

PY2021 EM&V Key Findings and Recommendations

2021-2024 CDM Energy Affordability Program (EAP)

No.	KEY FINDINGS	2021 EM&V RECOMMENDATIONS	IMPACT	IESO RESPONSE
1.	<p>Only 20 Weatherization projects occurred in the EAP program for PY2021 which accounted for nearly 83,000 kWh (1.3%) and 4.5 kW (0.8%) of gross verified savings for the program. Gross verified savings for weatherization measures on a per-unit basis accounted for over 4,100 kWh per project in PY2021. This highlights that savings associated with weatherization measures on a per-project basis provide substantial savings over the course of their measure life.</p>	<p>Emphasize and increase the implementation of weatherization upgrades for participants in subsequent program years. The program may consider pushing shell insulation, especially attic insulation, to increased levels of efficiency to further deepen savings and increase occupant comfort.</p>	High	<p>The IESO will work with delivery partners to continue promoting uptake of measures with deeper savings, with emphasis on weatherization and enhanced offerings targeted to electrically heated homes.</p>
2.	<p>EAP Tier 2 kits were distributed to 177 participants and accounted for nearly 164,000 kWh of gross verified savings. These kits provide an average of 925 kWh in gross verified savings per participant. While the average gross verified savings for Tier 1 participants were approximately 756 kWh. However, participants are of moderate income and have a NTGR applied to account for net verified savings, which reduced savings down to 141,000 kWh, which brings the net-verified savings per participant closer to the Tier 1 participant levels (797 kWh). Regardless, this highlights a potential opportunity for the EAP program to cost-effectively increase program savings in subsequent program years.</p>	<p>Continue to promote and consider expanding marketing communication and outreach channels to help raise awareness for potential Tier 2 participants. If the program is not already doing so, providing installation instructions, such as pictures, links to tutorial videos, or written guidance for measures that are not commonly installed (e.g., aerators, power bars). This may encourage greater installation rates of measures delivered through mailed kits. Installation rates were not assessed in the PY2021 evaluation for Tier 2 participants but will be in PY2022. It should be noted that low measure installation rates could impact future savings potential, so the program should consider the education tactics mentioned above to ensure high installation rates.</p>	High	<p>The IESO is developing a Tier 2-focused marketing campaign, as well as refreshing collateral based on participant feedback. The program currently provides installation instructions along with the Tier 2 kit and live-agent support during call centre hours for participants requiring assistance with kit installations.</p>

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3.	<p>EAP program tracking data includes completed projects and installed measures along with unique identifiers for each. However, the tracking data does not typically include key characteristics that are collected during audits such as building or equipment type. This information can be used to better estimate savings impacts and to provide insights for future program offerings. These data points are often collected and included in the data collection forms that are used during in-home audits. However, only in some cases is this information captured in the program tracking data. The program tracking data did include completed projects and installed measures, including variables to identify unique projects and measures. These unique identifying variables are critical for impact accounting over multiple years in a framework.</p>	<p>The following are recommended:</p> <ul style="list-style-type: none"> • Continue to include variables that can be used to identify unique projects and measures within the tracking data. If possible, limit the annual program tracking data to projects that are fully completed. • Work with program staff, program delivery vendors, auditors and contractors to incorporate additional details into the tracking data such as building type and mechanical equipment (e.g., type and fuel) and any additional data that are collected on-site (e.g., equipment efficiency, capacity). 	High	<p>As of January 2022, the EAP program delivery vendors are reporting on building type - either single family or multi-unit residential buildings (MURB). The IESO will work with vendors to explore options for collecting additional data points and incorporate these into their reporting.</p>

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4.	<p>Participants, auditors, contractors, and delivery vendor staff recommended offering additional equipment through the program. Nearly one-half (47%) of surveyed participants provided recommendations for additional energy-efficiency equipment or services for inclusion in EAP. These participants most often recommended air sealing (26%), windows (20%), and stoves (20%). Over three-fourths (77%) of auditors and contractors recommended additional equipment or services, including heat pumps (29%), kitchen equipment such as dishwashers and stoves (29%), washers and dryers (21%), insulation and air sealing (17%), and heating equipment (13%). Delivery vendor staff also recommended that the program consider the feasibility of offering heat pumps and generally revisit eligible measure offerings more frequently.</p>	<p>The following are recommended:</p> <ul style="list-style-type: none"> • Consider offering additional types of equipment, such as heat pumps, kitchen equipment, washers and dryers, additional insulation and air sealing, and heating equipment. • Further consider the relative cost effectiveness (CE) of these potential new measures. Appliances offered in the program have yielded the lowest measure-level CE ratios of all measures (0.05 to 0.33 PAC ratios). Building shell measures performed relatively better, being at or above the program's median measure-level PAC ratio (0.56 to 0.75 PAC ratios). • Revisit eligible measure offerings more frequently. 	High	<p>The IESO is currently reviewing internal processes that would ensure the measure offering is regularly reviewed and updated. As part of a regular measure review, the IESO would undertake market research (e.g., jurisdictional scan, in-depth-interviews with past program participants) to understand opportunities for additional measures.</p>

