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# EVALUATION FINDINGS: MID-TIER COMMERCIAL REAL ESTATE AND BUILDING PERFORMANCE SERIES INITIATIVES

2021-2024 CDM FRAMEWORK PHASE 1 EVALUATION

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Prepared for: Independent Electricity System Operator (IESO)

Prepared by: EcoMetric

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# Executive Summary

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This report summarizes PY2021 achievements of two Capability Building Initiatives (CBIs) in the 2021-2024 Conservation and Demand Management (CDM) Framework: The Mid-Tier Commercial Real Estate (CRE) and Building Performance Series (BPS) initiatives. CRE delivered six webinars during 2021, and BPS delivered two. Throughout this report, these initiatives are abbreviated as CRE and BPS.

EcoMetric is conducting the evaluation of CBI in two Phases, the first during Spring and Summer 2022 and the second during Fall and Winter 2022. This report summarizes the findings from Phase 1. Phase 2 of this evaluation will commence in August 2022 and include all CBIs and Training and Support courses completed by December 31, 2022. EcoMetric will summarize the results from Phase 2 in the PY2022 Evaluation Report to be delivered in August 2023.

## E.1 DESCRIPTION OF PROGRAMS

The IESO's Capability Building Initiatives (CBIs) provide educational and training resources to increase energy efficiency knowledge and drive conservation actions that result in electricity savings from key end uses, sectors, and channels in Ontario. The Capability Initiatives are organized into three tiers:

- ▶ Foundational (Tier 1): introductory training and basic knowledge aimed at organizations with limited experience and resources for energy efficiency.
- ▶ Specialized (Tier 2): more advanced training and resources aimed at organizations in key target sectors with a higher level of knowledge gained through training and project experience.
- ▶ Advanced (Tier 3): direct support through facilitation of integrated approaches to energy efficiency decision-making targeted at experienced organizations.

In the CBIs, a “project” refers to an ongoing or recurring initiative to educate and build capabilities among residents of Ontario through targeted information sharing. This evaluation focuses on Addressing Participation Challenges in the Mid-Tier Commercial Real Estate Sector (CRE) and the Building Performance Series (BPS), listed in Table 1. Both initiatives included in this evaluation are designed to provide increased support for the mid-tier commercial real estate sector. CRE is considered a *Foundational* or Tier 1 initiative. BPS is a *Specialized* or Tier 2 initiative.

Table 1: 2021 CBI Projects and Activities

| 2021 CBI Project  | Description of 2021 Activities  |
|---|---|
| Addressing Participation Challenges in the Mid-Tier Commercial Real Estate Sector (CRE) | Two webinars and a comprehensive report identifying opportunities and barriers for energy efficiency in the sector. The two webinars were aimed at slightly different but overlapping audiences: building owner operators, and partners/trade allies. |
| Building Performance Series (BPS)   | A series of six online workshops administered by the Building Owners and Managers Association (BOMA) in Toronto, aimed at building capabilities among owners/operators and partners/trade allies.   |

## E.2 EVALUATION OBJECTIVES

The primary goals of this evaluation are to deliver annual energy savings estimates for the Capability Building Initiatives, and to identify potential improvements to the implementation of the initiatives. **Notably, savings estimates are delivered as a fairly broad range (they could be thought of as savings “bookends”) due to the early timing of this evaluation relative to the webinars and the resulting projects, as well as the enabling nature of the CBIs, which makes attribution a challenge without a longer and more in-depth study.** In abbreviated form, the evaluation objectives include:

- ▶ Estimate annual energy (kWh), demand (kW), and emissions (CO<sub>2</sub>e) savings.
- ▶ Assess program attribution, namely the degree to which the webinars are responsible for driving participation in other IESO energy efficiency programs.
- ▶ Estimate annual net greenhouse gas impacts in tonnes of CO<sub>2</sub> equivalent using the IESO Cost Effectiveness tool.
- ▶ Conduct a Value for Money Assessment.
- ▶ Monitor the overall effectiveness and comprehensiveness of key Initiative elements.
- ▶ Analyze collected data and make recommendations to improve the Initiatives.
- ▶ Identify improvements to Initiative delivery procedures and protocols.

### E.3 Key Results, Findings, and Recommendations

Table 2: Key Results, Findings, and Recommendations

| Findings and Conclusions |   | Recommendations |   |
|--------------------------|---|-----------------|---|
| 1                        | Evaluability of the initiatives could be improved. Currently, it is very difficult to link webinar participants to projects and energy savings. | 1a              | Add a checkbox or similar on the Retrofit program application asking: "Did you participate in any of these capability-building initiatives?"  |
|                          |   | 1b              | Track attendance at the webinars along with registration. At the time of the 2021 webinars, the CRE attendance wasn't fully tracked.  |
|                          |   | 1c              | Include additional identifying fields to program tracking databases that correspond with building owners, operators, and channel partners.  |
|                          |   | 1d              | <p>Evaluation contractor should continue to follow up surveys with participants at least one year after webinars are completed. Surveys should ask participants about what projects were planned following the webinar, the influence of the webinars on the development of the project, and if the project received a Save on Energy incentive.</p> <p>Further, consider developing a participant survey to be completed before initiative participation that asks about energy efficiency behaviours, plans and expectations for the initiatives. These surveys would serve as a baseline to be compared to results from evaluation surveys that are completed at least on year after the webinars are completed.</p> |

The Independent Electricity System Operator (IESO) retained EcoMetric to evaluate the 2021-2024 Conservation and Demand Management (CDM) Framework Capability Building Initiatives (CBIs) administered in Program Year (PY) 2021 and PY2022 in Ontario. This report summarizes PY2021 achievements of two Capability Building Initiatives in the 2021-2024 CDM Framework: The Mid-Tier Commercial Real Estate (CRE) and Building Performance Series (BPS) initiatives.

## 1.1 PROGRAM DESCRIPTION

The IESO's CBIs provide educational and training resources to increase energy efficiency knowledge and drive conservation actions that result in electricity savings from key end uses, sectors, and channels in Ontario. The initiatives are organized into three tiers:

- ▶ Foundational (Tier 1): introductory training and basic knowledge aimed at organizations with limited experience and resources for energy efficiency.
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In the CBIs, a “project” refers to an ongoing or recurring initiative to educate and build capabilities among residents of Ontario through targeted information sharing. This evaluation focuses on Addressing Participation Challenges in the Mid-Tier Commercial Real Estate Sector (CRE) and the Building Performance Series (BPS), listed in Table 3. Both initiatives included in this evaluation are designed to provide increased support for the mid-tier commercial real estate sector. CRE is considered a *Foundational* or Tier 1 initiative. BPS is a *Specialized* or Tier 2 initiative.

Table 3: 2021 CBI Projects and Activities

| 2021 CBI Project  | Description of 2021 Activities  |
|---|---|
| Addressing Participation Challenges in the Mid-Tier Commercial Real Estate Sector (CRE) | Two webinars and a comprehensive report identifying opportunities and barriers for energy efficiency in the sector. The two webinars were aimed at slightly different but overlapping audiences: building owner operators, and partners/trade allies. |
| Building Performance Series (BPS)   | A series of six online workshops administered by the Building Owners and Managers Association (BOMA) in Toronto, aimed at building capabilities among owners/operators and partners/trade allies.   |

### 1.1.1 CRE AND BPS IN PY2021

Both CRE and BPS focus on mid-tier commercial real estate, defined as Class B and C buildings, which are slightly older, charge average or below-average rents, and are more likely to need maintenance or renovations. The IESO found that while Class A buildings—typically the newest, highest quality buildings



on the market—were finding success with energy efficiency projects, mid-tier commercial buildings were finding less. CRE and BPS are intended to provide building owners/operators and channel partners with the knowledge and resources to identify and complete energy savings projects while also driving participation in existing Save on Energy incentive programs.

Table 4 shows more program details and was partially reproduced from an IESO presentation titled *Save on Energy 2021 Capability-Building Results* (January 20, 2022).

Table 4: CRE and BPS Details

| Project   | Tier         | Sector       | Target Audience            | Supported Program   | Attendees (BPS) / Registrants (CRE) |
|---|--------------|--------------|----------------------------|---------------------|-------------------------------------|
| Addressing Participation Challenges in the Mid-Tier Commercial Real Estate Sector (CRE) | Foundational | Mid-Tier CRE | Channel/ Building Managers | Retrofit/ EBCx/ EPP | 215                                 |
| 2021 Energy Performance Series (BPS) <sup>1</sup>                                       | Specialized  | Mid-Tier CRE | Building Managers          | Retrofit            | 57                                  |

1.1.1.1 CRE Overview

CRE delivered two webinars in 2021. All webinars were offered at no cost, held in a virtual format, and led by featured subject matter experts. The CRE webinars were largely based on a 2020 report titled *Energy Management in the Ontario Mid-Tier Commercial Real Estate Sector: Market Characterization and Engagement Strategy*, prepared for the IESO by the Canadian Institute of Energy Training (CIET).<sup>2</sup> Key questions addressed in that study include:

- ▶ How is energy metered and paid for in the mid-tier CRE sector?
- ▶ What energy efficiency measures are most implemented in mid-tier buildings?
- ▶ What are the key drivers of energy efficiency investment in mid-tier commercial real estate?
- ▶ What are the most common barriers to the adoption of energy efficiency improvements?

While the report and these webinars are intricately linked, the CRE component of this evaluation is solely for the two CRE webinars. Engagement with the report itself is not tracked to a degree that enables evaluation.

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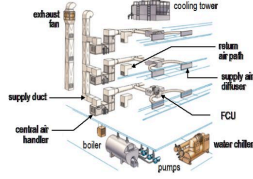
<sup>1</sup> IESO documents commonly refer to this project as the *Energy Performance Series*, while BOMA Toronto, the webinar administrator, calls it the *Building Performance Series*. For this report “BPS” is the common abbreviation.

