

PY2023 EM&V Key Findings and Recommendations

2021-2024 CDMF Energy Affordability Program (EAP)

No.	KEY FINDINGS	2023 EM&V RECOMMENDATIONS	IMPACT	IESO RESPONSE
1.	<p>While EAP achieved 97.75% of reported annual electric savings and 83.17% of reported peak demand reduction in PY2023, the Cadmus team found discrepancies among individual measures within the program that may indicate larger concerns and areas for improvement. The Cadmus team found discrepancies in measure-level realization rates for electric energy savings that varied from 0 for small dehumidifiers to 421.90% for freezers. Sampled projects with refrigerators, freezers and dehumidifiers exhibited higher existing equipment efficiencies than assumed efficiencies. In some cases, for the dehumidifiers, the existing dehumidifier efficiency was equivalent to the efficiency of the newly installed dehumidifier. While these findings were not consistent with all sampled projects that included refrigerators, freezers and dehumidifiers, a larger sample may indicate a consistent trend among baseline and installed equipment efficiencies. The team also found that sampled projects with showerhead/aerators and tank insulation were installed at homes with gas water heaters. However, in most cases, there are not enough data from individual measures to develop robust conclusions on the performance of each of the 46 unique measures offered through EAP.</p>	<p>Continue to monitor the eligibility of measures being installed and associated assumptions.</p>	<p>High</p>	<p>The IESO will conduct a review of the process and criteria that program delivery vendors are using to identify existing equipment replacements and to provide additional coaching ensuring that installed equipment meets the measure eligibility.</p> <p>The IESO will review instances where there are substantial deviations in the measure-level realization rates to understand if there are material differences in the installed measures and associated measure assumptions.</p>

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2.	<p>Energy Saving kits measure calculation assumptions were not aligned with participant survey inputs, which resulted in lower evaluated savings than reported. Participant survey responses generally identified lower in-service rates (ISRs) than assumed for energy saving kits, which resulted in a realization rate of 43.51% for energy savings and 51.09% for peak demand savings. All reported savings for the energy saving kits included a 20% savings adjustment downwards when compared to calculated savings based on MAL. Therefore, the Cadmus team updated savings calculations inputs and assumptions for savings calculations based on survey results for the energy saving kits (such as ISRs, number of people per household and appliance fuel mix). LEDs were the primary reason realization rates were lower because participant surveys revealed a low in-service rate for this measure. Due to low sample sizes in PY2023, the Cadmus team is unable to recommend a new adjustment factor this year.</p>	<p>To improve in-service rates, consider allowing kit recipients to choose what is included in their kits based on their eligibility and needs.</p>	<p>High</p>	<p>The IESO will investigate the low ISRs for the Energy Savings Kits. Any conclusions from the investigation will be considered for future measure savings.</p>

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3.	<p>Although most participants in the comprehensive support tier were satisfied with EAP and adopted energy-saving behaviours to save money, some thought additional communication around measure eligibility, accessibility and next steps would improve the participant experience. Conversely, energy saving kits respondents reported varied satisfaction overall with EAP, which may have been related to gaps in program implementation. A third of comprehensive support participants (n=206) would have liked more information from the program representative or information provided in another way, with some of these respondents wanting more information specifically about insulation or a better explanation from the representative about why insulation was not installed. Comprehensive support respondents thought that program communication could be improved, particularly on the next steps and what to expect next, why certain measures were or were not included in their energy efficiency upgrades and communications on delays. Comprehensive support respondents with mobility issues reported experiencing difficulties with the accessibility of some upgraded equipment. Though the Cadmus team received tracking data for 61 distributed kits, that did not match later information provided by the program delivery vendors, which revealed 281 applicants who were denied comprehensive support due to income ineligibility could have received energy saving kits. After accounting for the 57 applicants who refused an energy saving kit, 224 applicants should have received kits (as opposed to the 21-energy kit application records the team received). Further, energy kit recipient survey responses indicated that some kit measures (such as draft proofing, showerheads and faucet aerators) and kit instructions were potentially not provided to participants.</p>	<p>Complete a detailed process review of the implementation process for the energy saving kits to address any gaps in program delivery, including coordination of kit assembly and distribution.</p> <p>Develop and provide a delivery agenda with additional educational materials to be handed out as part of the home energy audit protocol, including resources that clarify measure eligibility, accessibility, and the next steps.</p>	High	<p>The IESO is currently investigating options to streamline the Energy Savings Kits offering and configuration.</p> <p>The IESO is currently reviewing the participant education and communication processes including resources that clarify measure eligibility and accessibility.</p>

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4.	<p>Some measure specifications in program tracking data did not completely match measure specifications in the Measure Assumptions List (MAL), resulting in minor deviations within measure-level results, such as incremental measure cost results. Since tracking data did not completely align with MAL definitions, the Cadmus team chose MAL measures that best fit the tracking data. This was true for two measure types: air source heat pumps and thermostats. The tracking data had heat pump measure names and measure descriptions for six air source heat pumps that differed in terms of BTU rating and number of heads. However, the 2022 MAL had only one line item for heat pumps with BTU ratings between 3.0 and 5.4 tons that was under the business sector. A similar problem occurred with electric furnace low-voltage smart thermostats. The tracking data delineated these thermostats in terms of central air conditioning (CAC) – “w/ CAC” and “w/out CAC.” However, the MAL provides no such delineation and instead groups them – “w/ or w/out CAC.”</p>	<p>For new measures with high variability, ensure that there is a source - either in the MAL or separate resource - that documents key inputs such as effective useful life, incremental measure costs, and key equations and inputs needed for calculating savings.</p> <p>Consider revising the low voltage thermostat measure in the MAL to break out the with central air conditioning scenario and the without central air conditioning scenario to ensure varied savings are accurately reflected.</p>	Medium	<p>Residential air source heat pumps are not treated as prescriptive measures and therefore, not included in MAL.</p> <p>The IESO will carry out a MAL review in 2024/2025 and ensure alignment with reporting data.</p>
5.	<p>Although most participants appear to trust current program communications, there are still opportunities to mitigate remaining hesitations about participation in EAP through partnerships with already trusted organizations, such as local distribution companies.</p>	<p>Collaborate with local distribution companies to generate more awareness and drive enrollment by creating additional EAP promotional materials that can be delivered as bill inserts. Review all online channels to ensure messages emphasize that everything is offered free of charge, possibly through a more distinct graphical element or by highlighting participant testimonials to establish validity and build trust with future participants.</p>	Medium	<p>The IESO is clarifying its marketing and awareness campaigns to build trust and enhance messaging.</p> <p>The IESO is also collaborating with key partners to enhance program delivery and increase trust amongst the eligible population.</p>

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6.	Overall, the assumptions in the Measures and Assumptions List (MAL) are appropriate; however, LEDs in the Comprehensive Support tier deviated, which resulted in misalignment between reported and evaluated savings. In one instance, the reported savings did not match the MAL input assumptions. In this case, the reported savings for LEDs based on a rounded value of the peak demand savings (0.003 kW vs. 0.002587 kW) to calculate savings. This resulted in higher reported savings than verified savings and a 13.78% decrease in realized demand savings.	Consider increasing the number of significant digits for more precise calculations that may align more closely with actual evaluated results	Low	This is a low-risk recommendation that has minimal impact on the results. The IESO will consider reporting savings using more accurate assumptions to improve precision in the reported results.