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5.	<p>EAP participation in the first year includes 8,132 projects accounting for 6,154 MWh and 0.62 MW in net verified savings. In PY2021, the RR for gross verified energy savings was 97% and was 91% for gross verified demand savings. While the EAP program still relies heavily on savings from lighting measures, there are opportunities to diversify program savings by focusing on weatherization measures, appliances, smart power bars, and various other measure offerings in future years.</p>	<p>Continue to promote and deliver deeper savings measures to EAP participants like weatherization, appliances, and smart power bars, especially in historically underserved areas. There may be an opportunity for EAP to conduct a postal code analysis to determine if EAP is effectively serving communities that are historically underserved, and in homes that may provide greater opportunities for savings on a per-project basis. This analysis may help inform targeted efforts by EAP to deliver energy-efficiency products and improvements to participant homes while maximizing savings on a per-project basis.</p>	High	<p>The IESO is currently looking at multiple ways to increase participation, including the following:</p> <ul style="list-style-type: none"> • Improving internal processes for measure review, to ensure that the program offering is relevant and additional opportunities are explored; • Working with service providers to promote measures with deeper savings; • Learning from geotargeting pilots and broader marketing initiatives to continue seeking opportunities to build awareness, particularly in historically underserved communities.

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6.	<p>Program Free-Ridership (FR) was moderately high in PY2021 for the Tier 2 participants at 25.0%. The program’s net-to-gross (NTG) was moderate in PY2021 at 86.2% FR was found to be moderately high at 25.0% and spillover (SO) was relatively high at 11.2%. About one-tenth (12% of participants) stated they would have done the “exact same upgrade” in the program’s absence, which is indicative of higher FR for these participants. Over three-fifths (62% of participants) showed no indication of FR since they said they would have put off the upgrade for at least one year or cancelled their upgrade all together if the program had not been available to them. Other participants were considered partial free riders if they reported that they would have scaled back on the size, efficiency, or scope of their project (12% participants) or if they did not know what they would have done in the absence of the program (15% of participants).</p>	<p>Maintain focus on minimizing FR. Key areas include:</p> <ul style="list-style-type: none"> • identifying and targeting homeowners that would be unlikely to make upgrades without program support, and • encouraging all participants to complete the evaluation surveys to ensure that the FR results are as representative of the true population of program participants as possible. <p>Encourage participants to install additional energy-efficient equipment or services beyond what is covered through the program if it is feasible for them to do so (for example, encourage the installation of ENERGY STAR appliances as part of the Energy-Saving Tip Sheet id). Doing so may lead to increases in the program’s SO, which may in turn help offset FR and lead to improved NTG.</p>	High	<p>The EAP uses industry standard criteria to target homeowners who are most at need. The IESO is aware that FR is an issue for Tier 2 and will continue to explore possible ways to mitigate. Delivery partners are encouraged to cross-promote other programs, and the IESO will review the participant leave-behind tip sheet. The impact of SO may reach an upper limit since income qualified participants may not have the means to pursue all opportunities.</p>