<sup>2</sup> <https://www.ieso.ca/-/media/Files/SaveOnEnergy/Industry/Mid-Tier-CRE-Energy-Study.ashx>

Figure 1: CRE Webinar Slide Example

**Conducting an EE Walk-through in a Mid-Tier Building**

- Engage with customer
- Set an objective – such as finding low-cost savings opportunities
- Agree on scope – building, systems
- Collect AND analyze some data before
- Set a time and conduct the walk-through
- Leave a list of ideas
- Follow-up with some savings (costs) numbers



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### 1.1.1.2 BPS Overview

The BPS series consisted of six webinars that focused on HVAC maintenance and operations, savings opportunities beyond lighting, performance benchmarking, existing building commissioning, building envelope issues, and energy management plans. These webinars were delivered in partnership with BOMA Toronto.

Figure 2: BPS Webinar Synopsis Example

**HVAC Maintenance & Operations - Advancing Better Indoor Air Quality (IAQ)**

**Building Performance Series - Workshop #1**

**Thursday, March 25 | 9:00am - 11:30am**

Do you know what needs to be done to mitigate potential risks of spreading COVID-19 through your buildings' heating, ventilation and air conditioning system? The primary purpose of HVAC system is to ensure occupant comfort and health. While everyone acknowledges the importance of good air quality inside buildings, in recent years discussions have mostly been about system efficiency, controls, and operations, and not enough about the intended purpose of HVAC. COVID has helped refocus our attention back to IAQ. Better IAQ has been linked to reduced absenteeism, reduced tenant complaints, increased productivity as well as the overall improved health and wellness of occupants. Following proper maintenance and operational best practices are key to achieving these benefits. This workshop is designed to offer a summary and overview of industry recognized guidelines for maintenance and operation of HVAC systems to achieve better IAQ and energy efficiency.

### 1.1.2 WEBINAR PARTICIPANT OVERVIEW

Table 5 shows key dates and participant counts of the CRE and BPS projects. For CRE, the participant count is all *registrants* for the webinars (attendee data was not fully tracked at the time of the webinars), while for BPS, the participant count is confirmed webinar *attendees*. For one BPS webinar, Building Envelope: Common Issues and How to Fix Them, only participant count was available (names and contact data were omitted), but two survey respondents indicated that they attended this webinar along with one or more of the others. Attendees who attended more than one webinar are counted only once, and employees of IESO who attended are not counted. More detail on the survey respondents is included throughout this report and in Appendix 1: Survey Results.

Table 5: CRE and BPS 2021 Webinar Overview

| Webinar  | Date     | Attendees (BPS) / Registrants (CRE) |
|--|----------|-------------------------------------|
| <b>BPS</b>   |          |                                     |
| HVAC Maintenance & Operations: Advancing Better Indoor Air   | 25/3/21  | 16                                  |
| Beyond Lighting- Discovering Hidden Opportunities  | 27/4/21  | 12                                  |
| Introduction to Performance Benchmarking   | 10/6/21  | 2                                   |
| Existing Building Commissioning (EBCx)   | 8/7/21   | 9                                   |
| Building Envelope: Common Issues and How to Fix Them <sup>3</sup>                                    | 6/10/21  | 8                                   |
| Energy Management Plan (EMP): Your Roadmap to Big Savings  | 18/11/21 | 10                                  |
| Total BPS  |          | <b>57*</b>                          |
| <b>CRE</b>   |          |                                     |
| Save on Energy Partner Session: Accelerating Energy Efficiency in Mid-Tier Commercial Real Estate    | 28/07/21 | 47                                  |
| Save on Energy Panel Discussion: Driving Operational Energy Savings in Mid-Tier Commercial Buildings | 19/11/21 | 168                                 |
| Total CRE  |          | <b>215</b>                          |
| Grand Total  |          | <b>272</b>                          |

- ▶ The 264 unique, identifiable participants (CRE registrants + BPS attendees, excluding 8 anonymous BPS attendees) across the 8 webinars during 2021 represent 141 different companies.
- ▶ Forty-nine people who attended BPS webinars work for 34 different companies, and the 215 CRE registrants work for 125 different companies.

<sup>3</sup> The 8 attendees of BPS Webinar #5 are included in the total here; however, they did not receive survey invites because no contact information was available.

- ▶ EcoMetric identified a total of 96 Retrofit project applications from 22 organizations that had an employee attend either the CRE or BPS webinars.
- ▶ Lighting projects were by far the most popular project type in the Retrofit program for webinar attendees, accounting for 87 of the 96 projects (91%).

## 1.2 EVALUATION OBJECTIVES

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## 2.1 PHASE 1 EVALUATION

Phase 1 of the evaluation, leading to this report, was conducted from March through June 2022. EcoMetric conducted the evaluation via web surveys administered to registrants (CRE) and attendees (BPS) of the webinars held during 2021, a review of program materials and resources, and interviews with IESO and partner staff.

### 2.1.1 IMPACT EVALUATION

EcoMetric used online surveys to gather information about energy efficiency projects completed after participation in the CRE and BPS webinars. Table 6 shows participant counts, survey counts, and response rates.

*Table 6: Web Survey Overview*

|                     | CRE | BPS | Total |
|---------------------|-----|-----|-------|
| Participants        | 215 | 49  | 264   |
| Survey Invites Sent | 215 | 49  | 264   |
| Completions         | 26  | 5   | 31    |
| Completion Rate     | 12% | 10% | 12%   |

The overall completion rate of 12% slightly exceeded expectations (about 10%) for a web survey with a small incentive. Participants who completed the survey were entered into a draw to win one of two gift cards awarded by EcoMetric. Completion rates are slightly higher than shown here due to undelivered invites from email bounce-backs.

#### 2.1.1.1 Estimating Impacts

CRE and BPS impacts are bundled due to the overall similarity of the projects and evaluation process and to avoid assuming false precision with a small sample size of 31 respondents with only two completed energy efficiency projects reported.

Energy savings impacts were estimated by extrapolating impacts from the survey responses over the population of CRE and BPS participants. Responses indicated that two projects completed in 2021 were influenced by the webinars: an LED lighting retrofit and a comprehensive building-wide retrocommissioning

(RCx) project. Impact estimates assume that for every 31 webinar attendees, about two typical commercial building projects that are directly influenced by the webinars are completed in the following 12 months. Impact estimates assume that the 31 survey respondents are representative of the larger group of webinar participants, and the typical project produces savings equal to the average large commercial building retrofit application submitted during 2021 (of which about 99% of applications and 85% of application savings are lighting, followed by VFD and Unitary AC projects).

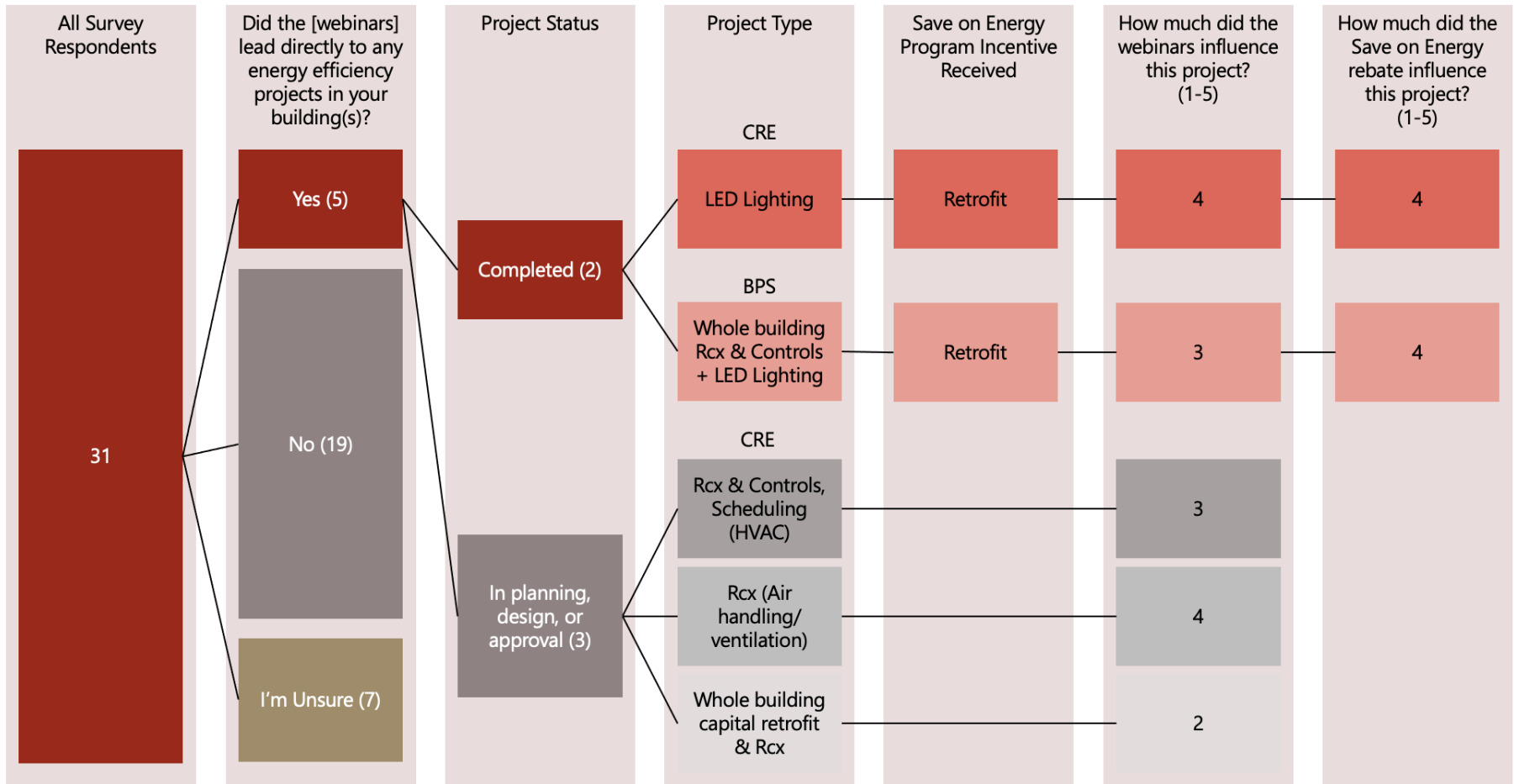
The results of these estimations are provided in more detail in [Appendix 1](#).

#### 2.1.1.2 Participating Projects

This section provides an overview of the projects identified in the surveys and how they were used to develop program savings estimates.

