups/2016-Achievable-Potential-Study-LDC-Working-Group.aspx>