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7.	<p>Additional program promotion opportunities exist. Common program barriers identified by IESO program staff, delivery vendor staff, and auditors and contractors were the relatively minimal marketing and a reported lack of awareness for the program. Auditors and contractors reported that the greatest barriers to program participation were lack of awareness that the program exists among customers (mentioned by 71% of respondents) and concerns among customers about whether the programs is real (mentioned by 61% of respondents). Program improvement suggestions identified by IESO staff and delivery vendor staff included continuing collaborations with the roundtable of sector experts and community-based groups, identifying partnership opportunities with gas utilities, and addressing gaps in marketing, especially related to the new Energy Saving Kits offered to Tier 2 customers.</p>	<p>The following are recommended:</p> <ul style="list-style-type: none"> • Continue collaborations with sector roundtable and community-based organizations to help promote the program and address concerns about the program’s legitimacy. • Identify potential partnership opportunities with gas utilities. • Consider additional ways to market and promote the program, especially for the Tier 2 Energy Saving Kit offering (refer to Recommendation 4). 	Medium	<p>The IESO remains committed to exploring opportunities for collaboration and cross-promotion. This includes current partnerships with Enbridge Gas and the Omega Foundation. To improve promotions the IESO will review program collateral, as well as leveraging the EAP Roundtable participants for additional cross-promotion opportunities.</p>
8.	<p>Measure eligibility criteria is leading to decreases in installation frequency for some measures, especially appliances and insulation. Over one-fourth (26%) of auditors and contractors reported that the program’s measure eligibility criteria have led to decreases in the frequency with which measures are installed, with appliances and insulation most often mentioned as being negatively impacted. Delivery vendor staff also reported that the criteria for age of appliances sometimes impacts customers’ ability to receive an upgrade, but also noted that IESO is often open to exceptions, depending on the measure and the situation.</p>	<p>Consider revisiting measure eligibility criteria, especially for appliances and insulation, to ensure the program is appropriately meeting customer needs.</p>	Medium	<p>The IESO is currently reviewing internal processes that would ensure the measure offering is regularly updated. This would include a review of the eligibility criteria which may be limiting measure uptake.</p>

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9.	<p>Continued supply chain disruptions may require that the program revisit its measure-related cost cap. As a result of COVID-19 and other economic conditions, supply chain disruptions have had major impacts on program measure costs in recent years. The delivery vendor staff recommended completing more periodic reviews of program measure-related cost caps, including additional market research and cost evaluations of relevant program measures. Close to one-third (32%) of auditors and contractors shared recommendations for changes to the measure-related cost caps, with most recommending insulation cost cap adjustments as well as taking travel costs into account as fuel costs increase.</p>	<p>Increase the frequency of program measure-related cost caps reviews, including additional market research and cost evaluations of relevant program measures (e.g., appliances, insulation). Consider ways to incorporate travel costs as fuel costs increase.</p>	Medium	<p>The IESO will undertake a comprehensive measure cost cap review to address current concerns (e.g., disposal costs).</p> <p>The EAP Program Team will look to operationalize a regular measure and cost cap review in EAP.</p>
10.	<p>Energy-efficiency education activities are likely resulting in savings. Just over one-half (56%) of Tier 1 participants said the auditor discussed additional ways to save energy in the home, and of these participants, nearly all (93%) said they had tried at least one of the additional ways to save energy since having the audit performed.</p>	<p>Encourage more auditors to discuss additional ways to save energy with participants.</p>	Medium	<p>The IESO will work with delivery partners to review expectations around the education provided by the auditors, and stress the importance of recommending additional opportunities to every customer. The IESO will also engage the EAP Roundtable participants for feedback on how to further improve education.</p>

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11.	<p>A small percentage of participants provided feedback about the quality of the products and services. Only 10% of participants offered suggestions about improving the quality of products and services they received. Of these, the most common suggestion was to offer more sizes and options for appliances (25%), followed by cleanup and repainting after insulation installation (17%), and better set-up and/or instructions for thermostats and power bars (15%).</p>	<p>The following are recommended:</p> <ul style="list-style-type: none"> • Consider offering a wider variety of sizes and options (e.g., colours) for appliances. • Accurately set customers' expectations regarding insulation upgrades. Ensure that customers are informed of any cleanup or repainting that will be required and whom will be responsible for it (the contractor or the customer). • Remind auditors to assist customers with thermostat and power bar set-up and, in addition, leave behind reference materials when possible. 	Medium	<p>The IESO will undertake further market research (e.g., jurisdictional scan, in-depth-interviews with past program participants) to understand opportunities to improve the quality of measures, including more variety in existing measures.</p>
12.	<p>Power bar measures had extremely high realization rates (RRs). The NMR team found discrepancies with smart power bar savings values. The reported energy savings for smart power bars applied a savings value associated with the power bar with timer measure, which is not delivered by the EAP. In addition, there were no demand savings reported for smart power bars, which prevented a demand RR from being calculated for smart power bars.</p>	<p>Ensure that auditors are installing the tier-2 smart power bars with audiovisual (AV) equipment (or include installation location in the data collection form). Verify that the correct reported energy savings values are applied to the correct measure.</p>	Medium	<p>The IESO will review the reported savings values for the power bar measure, and ensure that the installed equipment corresponds to the assumptions. This is not expected to be an issue in future program years, as the power bar with timer measure will be phased out of the program.</p>