Figure 3 shows a summary of the projects directly influenced by the webinars, as indicated in response to the question ***“Did the [webinars] lead directly to any energy efficiency projects in your building(s)?”***

Figure 3: Summary of Projects Influenced by Webinars



### 2.1.1.3 Projects Influenced by the CRE and BPS Webinars

As shown in Figure 4, five respondents across both CRE and BPS surveys answered “Yes” to the question “Did the [webinars] lead directly to any energy efficiency projects in your buildings.” Two of these five projects were reported as “Completed,” one in each respondent group, CRE and BPS. The two “completed” projects are:

- ▶ A comprehensive recommissioning and controls project spanning HVAC, Lighting, CO<sub>2</sub> detection, and plug load behaviours (BPS); and
- ▶ A lighting retrofit project with Optimization, Controls, and Demand Response components (CRE).

The remaining projects were reported as “In planning, design, or approval stages.” Projects in this stage include an RCx, controls, and HVAC scheduling project, an air handling/ventilation RCx project, and a whole building capital retrofit and RCx project.

Both respondents who reported completed projects participated in more than one webinar. The CRE respondent attended both CRE webinars. The BPS respondent attended four of the six BPS webinars.

Projects influenced by the CRE and BPS webinars are generally reflective of the overall incented project mix, which is about 86% lighting (lighting accounts for 86% of Retrofit program application savings tied the companies who were represented by one or more webinar attendee).

Both projects identified as completed and influenced by these webinars contained lighting components, and one was entirely an LED lighting retrofit.

Figure 5 shows that of 126 companies with one or more attendee of a 2021 BPS or CRE webinar, 22 of those companies (about 20%) are also linked to a PY2021 Retrofit Program application. While only a snapshot from a single year, this suggests that considerable opportunity remains to drive webinar participants toward Retrofit Program participation.

Figure 4: Companies in the Retrofit Application Database and with One or More Webinar Attendees

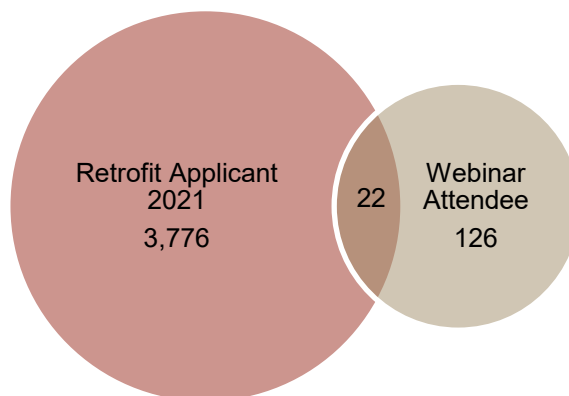
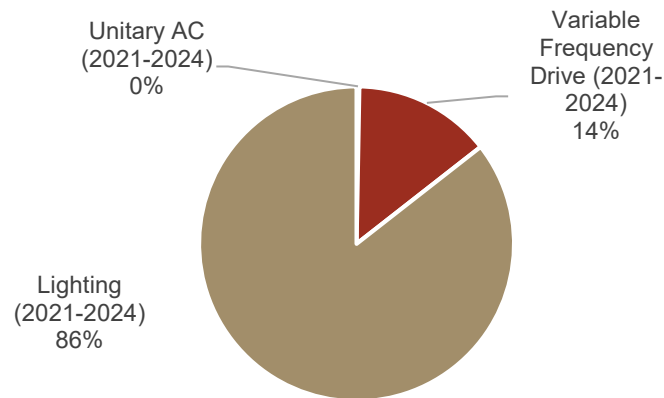




Figure 5: Reported Energy Savings by End Use, Companies in the Retrofit Application Database and With One or More Webinar Attendees



### 2.1.2 IMPACT FINDINGS AND RECOMMENDATIONS

**Finding 1:** Evaluability of the initiatives could be improved. Currently, it is very difficult to link webinar participants to projects and energy savings.

EcoMetric has a few recommendations for straightforward refinements to data tracking that will support future evaluation and analysis:

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Recommendation 1a: Add a checkbox or similar on the Retrofit program application asking: “Did you participate in any of these capability-building initiatives?”

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This will create a direct connection between a webinar participant and a building EE project. While attribution remains a challenge, in any case, assuming that nearly all influenced projects are routed through the Retrofit program, this will help identify Retrofit projects where CBI influence is possible.

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Recommendation 1b: Track attendance at the webinars along with registration. At the time of the 2021 webinars, the CRE attendance wasn’t fully tracked.

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Adding attendee tracking to the CRE webinar process will enable program and evaluation teams to have a list of attendees in addition to registrants.

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Recommendation 1c: Include additional identifying fields to program tracking databases that correspond with building owners, operators, and channel partners.

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This will further improve the connection between initiative participants and project records.

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Recommendation 1d: Evaluation contractor should continue to follow up surveys with participants at least one year after webinars are completed. Surveys should ask participants about what projects were completed following the webinar, the influence of the webinars on the development and completion of the project, and if the project received a Save on Energy incentive. To support the surveys, the initiative material and resources should notify the participants that follow up surveys are planned, and their participation is critical to support the initiatives.

Further, consider developing a participant survey to be completed before initiative participation that asks about energy efficiency behaviours, plans, and expectations for the initiatives. These surveys would serve as a baseline to be compared to results from evaluation surveys that are completed at least one year after the webinars are completed.

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Primary data collection through direct surveys is the most efficient way to identify energy efficiency projects that have been completed by CBI participants outside of Save on Energy programs. Similar initiatives and training and support courses can be grouped together for a stratified sampling of participants and estimation of savings impacts.

### 2.1.3 VALUE FOR MONEY

For the value for money assessment, EcoMetric leveraged the estimated energy savings from both scenarios described in Section A.1 to calculate a ratio comparing the lifetime avoided costs of energy and demand savings in each scenario to the total spending for the CRE and BPS initiatives. This is similar to the approach used to assess the value for money of a similar IESO initiative, the Grid Innovation Fund.<sup>4</sup> The IESO evaluation team provided EcoMetric with the PY2021 spending values for both initiatives.

*Avoided Costs/Initiative Funding =*

$$\frac{\text{Avoided Cost}_{\text{Estimated kWh Savings}} + \text{Avoided Cost}_{\text{Estimated kW Savings}} + \text{Non - Energy Benefits}}{\text{CRE and BPS Initiative Funding}}$$

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<sup>4</sup> <https://www.ieso.ca/-/media/Files/IESO/Document-Library/funding/Grid-Innovation-Fund/IESO-GIF-Projects-Evaluation-Report.ashx>

To calculate avoided costs of kWh and kW savings and Non-Energy Benefits (NEBs), EcoMetric used the IESO's CDM Cost-Effectiveness Tool updated for the 2021-2024 CDM framework. EcoMetric used the estimated savings from both scenarios as inputs into the tool, which leverages the IESO's most recent avoided costs, discount factor, and NEBs to calculate the total benefits from energy savings. Avoided costs are based on lifetime savings.

EcoMetric calculated first-year savings in both scenarios. As such, EcoMetric developed an Effective Useful Life (EUL) for the initiatives to calculate avoided costs over the lifetime of the estimated CRE and BPS projects. The CRE and BPS surveys asked participants if their participation in the webinar(s) led directly to any energy efficiency projects. EcoMetric developed a weighted average EUL based on their responses. Each project type was assigned an EUL based on the IESO's Measures and Assumption List (MAL) or another technical reference manual (TRM) when the project type was not included in the MAL.<sup>5</sup> The measure types were optimization/retrocommissioning, controls/BAS, scheduling, capital retrofit, and demand response. For capital retrofit projects, EcoMetric developed a weighted average EUL based on the project types and savings from the 2021 Retrofit application database. The projects in the Retrofit database represent capital projects very similar to what mid-tier CRE buildings would implement such as lighting, HVAC, and variable frequency drives (VFDs). The resulting weighted average EUL for the CRE and BPS estimated savings was 8 years.

#### 2.1.4 PROCESS EVALUATION

For the PY2021 CBI evaluation, EcoMetric conducted an annual process evaluation of the Capability Building Initiatives to determine the effectiveness of the Initiatives compared to the IESO's objectives and expected outcomes.

The goals of the process evaluation were to:

- ▶ Determine the effectiveness of delivery channels and marketing strategies
- ▶ Assess the appropriateness and effectiveness of funding levels for each Initiative
- ▶ Determine participant motivations for project implementation
- ▶ Determine the effectiveness of the Initiatives in driving participation and savings in Save on Energy programs
- ▶ Assess the level of success in the administration and delivery of the Initiative's activities and resources
- ▶ Identify gaps in skills and knowledge in the market and determine how Initiatives can be improved to fill those gaps

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<sup>5</sup> EcoMetric used the 2021 Illinois and Pennsylvania TRMs.

- ▶ Identify actionable areas for improvement and new offerings to meet the changing demands of the market
- ▶ Identify actionable areas for improvement to the CBIs that make resulting projects and energy efficiency impacts more evaluable

To meet these goals, EcoMetric conducted a thorough review of the materials associated with the two completed CBIs in the impact evaluation. These materials included marketing and outreach materials, reports, training, workshop syllabuses, slide decks, videos, and all other training and educational resources available to participants.

To understand the IESO's objectives and expected outcomes, EcoMetric interviewed the lead of the CBI team at the IESO. EcoMetric also interviewed the partnering sponsors of the initiatives, including BOMA Toronto and CIET. These interviews focused on the specific design elements and goals of the Initiatives. EcoMetric used this information as a baseline when assessing the Initiatives' effectiveness in achieving their goals.

EcoMetric also included process evaluation questions in the web survey to better understand the participants' experience with the initiatives.

## 2.2 PHASE 2 FUTURE EVALUATION (PY2022)

Phase 2 represents the second full year of evaluation of the IESO's CBIs in PY2022 and will kick off in November 2022. EcoMetric will conduct a holistic assessment of the impacts of the Capability Building Initiatives, measuring their impacts on the targeted sectors in Ontario. The focus of the evaluation will be on the degree to which the initiatives are enabling participation in the IESO's programs active in the 2021-2024 CDM framework. EcoMetric will expand the web-based survey to target all CBI participants in PY2022 to gather primary data on the influence of initiatives on energy efficiency decisions and participation in IESO conservation programs. Process evaluation questions will be developed following discussions with initiative design and delivery teams.

This section details the results from the process evaluation of CBI in PY2021.

### 3.1 RESOURCE REVIEW

The CRE report and webinars were created and delivered in partnership with these organizations:

- ▶ Canadian Institute of Energy Training (CIET)/Econoler
- ▶ KnowEnergy
- ▶ Building Owners and Managers Association (BOMA) Toronto
- ▶ The Power Factory

As part of the CRE initiative, the IESO published the *Energy Management in the Ontario Mid-Tier Commercial Real Estate Sector* backgrounder on the Save on Energy website.<sup>6</sup> This short form report summarizes the findings from the Mid-Tier CRE Energy Study<sup>7</sup> and highlights the energy efficiency opportunities for Ontario's mid-tier CRE sector. It also includes links to the mid-tier CRE webinar recording and program landing pages for the Save on Energy Retrofit and Energy Performance Programs.

The Mid-Tier CRE Backgrounder provides high-level and actionable takeaways from the Mid-Tier CRE Study that readers in the sector can leverage to begin developing impactful energy efficiency measures.

**Finding 2:** As the Study and Backgrounder highlight, financing is the sector's main challenge with undertaking energy efficiency retrofit projects. The Backgrounder provides links to Save on Energy programs that provide incentives.

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Recommendation 2: Add content to the Backgrounder that specifically addresses the incentives available from these programs and how they can help overcome the financing challenge.

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EcoMetric also reviewed the webinar materials for the two CRE sessions that were the focus of the evaluation surveys:

- ▶ Save on Energy Partner Session: Accelerating Energy Efficiency in Mid-Tier Commercial Real Estate.
- ▶ Save on Energy Panel Discussion: Driving Operational Energy Savings in Mid-Tier Commercial Buildings.

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<sup>6</sup> <https://www.saveonenergy.ca/-/media/Files/SaveOnEnergy/Industry/IESO-Mid-Tier-Backgrounder.ashx>

<sup>7</sup> <https://saveonenergy.ca/-/media/Files/SaveOnEnergy/Industry/Mid-Tier-CRE-Energy-Study.ashx>

The Accelerating Energy Efficiency webinar was developed for Save on Energy channel partners that help develop projects that reduce energy consumption, promote the Save on Energy programs, and assist customers with the development of incentive applications. Completed virtually in July 2021, the webinar included content on IESO Save on Energy Program updates, key findings from the Mid-Tier CRE Study, program support for the mid-tier sector, how-to on mid-tier energy efficiency walkthrough audits, and an open Q&A session.

The Driving Operational Energy Savings webinar was developed for owners and managers of mid-tier commercial buildings, traditionally seen as IESO customers and program participants. The webinar, also conducted virtually, took place in November 2021. It included information on IESO Save on Energy Program offerings, key findings from the Mid-Tier CRE Study, a panel discussion on operational energy savings, IESO resources for mid-tier commercial buildings, and an open Q&A session.

The BPS series consisted of six webinars that focused on HVAC maintenance and operations, savings opportunities beyond lighting, performance benchmarking, existing building commissioning, building envelope issues, and energy management plans. The webinars were held virtually from March to November 2021.

The CRE and BPS webinars contained a wealth of information on opportunities to achieve energy savings in the mid-tier CRE sector and the IESO incentive programs, resources, and support to implement energy efficiency projects.

The use of case studies in both webinars provided real-world examples of energy savings projects that channel partners and owners/operators can use to identify their own opportunities to create savings. For both webinars, the depth and breadth of content should be sufficient to enable savings from the mid-tier CRE sector in Save on Energy programs.

**Finding 3:** The resources associated with BPS and CRE initiatives do not provide sufficient resources or education focused on decarbonization.

In 2018, the government of Ontario released the *Made-in-Ontario Environment Plan* that commits to reduce the province's emissions to 30% below 2005 levels by 2030.<sup>8</sup> Over half of Toronto's GHG emissions come from existing buildings, including from electricity and natural gas consumption.<sup>9</sup>

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Recommendation 3: Add decarbonization opportunities and strategies to CRE and BPS resources and webinars. Highlight the connection between electric efficiency and peak demand reduction to decarbonization through avoided greenhouse gas

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<sup>8</sup> <https://www.ontario.ca/page/climate-change>

<sup>9</sup> <https://www.toronto.ca/wp-content/uploads/2021/10/907c-Net-Zero-Existing-Buildings-Strategy-2021.pdf>

emissions. Also highlight how existing Save on Energy programs can be leveraged to meet decarbonization goals in the mid-tier CRE sector.

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**Finding 4:** The resources associated with BPS and CRE initiatives should increase its focus on demand reduction to align with the goals of the 2021-2024 CDM Framework.

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Recommendation 4: Add peak demand reduction strategies to CRE and BPS resources and webinars. Include low cost, no cost measures such as dynamic HVAC optimization and scheduling that are a good fit for the mid-tier CRE sector. Consider developing a peak demand-focused initiative that serves the entire commercial sector.

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### 3.2 PROGRESS TOWARDS REDUCING ENERGY EFFICIENCY BARRIERS

The IESO's Save on Energy Capability Building Strategy for the CDM 2021-2024 Framework states the purpose of the Initiatives are to help increase electricity savings from key end uses, sectors, and channels. Key Save on Energy program areas that were focused on in 2021 were Retrofit, Energy Performance Program (EPP), Small Business, and local programs. As 2021 was a transitional year from the Interim Framework to the CDM 2021-2024 Framework, presenting what is new and different in the framework and how key sectors and channels can participate was a key goal.

The mid-tier commercial real estate sector was identified as a key sector to focus capability-building initiatives on with potential for energy savings. The IESO's 2016 Achievable Potential Study estimated that small and large office buildings represent 25% of the achievable electric savings potential in Ontario's entire commercial sector.<sup>10</sup> Both the CRE and BPS initiatives focused on this key sector. The Mid-Tier CRE Energy Study identified the sector's key barriers to the adoption of energy efficiency improvements. These included financial constraints, resource constraints, and information constraints.

EcoMetric measured progress towards the following CBI goals and strategies specific to the CRE and BPS initiatives:

- ▶ Increase Electricity Savings in the Mid-Tier CRE Sector
- ▶ Reduce the financial barrier to energy efficiency projects
- ▶ Reduce the resource and information barriers to energy efficiency projects

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<sup>10</sup> Mid-Tier CRE Energy Study and IESO 2016 Achievable Potential Study: <https://www.ieso.ca/-/media/Files/IESO/Document-Library/conservation/APS/APS-Short-Term-Analysis-2016-v2.ashx>

Measuring progress towards these goals requires time to track participant actions, determine attribution, and analyze larger market progress indicators. However, EcoMetric leveraged program data and survey results to determine early progress towards meeting these goals. Progress towards meeting initiative goals was measured on a scale ranging from “no progress” to “market-level progress”. EcoMetric measured progress towards goals based on survey results and initiative data, comparing results to the counterfactual scenario of the initiatives not existing in the marketplace. EcoMetric defines “initial progress” as early steps to meeting initiative goals amongst a portion of participants. “Substantial progress” represents measured and observed progress towards initiative goals amongst the population of participants. Finally, EcoMetric defines “market-level progress” as measured and observed progress towards goals beyond program participants, where impacts are seen across the targeted sectors of Ontario.

Further measurement of progress when the initiatives have matured and participants have had more time to implement projects will be necessary to determine the full scale of progress towards the goals across the sector. Recommendations 1a – 1d, focused on improving the evaluability of the CBIs, should help provide more data and insights to measure progress towards goals amongst participants and the market at large.

Table 7: PY2021 CRE and BPS Initiative Progress Towards Goals

| CBI Goal  | Progress Indicators  | Progress Towards Goal |
|---|--|-----------------------|
| Increase Electricity Savings in Mid-Tier CRE Sector     | Estimated Savings from CBI projects, Retrofit Program savings from CBI Participants                      |                       |
| Reduce Financial Barrier to EE Projects                 | Estimated effect from initiative material on program rebate opportunities and low cost, no cost measures |                       |
| Reduce Resource and Information Barriers to EE Projects | Perceived quality, coverage, and estimated effect of information provided in the initiative materials    |                       |

Progress Key

- No Progress
- Initial Progress
- Substantial Progress
- Market-level Progress

3.2.1 INCREASE ELECTRICITY SAVINGS IN MID-TIER CRE SECTOR

The main goal of the CRE and BPS initiatives is to help increase electricity savings in the mid-tier CRE sector. The resources and training provided by the initiatives are aimed at educating and empowering actors in the sector to implement energy efficiency projects. These savings can occur in existing Save on Energy programs or outside existing programs.



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*I think about the Capability Building Initiatives as an **enabling strategy** focused on what [Save on Energy] programs can do outside of incentive budgets. – CBI Partner*

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Progress towards this enabling goal can be measured by the number of applications and savings achieved by CRE and BPS participating organizations in Save on Energy programs. As PY2021 was a transitional year, EcoMetric focused on the IESO portfolio's largest program, Business Retrofit. The Energy Performance and Energy Manager programs require longer application and project implementation periods, so EcoMetric will examine CBI impacts on these programs in PY2022. EcoMetric reviewed the PY2021 applications for the Business Retrofit program to determine the number and type of projects organizations that had participated in BPS or CRE webinars in 2021 had submitted applications for Retrofit Program incentives. Table 8 summarizes the results.

*Table 8: PY2021 Business Retrofit Applications from CRE and BPS Participating Organizations*

|                                     | CRE     | BPS       | Total <sup>11</sup> |
|-------------------------------------|---------|-----------|---------------------|
| Number of Organizations             | 12      | 8         | 17                  |
| Retrofit Project Applications       | 78      | 30        | 96                  |
| <i>Lighting Projects</i>            | 70      | 22        | 87                  |
| <i>VFD</i>                          | 6       | 6         | 6                   |
| <i>HVAC</i>                         | 1       | 2         | 2                   |
| <i>Compressed Air</i>               | 1       | -         | 1                   |
| Reported Gross Energy Savings (kWh) | 383,154 | 1,022,818 | 1,140,509           |
| Reported Peak Demand Savings (kW)   | 164     | 52        | 176                 |

Without statistically representative results from net-to-gross surveys, it is difficult to determine what share of the 1,140 MWh of reported gross energy savings are attributable to the information and resources provided by the Initiatives. Moreover, these applications represent projects from 2021, which does not leave much time for project planning and implementation between the webinar attendance and program

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<sup>11</sup> Several organizations attended both CRE and BPS. Their number of projects and savings are not double counted in the totals of Table 10. These values represent the totals from organizations that attended either initiative's webinars.

application. However, this data does confirm that CRE and BPS participants are active in the Retrofit program.

In the initiative participant surveys, 70% of CRE respondents and 60% of BPS respondents said they were aware of Save on Energy program incentive opportunities before attending the webinars.

EcoMetric also asked participants if the webinar(s) they attended led directly to their participation in Save on Energy Programs. Table 9 summarizes their responses. Out of the 31 participants, 12 said their participation in the webinar(s) led directly to their participation in Save on Energy programs. Retrofit was the leading program, followed by EPP and Energy Manager. Note that only two energy efficiency projects were reported as completed by these respondents (one for each CRE and BPS), and both of those projects also received incentives from the Retrofit program. Other responses to this question are from participants who have a project in the planning/design/approval stage (n = 3) or participated in a program despite the webinars not leading directly to any EE projects in their buildings. Ten respondents answered that they had not yet participated in any Save on Energy programs, but they planned to after attending the webinar(s). The two “other” responses were from channel partners that indicated they encourage their clients to participate in Save on Energy programs.

Table 9: Program Participation Directly Influenced by CRE or BPS Webinars

|                                     | CRE | BPS | Total |
|-------------------------------------|-----|-----|-------|
| Respondents                         | 26  | 5   | 31    |
| Count of “Yes”                      |     |     |       |
| Retrofit                            | 6   | 1   | 7     |
| Small Business                      | -   | -   | -     |
| EPP                                 | 1   | 1   | 2     |
| Energy Manager                      | -   | 1   | 1     |
| Yes, but I’m not sure which program | 1   | 1   | 2     |
| Not yet, but we plan to             | 9   | 1   | 10    |
| Other                               | 2   | -   | 2     |

The Retrofit application database and survey results illustrate that the CRE and BPS initiatives are making very initial progress towards the CBI goal of increasing electricity savings in the mid-tier CRE sector.

3.2.2 REDUCE FINANCIAL BARRIER TO ENERGY EFFICIENCY PROJECTS

The Mid-Tier CRE Energy Study determined that financing was the leading barrier for the sector to complete energy efficiency projects based on surveys of mid-tier CRE owners and third-party property managers. Owners and property managers simply do not have the budgets to invest in capital-intensive energy efficiency projects. This financial barrier has been intensified with the effects of the COVID-19 pandemic and the shift of Ontario’s workforce from the office to their own homes. As COVID-19 levels

decline, more Ontarians are heading back to the office, but a high level of uncertainty and risk remains for owners and property managers surrounding the leases and occupancy levels in their buildings.

The CRE and BPS initiatives are designed to encourage energy efficiency projects outside of existing program incentive budgets. As such, these initiatives are unable to directly address the financial barrier to energy efficiency project implementation. However, their design is complementary to the Save on Energy incentive programs, and the CRE and BPS webinars maintain a strong focus on providing resources and information to participants regarding opportunities to obtain incentives through existing programs. The webinars that EcoMetric reviewed even contained opportunities for application and program support directly from the IESO to encourage their participation in the incentive programs. Survey results summarized in Section 3.2.1 show that CRE and BPS attendees are aware of Save on Energy programs, and their participation in the webinars has led directly to their participation in incentive programs.

One of the CRE and BPS’s strategies to address the financial barrier is to shift their focus to low cost/no cost energy efficiency measures.

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*The tougher investment environment for the mid-tier [sector] has pushed us to change gears to non-capital-intensive measures...The current focus is on operations & maintenance projects that are low cost, no cost. These projects rely on building operators’ time. Their time is more available because of the pandemic.*  
 – CBI Partner

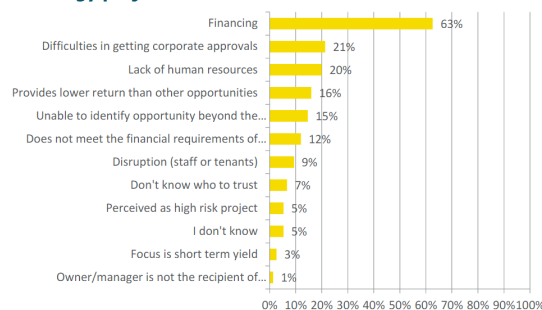
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The webinars that EcoMetric reviewed included information that shows how operational and maintenance (O&M) measures can achieve savings at a low cost, overcoming the financial barrier. The CRE webinar targeting channel partners also highlighted how building walk-throughs can be leveraged to identify low cost and no cost measures that building operators are more likely to implement considering the sector’s financial constraints.

Figure 6: Mid-Tier CRE Webinar - O&M Example

### Top 5: Operational Opportunity

**What are the biggest challenges implementing energy projects?**



Operational improvements overcome the financing barrier

- No capital investment
- No corporate approvals
- Low risk

The CRE and BPS initiatives are making initial progress towards addressing the financial barrier for mid-tier CRE energy efficiency projects by connecting participants with Save on Energy incentive programs and focusing resources and training on low cost, no cost project opportunities.

**Finding 5:** The CRE and BPS initiatives have very little focus on the return on investment (ROI) of energy efficiency measures. The Mid-Tier CRE Energy Study showed that corporate approval for financing is a major hurdle for projects to move beyond the initial planning phases.

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Recommendation 5: Include training on how to calculate ROI and how to measure economic benefits beyond lower electricity bills. Use case studies to highlight projects that have a quick payback. Provide guidance on how to present energy efficiency projects and their ROIs to clients and the c-suite for approval.

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### 3.2.3 REDUCE RESOURCE AND INFORMATION BARRIERS TO ENERGY EFFICIENCY PROJECTS

One of the main barriers to mid-tier CRE organizations completing energy efficiency projects is a lack of resources and expertise to identify, develop, and manage the projects.<sup>12</sup> The Mid-Tier CRE Energy Study found that property managers were often overwhelmed with their workloads and lacked the ability and time to develop and implement energy management strategies.

The CRE and BPS initiatives were designed to provide knowledge and resources that empower property owners and managers to make energy efficiency an achievable goal. EcoMetric's review of the webinars and associated resources summarized in Section 3.1 determined that their content had sufficient quality and depth to enable savings in the mid-tier CRE sector. The webinars contain high-level information on the importance and opportunities of energy efficiency projects, as well as detailed information on the project types that are a fit for the sector. EcoMetric found that case studies highlighted in the webinars and resources provided an important example of successes in achieving energy savings that participants can bring back to their own buildings for consideration.

Both CRE and BPS initiatives had information on how to leverage data and information on building performance, including benchmarking and meter data analysis. Having the capability to analyze data to make energy management plans and investment decisions is a critical skill that can be lacking in the mid-tier CRE sector. As more energy efficiency programs move towards whole-building analysis and pay for performance models, having this technical expertise becomes increasingly important for the sector.

The CRE Accelerating Energy Efficiency in Mid-Tier Commercial Real Estate webinar was aimed at channel partners who can provide owners and operators with much-needed resources and expertise to

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<sup>12</sup> <https://saveonenergy.ca/-/media/Files/SaveOnEnergy/Industry/Mid-Tier-CRE-Energy-Study.ashx>

identify and implement energy efficiency projects. This webinar included a detailed how-to on conducting a building walkthrough that tackles this barrier—identifying energy efficiency opportunities and developing a change or investment to capitalize on that opportunity and achieve energy savings. EcoMetric agrees with this strategy as walkthroughs and audits are excellent ways to identify low cost and not cost energy efficiency projects, as well as connect building owners and operators with Save on Energy incentives to reduce the financial burden of capital-intensive projects.

The CRE and BPS initiatives are making initial progress towards addressing the resource and information barriers for mid-tier CRE energy efficiency projects by providing quality and pertinent information in the webinars.

### 3.3 MARKETING AND OUTREACH

The primary method of marketing and outreach for the CRE and BPS webinars was direct outreach to an existing network of mid-tier CRE owners and operators and channel partners. The IESO also leaned on partner organizations, such as BOMA Toronto, for their network of contacts in the sector. Interviews with program staff at the IESO and partnering organizations revealed that participation in the mid-tier webinars has seen successful growth over the past year and that growth is expected to continue throughout 2022.

The method of direct outreach to existing networks of market actors in the sector has been successful in the BPS and CRE webinars. Direct outreach via email and delivery of the actual webinars virtually were successful during the COVID-19 pandemic, where stay-at-home and social distance orders limited options for direct outreach and in-person participation.

Finding 6: The IESO’s Annual Acquisition Report from April 2022<sup>13</sup> describes rapid growth in electricity demand in the west of London area due to expansion of agricultural greenhouses, resulting in a forecasted capacity gap in the near future. Economic growth in Ottawa is also expected to create a capacity gap. Both of these areas have healthy and growing commercial sectors which can be targeted by CBI initiatives.

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Recommendation 6a: Target CBI marketing and outreach to the commercial sectors in the west of London and Ottawa to help address future capacity gaps. CRE and BPS outreach should go beyond the Greater Toronto Area.

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<sup>13</sup> <https://www.ieso.ca/-/media/Files/IESO/Document-Library/planning-forecasts/aar/Annual-Acquisition-Report-2022.ashx>

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Recommendation 6b: For the west of London area where future capacity gap is driven by agricultural greenhouse expansion, consider expanding the Cannabis Study Backgrounder<sup>14</sup> into a Tier 2 webinar series focused on efficient lighting and HVAC systems and peak demand reduction strategies.

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### 3.4 COVID-19 IMPACTS AND SOLUTIONS

The COVID-19 pandemic has had some obvious and significant impacts on businesses, especially the mid-tier CRE sector. Following province-wide stay-at-home orders, many businesses continue to have their employees work from home full-time or on a part-time schedule. Owners and operators of mid-tier office buildings are facing high uncertainty in terms of renewing leases and occupancy levels, which increases the risks of investments in energy efficiency.

*“How did COVID-19 impact energy-related decisions at your building during 2021?”*

A full 62% of respondents (17/27) mentioned the words “delayed,” “deferred,” “paused,” or “canceled” in their responses about the impact of COVID-19 on their energy efficiency projects.

**Finding 7:** Mid-tier commercial building owners/operators continued to focus on COVID-19 adaptations through 2021, sometimes at the expense of energy efficiency projects.

Several other themes also emerged from customer responses about COVID-19:

Shifted focus to ventilation

- ▶ “[COVID] delayed most plans. It motivated ventilation reviews.”
- ▶ “Higher fresh air intake rates have increased our energy use.”
- ▶ “Delayed- we are instead improving fresh air circulation.”

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Recommendation 7: Leverage the increased focus on ventilation due to COVID-19 by enabling ventilation-specific and whole-building efficiency opportunities at the same time as projects are taking place to improve fresh air intake.

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IESO can minimize energy increases associated with COVID-19 adaptations by:

- ▶ Ensuring that customers are maximizing ventilation controls, building optimization systems, VFDs, etc.; and

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<sup>14</sup> <https://www.ieso.ca/-/media/Files/SaveOnEnergy/Industry/IESO-Cannabis-Backgrounder.ashx>

- ▶ Leveraging the desire to improve ventilation as an opportunity to improve overall efficiency.

When ventilation equipment is added or a system reconfigured, everything else in the building should be addressed at the same time.

When CRE and BPS participants were asked about the impacts of COVID-19 on energy efficiency at their organizations, their responses resulted in the following themes:

#### Funding delays

- ▶ “All capital funding was deferred.”
- ▶ “There were small delays that impacted funding. This lasted until people adjusted to the new normal.”
- ▶ “Not much impact, may have delayed a couple incentives.”

#### Silver Linings

- ▶ “Allowed us to complete projects without interruptions to public user groups.”
- ▶ “Not many people in the building made it easier to save and implement some options.”
- ▶ “Our lighting setbacks controlled by the BAS saved energy on unoccupied floors.”

#### Delays to energy efficiency projects

- ▶ “[COVID] delayed some [projects], cancelled some, and accelerated others.”
- ▶ “Paused projects.”
- ▶ “Delayed by owners.”
- ▶ “Definitely delayed or canceled”
- ▶ “Very delayed decision making.”
- ▶ “Delayed building operators from approving capital expenditure projects.”
- ▶ “Projects continued but parts were hard to come by.”
- ▶ “Delayed but partially because of supply issues.”

This section details the results from the value for money assessment of CBI in PY2021.

#### 4.1 INITIATIVE SPENDING COMPARED TO ESTIMATED BENEFITS FROM ENERGY SAVINGS

Table 10 shows the CRE workshop spending from report development and custom training, and BPS spending through BOMA Toronto for custom training. Some of this spending may have taken place before 2021. Combined 2021 spending on the CRE and BPS projects was \$61,057.

Table 10: Initiative Spending

| Resource            | Spending |
|---------------------|----------|
| CIET Summary Report | \$5,000  |
| BPS Webinars        | \$14,850 |
| CRE Webinars        | \$40,575 |
| Total               | \$61,057 |

**Finding 8:** Other ways of measuring value for money make more sense than traditional measures of cost effectiveness such as Total Resource Cost (TRC) tests.

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Recommendation 8: Consider additional ways of measuring the value of initiative spending. Instead of TRC, look at the ratio of estimated benefits from energy savings to initiative spending. Track the amount of funding per participant at the initiative level and use that metric as a benchmark to compare funding levels to CBI goals and strategies.

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Table 11 includes the spending per participant for the BPS and CRE webinars that can be used as a benchmark to compare funding levels between initiatives.



Table 11: Webinar Spending per Participant

| Resource                   | Spending per Participant |
|----------------------------|--------------------------|
| BPS Webinars               | \$303                    |
| CRE Webinars <sup>15</sup> | \$189                    |

The impacts of capability-building initiatives will be slow, embedded changes in building efficiency practices. Traditional measures of cost effectiveness are hard to apply here.

Due to front-loaded costs and slow-to-manifest benefits, these initiatives don't lend themselves well to a traditional cost-effectiveness ratio in the first years of implementation. In the IESO's case, the initiatives are incurring outsized startup/scaling costs to not only commission sector-specific research, create curriculums, and provide educational workshops, but also to cultivate new channels and relationships. Meanwhile, EE projects at mid-tier commercial buildings can take years to plan and execute. Payback periods are very long.

Table 12 includes a simple comparison of the benefits from the energy savings estimated in Section A.2.1.1 to the initiative spending summarized in Table 10. Using the CRE and BPS savings estimated through the high scenario, the benefits from energy savings outweigh the administrative spending on the initiatives. As mentioned in the methodology Section 2.1.3, benefits are derived from avoided electricity and peak demand and were estimated using the IESO's CE Tool.

The avoided cost / initiative funding ratios should not be directly compared to the TRC, SC, and PAC ratios calculated for other programs. With a lack of information on costs and savings for projects that followed CRE and BPS webinars, EcoMetric employed a simplified value for money approach to understand how the potential benefits of the initiatives compared to their funding levels. One major component of the TRC and SC ratios that is not included in the avoided cost / initiative funding ratio is incremental project costs. EcoMetric concluded that with little information on the scope of the projects used to estimate CRE and BPS savings, estimating incremental project costs would introduce an unacceptable level of uncertainty for traditional cost-effectiveness tests.

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<sup>15</sup> Calculation is based on number of registrants and not attendees. EcoMetric recommends the number of attendees is tracked for all webinars and training courses. (See Recommendation #2).

Table 12: First Year Energy Savings and Spending Comparison

|                              | Low Savings | High Savings |
|------------------------------|-------------|--------------|
| Benefits from Energy Savings | \$2,972     | \$72,180     |
| Benefit / Spending Ratio     | 0.05        | 1.18         |

Based on the comparison of estimated energy benefits to initiative funding, the funding levels for CRE and BPS are appropriate. For the program to scale up in terms of number of events or participants, funding should also scale up at a similar rate.

Table 13 presents the conclusions and recommendations from the PY2021 evaluation findings for the Capability Building Initiatives.

Table 13: PY2021 CBI Evaluation Findings and Recommendations

| Findings and Conclusions |   | Recommendations |  |
|--------------------------|---|-----------------|--|
| 1                        | Evaluability of the initiatives could be improved. Currently, it is very difficult to link webinar participants to projects and energy savings. | 1a              | Add a checkbox or similar on the Retrofit program application asking: "Did you participate in any of these capability-building initiatives?"       |
|                          |   | 1b              | Track attendance at the webinars along with registration. At the time of the 2021 webinars, the CRE attendance wasn't fully tracked.               |
|                          |   | 1c              | Add additional identifying fields to project application/tracking databases that correspond with building owners, operators, and channel partners. |

| Findings and Conclusions |   | Recommendations |  |
|--------------------------|---|-----------------|--|
|                          |   | 1d              | <p>Evaluation contractor should continue follow up surveys with participants at least one year after webinars are completed. Surveys should ask participants about what projects were planned following the webinar, the influence of the webinars on the development of the project, and if the project received a Save on Energy incentive. To support the surveys, the initiative material and resources should notify the participants that follow up surveys are planned and their participation is critical to support the initiatives.</p> <p>Further, consider developing a participant survey to be completed before initiative participation that asks about energy efficiency behaviours, plans and expectations for the initiatives. These surveys would serve as a baseline to be compared to results from evaluation surveys that are completed at least on year after the webinars are completed.</p> |
| 2                        | As the Study and Backgrounder highlight, financing is the sector's main challenge with undertaking energy efficiency retrofit projects. The Backgrounder provides links to Save on Energy programs that provide incentives. | 2               | Add content to the Backgrounder that specifically addresses the incentives available from these programs and how they can help overcome the financing challenge.   |
| 3                        | The resources associated with BPS and CRE initiatives do not provide sufficient resources or education focused on decarbonization.  | 3               | Add decarbonization opportunities and strategies to CRE and BPS resources and webinars. Highlight the connection between electric efficiency and peak demand reduction to decarbonization through avoided greenhouse gas emissions. Also highlight how existing Save on Energy programs can be leveraged to meet decarbonization goals in the mid-tier CRE sector.   |

| Findings and Conclusions |  | Recommendations |   |
|--------------------------|--|-----------------|---|
| 4                        | The resources associated with BPS and CRE initiatives should increase its focus on demand reduction to align with the goals of the 2021-2024 CDM Framework.  | 4               | Add peak demand reduction strategies to CRE and BPS resources and webinars. Include low cost, no cost measures such as dynamic HVAC optimization and scheduling that are a good fit for the mid-tier CRE sector. Consider developing a peak demand-focused initiative that serves the entire commercial sector. |
| 5                        | The CRE and BPS initiatives have very little focus on the return on investment (ROI) of energy efficiency measures. The Mid-Tier CRE Energy Study showed that corporate approval for financing is a major hurdle for projects to move beyond the initial planning phases.  | 5               | Include training on how to calculate ROI and how to measure economic benefits beyond lower electricity bills. Use case studies to highlight projects that have quick payback. Provide guidance on how to present energy efficiency projects and their ROIs to clients and the c-suite for approval.             |
| 6                        | The IESO's Annual Acquisition Report from April 2022 describes rapid growth in electricity demand in the west of London area due to expansion of agricultural greenhouses, resulting in a forecasted capacity gap in the near future. Economic growth in Ottawa is also expected to create a capacity gap. Both of these areas have healthy and growing commercial sectors which can be targeted by CBI initiatives. | 6a              | Target CBI marketing and outreach to the commercial sectors in the west of London and Ottawa to help address future capacity gaps. CRE and BPS outreach should go beyond the Greater Toronto Area.  |
|                          |  | 6b              | For the west of London area where future capacity gap is driven by agricultural greenhouse expansion, consider expanding the Cannabis Study Backgrounder into a Tier 2 webinar series focused on efficient lighting and HVAC systems and peak demand reduction strategies.                                      |
| 7                        | Mid-tier commercial building owners/operators continued to focus on COVID-19 adaptations through 2021, sometimes at the expense of energy efficiency projects.   | 7               | Leverage the increased focus on ventilation due to COVID-19 by enabling ventilation-specific and whole-building efficiency opportunities at the same time as projects are taking place to improve fresh air intake.   |

| Findings and Conclusions |  | Recommendations |  |
|--------------------------|--|-----------------|--|
| 8                        | Other ways of measuring value for money make more sense than traditional measures of cost effectiveness such as TRC. | 8               | Consider additional ways of measuring the value of initiative spending. Instead of TRC look at the ratio of estimated benefits from energy savings to initiative spending. Track the amount of funding per participant at the initiative level and use that metric as a benchmark to compare funding levels to CBI goals and strategies. |

## A.1 Scenario Definitions

Impacts are considered for two scenarios, Low and High. These scenarios are intended to approximate the range of savings generated from the CRE and BPS projects, given varying assumptions about project size, participant counts, and marginal savings contribution rates. Scenario-specific assumptions are included in Table 14.

Table 14: Scenario Assumptions

| Assumption  | Low <sup>16</sup>  | High   |
|---|--|--|
| First year energy savings per project (kWh)   | 11,000<br><i>Size of the average 2021-2024 Retrofit Application applicable to large commercial buildings</i> | 30,000<br><i>Size of the average VFD (electric auxiliary) project in 2021-24 Retrofit applications</i> |
| Percent of CRE registrants who went on to attend a webinar (for extrapolation) <sup>17</sup>  | 30%<br><i>Estimated lower bound</i>  | 80%<br><i>Estimated upper bound</i>  |
| Total projects influenced by these projects and completed by June 2022  | 6<br><i>Corresponds w/ 30% CRE attendance rate</i>   | 12<br><i>Corresponds w/ 80% CRE attendance rate</i>  |
| Marginal contribution rate of webinars to project energy savings (how much of the energy savings can be attributed directly to the webinars)? | 10%<br><i>Estimated lower bound</i>  | 50%<br><i>Estimated upper bound</i>  |

Demand savings were estimated using first-year kWh savings estimates and a blended load shape intended to represent a typical mid-tier building, derived from Large Office load shapes covering major end uses. The Summer Peak kW Ratio of 0.03 percent is based on average coincident peak factors from the IESO 2022 Measures and Assumptions List (MAL) for prescriptive measures in Large Office Buildings. GHG savings were calculated using the estimated savings described above as inputs into the IESO CDM Cost-Effectiveness Tool. The Tool applies GHG emission factors to quantify GHG reductions resulting from estimated electricity savings.

<sup>16</sup> An appropriate lower bound for all impact estimates (kWh, peak kW, and avoided GHGs) of the two CBI projects included in this evaluation could be zero. This possibility assumes that the two complete projects attributed to these webinars would have been completed and produced the same savings even in absence of the webinars.

<sup>17</sup> CRE webinar attendance data was not fully tracked at the time of the PY2021 webinars. Only *registrant* data was available. In order to extrapolate impacts to the participant population, an assumption needs to be made about the proportion of CRE webinar registrants who went on to attend one or more webinars. A higher percentage here leads to higher estimated savings.

The marginal contribution rates of 10% and 50% are high-level estimates used in the absence of deeper attribution research, again intended to bracket low and high scenario impacts. These rates represent the portion of energy savings from a typical project that can be directly attributed to the webinars.

EcoMetric's evaluation judgment is that the nature of these webinars is more likely to contribute to additional marginal savings on a Retrofit project than the origination of the entire project. While some webinar content is targeted at new capital retrofit project origination (e.g., the BPS webinar *Beyond Lighting: Discovering Hidden Opportunities*), most are focused more on the optimization of existing building systems. For instance, in the BPS webinar *Advancing Better Indoor Air*, participants learn about maintenance and operational best practices to improve tenant comfort while mitigating COVID-19 impacts. Other webinar titles include phrases such as *Performance Benchmarking*, *Existing Building Commissioning*, *Energy Management Plan*, and *Building Envelope Common Issues*. The 10% and 50% marginal contribution rate assumptions are reasonable upper and lower bounds.

The average survey respondent with a project either completed or in the planning/design/approval stage when asked, "How much would you say the [webinars] influenced the aforementioned energy efficiency projects in your buildings?" responded with a 3.4/5 (n = 5). For the two completed projects, the average score was 3.5/5. For a similar question "How much would you say the Save on Energy rebate or incentive influenced the aforementioned energy efficiency projects in your buildings?" the average score was 4.25/5 (n = 5), and 4/5 for the two completed projects. Anecdotally this suggests slightly higher influence from the Save on Energy incentives than from the webinars, albeit with a small sample size.

## A.2 Impact Findings

This section contains estimates of energy, demand, and greenhouse gas savings from the CRE and BPS projects for PY2021, as well as an additional explanation of calculations and methodology where applicable.



## A.2.1 Impact Findings Overview

### A.2.1.1 Impact Estimates

The 2021 CRE and BPS webinars led to savings of approximately:

- ▶ 7,000 - 170,000 first year kWh
- ▶ 2 - 50 summer peak kW
- ▶ 1 - 20 tonnes of CO<sub>2</sub>e emissions

This range of estimates is intended to “bookend” impacts and is explained by the varying assumptions in Table 14 in the previous section. Table 15 shows an overview of estimated impacts.

Table 15: Impact Estimates Overview

| Impact  | Low   | High    |
|---|-------|---------|
| First year energy savings (kWh)                     | 7,000 | 170,000 |
| Summer Peak demand savings (kW)                     | 2     | 50      |
| GHG Avoided Emissions (tonnes of CO <sub>2</sub> e) | 1     | 20      |

- ▶ First year energy savings (kWh): net annual first year energy savings at the end-user level
- ▶ Summer Peak demand savings (kW): net annual summer peak demand savings at the end user level
- ▶ GHG avoided emissions (tonnes of CO<sub>2</sub>e): total first year net decrease in greenhouse gas emissions

For comparison, the 2021 Retrofit Application Database provided to EcoMetric by IESO in May 2022 contains projects with about 40 GWh of first year (gross) savings and the average application documents about 20 MWh of first year savings.

Approximately 27,000-370,000 kWh, 7-100 kW, and 4-40 tonnes CO<sub>2</sub>e of additional savings potential across all webinar attendees is possible pending future completion of projects that are described in survey responses as directly influenced by the webinars but remain in planning, approval, or design stages at the time of this report.

Both completed building energy efficiency projects included in the CRE/BPS sample, which were used to extrapolate initiative-level savings, reported receiving an incentive from the Save on Energy Retrofit Program.

### B.1 Survey Results Overview

- ▶ Web surveys were administered by EcoMetric in cooperation with the IESO Evaluation Team and BOMA Toronto.
- ▶ We received 26 Responses out of 215 webinar registrants, for an overall completion rate of 12 percent. We aren't sure how many people attended the CRE webinars, only registrants.
  - Based on the 30% and 60% attendance rates for CRE included in the Low and High scenarios, EcoMetric estimates that about 65-129 people actually attended, meaning the survey reached between 17-27% of the total webinar attendees (both CRE and BPS).

### B.2 Webinar Attendance of Survey Respondents

- ▶ CRE
  - Twenty survey respondents attended only the Save on Energy Panel Discussion: Driving Operational Energy Savings in Mid-Tier Commercial Buildings.
  - One respondent attended only the Save on Energy Partner Session: Accelerating Energy Efficiency in Mid-Tier Commercial Real Estate.
  - Two respondents attended both.
  - Six respondents indicated that they attended a webinar, but they're not sure which one.
- ▶ BPS
  - Three out of the five respondents attended more than one webinar.
  - Each of the webinars was attended by at least one survey respondent.

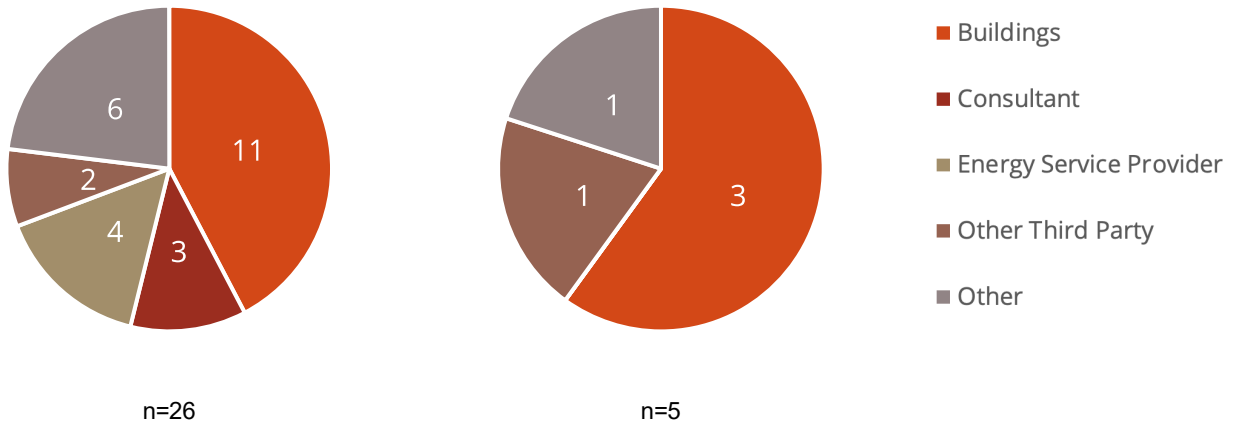
### B.3 Respondent Jobs and Roles

- ▶ Nearly half of survey respondents (45%) have roles directly in building management. Buildings roles include *Operations Manager, Project Director, Building Performance Engineer, Operations Director, Energy Manager, and Energy Engineer*. Buildings roles reported portfolio sizes ranging from "multiple large buildings" to "22 office spaces" to "thousands of buildings across Canada."
- ▶ About 10% of respondents have roles in each of the categories Consultant, Energy Service Provider, and Other Third Party (including *Electrical Engineer, Energy Savings Specialist, Energy Efficiency & DR Startup*).
- ▶ About 25% of respondents have Other affiliations, including *Energy Manager, Director of Sustainability, Director of Energy, and GHG Program Developer*.

Figure 7: What is Your Job or Role with Regard to Buildings and Energy in Ontario?

CRE

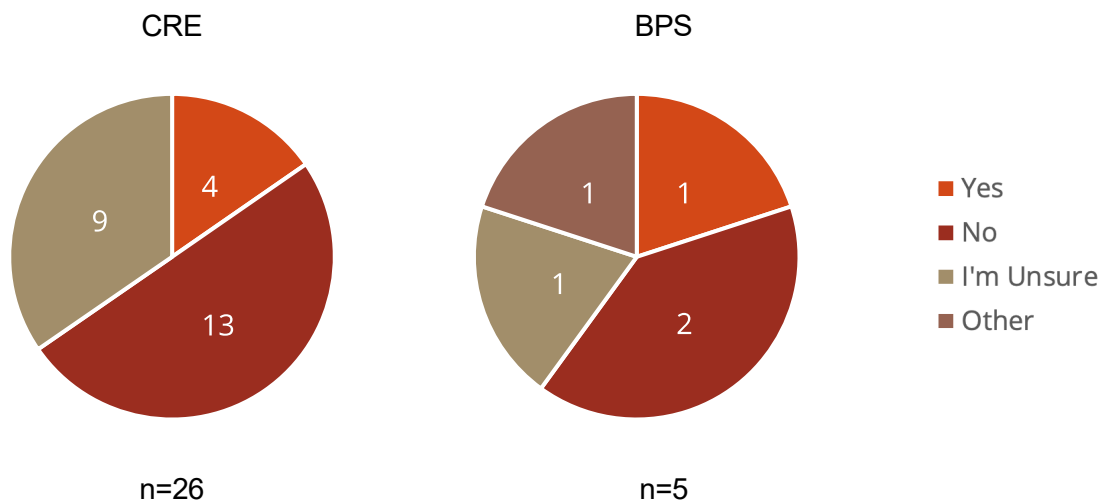
BPS



### B.3.1 Influence on Energy Efficiency Projects

Five respondents across both survey groups (four from CRE, one from BPS) reported that the webinars led directly to energy efficiency projects in their buildings.

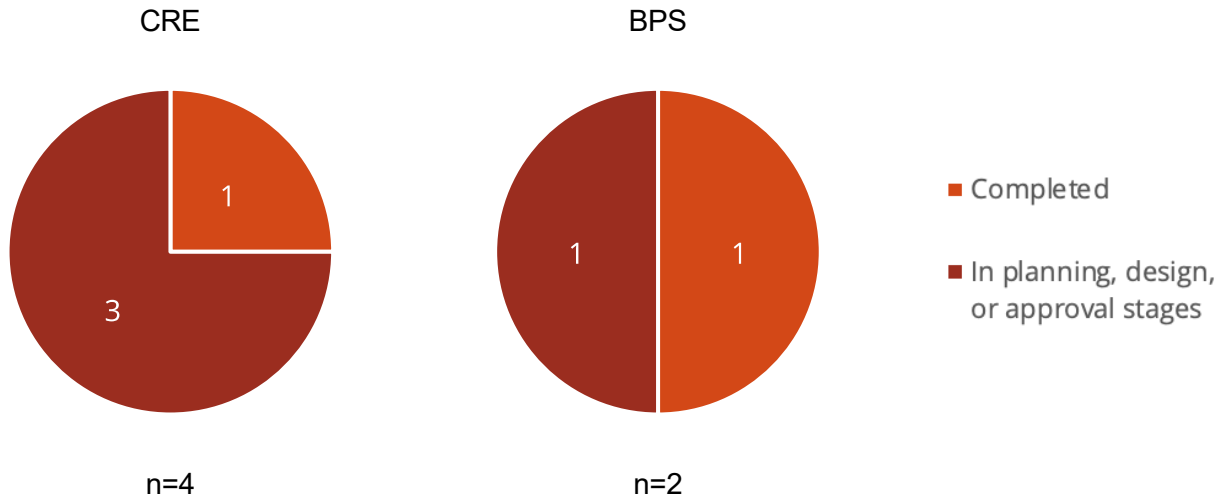
Figure 8: Did the [Webinars] Lead Directly to any Energy Efficiency Projects in your Building(s)?



### B.3.2 Status of Projects

Two of the five project influenced by the webinars were specified as *Completed*, while the other four are “*In planning, design, or approval stages.*”

Figure 9: What is the Status of These Energy Efficiency Projects?



### B.3.3 Types of Energy Efficiency Projects Influenced by the Webinars

Nineteen projects that were influenced by the CRE and BPS webinars were identified by survey respondents. Of these 19, seven were completed while the remainder were in planning, design, or approval stages. The majority of the projects identified by the respondents were lighting, including optimization, controls, scheduling, capital retrofits, and demand response.

Table 16: What Energy-Saving Technologies did the Project(s) Influenced by the [Webinars] Include?

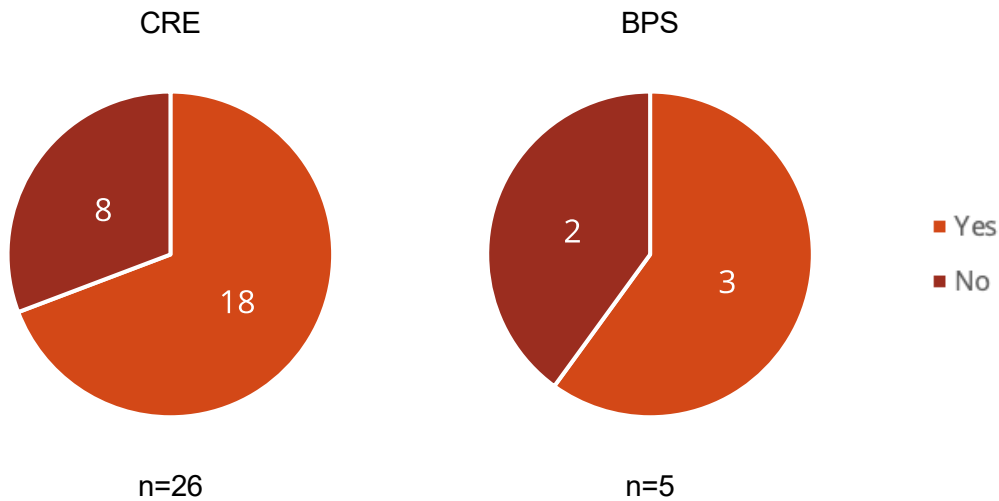
|                          | Optimization | New Controls/BAS | Scheduling | Capital Retrofit | Demand Response | Other |
|--------------------------|--------------|------------------|------------|------------------|-----------------|-------|
| Space Heating            |              | 1                | 1          |                  |                 | 1     |
| Space Cooling            |              | 1                | 1          |                  |                 | 1     |
| Air handling/ventilation | 1            | 1                | 1          |                  |                 | 1     |
| Hot water                |              |                  |            |                  |                 | 1     |
| Lighting                 | 1            | 1                | 1          | 2                | 1               | 1     |
| Plug Loads               |              |                  |            |                  |                 | 1     |

**Completed** (all others in Planning, design, or approval stage)

### B.3.4 Awareness of Save on Energy Program Incentive Opportunities

Two-thirds of survey respondents were aware of Save on Energy program incentive opportunities before their attendance of the CRE or BPS webinars.

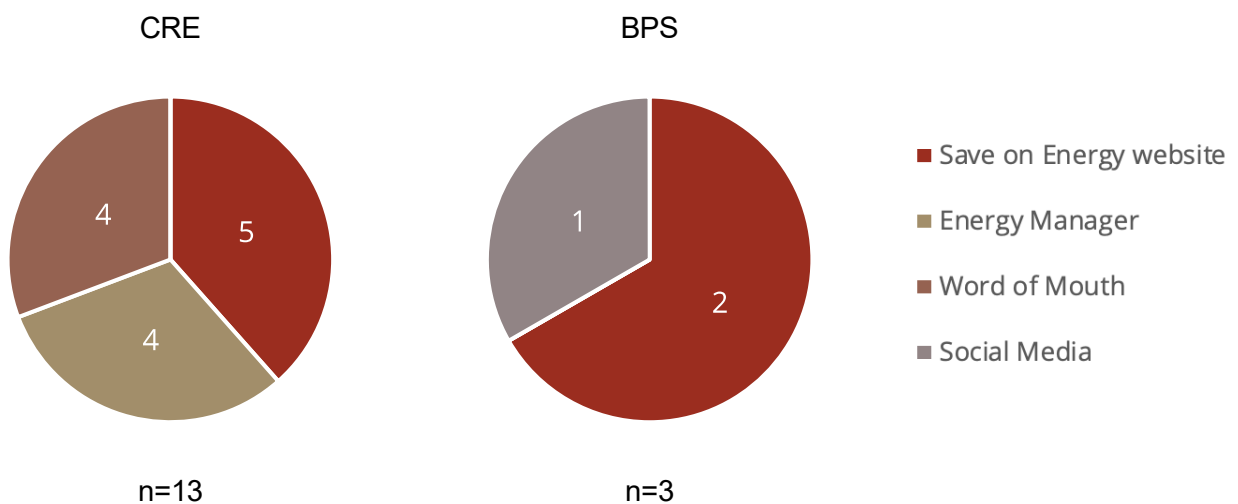
Figure 10: Were You Aware of Save on Energy Program Incentive Opportunities Before the [Webinar]?



### B.3.5 Knowledge of Save on Energy Incentive Opportunities

Nine of the 31 respondents reported first learning of Save on Energy program incentive opportunities at the webinars. Other places respondents learned about the Save on Energy program incentive opportunities included the Save on Energy website (seven), Energy Manager (four), word of mouth (four), and social media (two).

Figure 11: Where Did Respondents Learn about Save on Energy Program Rebate Opportunities?



### B.3.6 Influence of Webinars on Energy Efficiency Projects

To the critical question **“Did the Mid-Tier CRE Energy Efficiency webinar(s) lead directly to any energy efficiency projects in your buildings?”**

- ▶ Four respondents (15%) responded “Yes,”
- ▶ Thirteen (50%) responded “No,” and
- ▶ Nine (35%) responded “I’m unsure.”

### B.3.7 Other Anecdotal Input and Feedback from Surveys

- ▶ Recommendation to “Offer more incentives for new technologies and solutions.”
- ▶ “More webinars required to keep us informed of the latest incentives offered by the program”
- ▶ “Can you share the recording of those webinars?”