

Big-Box Efficiency Project

Final Technology Knowledge Transfer Plan

Prepared by the Center for Sustainable Energy for
the California Energy Commission in support of the
EPC-17-008 grant project

January 12, 2021



Center for
Sustainable
Energy™

Cite this reference as Baptiste, R., C. Josepher, and K. Larson. 2020, Big-Box Efficiency Project, EPC-17-008: Final Technology Knowledge Transfer Plan, Center for Sustainable Energy.

© 2021 Center for Sustainable Energy

Disclaimer: The Center for Sustainable Energy® (CSE) makes every effort to present accurate and reliable information. However, the content is presented “as is” without warranty of any kind. Reference to any specific commercial product, process or service does not constitute or imply endorsement, recommendation or favoring by CSE. Center for Sustainable Energy, CSE and CSE logo are registered trademarks of the Center for Sustainable Energy.

CSE Headquarters

Center for Sustainable Energy
3980 Sherman Street, Suite 170
San Diego, CA 92110
858-244-1177
EnergyCenter.org

Contents

- List of Tables 4
- List of Figures 4
- I. Introduction..... 5
 - About the Project 5
 - Environmental Context..... 5
 - Project Goals..... 6
- II. Technology Knowledge Transfer Activities 7
 - Project Website 7
 - Energy Dashboard & In-Store Display 10
 - Webinars 12
 - Conferences and Events 13
 - Fact Sheet 18
 - Additional Marketing Material 19
 - Technical Advisory Committee..... 20
- III. Policy Development..... 21
 - The State of California 22
- IV. Conclusion 22
 - Timeline of Activities 23

List of Tables

Table 1. Proposed CSE-Hosted Webinars	12
Table 2. Potential Conferences, Events and Business Meetings Throughout the Project Term	14
Table 3. TAC Meeting Schedule	21
Table 4. Timeline of Technology Knowledge Transfer Activities	23

List of Figures

Figure 1. Big-Box Efficiency Project Website	8
Figure 2. Big-Box Efficiency Project Website Google Analytics Results	9
Figure 3. Sample Energy Dashboard Styling Built on Locbit's IoT Platform	11

I. Introduction

About the Project

In partnership with the California Energy Commission and Walmart Inc., the Center for Sustainable Energy (CSE), along with other key partners, are conducting a multiyear project, the Big-Box Efficiency Project (grant number EPC-17-008), to assess, install, test, measure and demonstrate the effectiveness of an integrated suite of precommercial energy efficiency technologies at a big-box store. The goal is to achieve at least a 20% reduction in electricity consumption. The test site is an existing 20-year-old, 134,285-square-foot Walmart Supercenter located in Covina, California, within Southern California Edison's service territory. The effort will evaluate the impact of the technologies on utility costs, human comfort, operational efficiency, water consumption and maintenance costs.

Environmental Context

California Senate Bill 350 (SB 350) aims to double statewide electricity and gas end-use savings from energy efficiency (EE) and conservation measures by 2030. This is equivalent to a 20% reduction in projected statewide building energy use. Meeting this aggressive target will require the commercial building industry to install holistic EE technology packages, specifically those that leverage emerging, precommercial products. According to the 2013 Navigant California Potential and Goals Study,¹ aging commercial buildings, particularly in inland communities, present the greatest energy savings potential. However, many building owners operate in a resource-constrained environment and lack the ability to perform the rigorous evaluation required to vet the technologies and technology packages that would provide deep energy savings. This project will address this problem by creating a blueprint for large, commercial buildings across California with similar end-use and system characteristics with measured and verified savings from the installed precommercial technology package.

The project team will design and install a holistic suite of precommercial EE technologies in a big-box retail commercial building. The technologies that comprise the installation package will incorporate a novel supervisory controller to provide systemwide optimization, including lighting, refrigeration and heating, ventilation and air conditioning (HVAC). The team will use robust pre/post measurement and verification (M&V) and detailed energy modeling to design, monitor and evaluate the individual technologies, as well as the package.

Understanding the opportunities for targeted, cost-effective energy and demand savings solutions are important elements in this sector. Achieving deep energy savings through the integration of system-

¹ 2013 California Energy Efficiency Potential and Goals Study Final Report (2014). Navigant Consulting, Inc. Available at <https://www.cpuc.ca.gov/General.aspx?id=6442452621>.

level solutions is a crucial prerequisite that will help California meet the aggressive SB 350 goals for energy efficiency.

Project Goals

This project's goal is to show that 20% or greater electric energy savings are achievable at existing big-box/grocery stores by using new and innovative precommercial technologies. Predicting the technical and financial performance of energy efficiency technology packages is complicated due to a combination of factors, including untested interactive effects and unproven savings benefits of precommercial technologies. The objective of this project is to create a blueprint for large, commercial buildings across California with similar end-use and system characteristics.

To support this, the following Technology Knowledge Transfer goals have been identified:

- Create an external interface for the program via a website, to communicate progress and technology package learnings
- Develop materials that present learnings to different and identified target audiences
- Present learnings to audiences on- and off-site
- Use results as a model to demonstrate the project's value to big-box retail store owners and encourage them to pursue similar projects in their facilities

The technologies that comprise the installation package include a novel supervisory controller to identify opportunities for systemwide optimization and to reduce electricity consumption across numerous building subsystems, including lighting, refrigeration and heating, ventilation and air conditioning (HVAC). Specific precommercial technologies highlighted by this project include high-efficiency AC/DC LED lighting, HVAC and refrigeration smart motors, direct and indirect evaporative cooling and a water management system. This technology package will enable site electricity savings of greater than 20%.

This Technology Knowledge Transfer Plan lays out the roadmap for achieving these goals. It will guide activities by CSE and the project partners to increase knowledge and awareness of the project and program goals among five main audience groups:

- In-store shoppers
- Store managers and facility staff
- Commercial industry leaders, with emphasis on big-box retail/grocery store owners and facility managers
- Investor-owned utilities (IOUs)
- Policymakers and regulatory agencies

II. Technology Knowledge Transfer Activities

CSE plans on using a multifaceted approach to educate stakeholders about the Big-Box Efficiency Project, with the goal of driving market adoption of the precommercial technology package. Specific Technology Knowledge Transfer tactics undertaken by the project team will include the following:

- Project website
- Energy dashboard and in-store display
- Webinars
- Conferences and events
- Case study and fact sheet
- Additional marketing collateral
- Technical Advisory Committee

For each tactic, CSE has developed target performance metrics in the areas of target audiences, conversion metrics and key performance indicators. These metrics will help the project team to track the success of each marketing tactic and adjust, where necessary, to achieve key performance metrics. Additionally, CSE summarizes the strategic value of each tactic in laying the groundwork for big-box retailers, including Walmart, to potentially pursue similar projects across their store portfolio.

In addition to the tactics outlined below, CSE plans to hold a project debrief meeting with Walmart management to discuss project successes, identify lessons learned and explore opportunities to pursue this project in other Walmart stores.

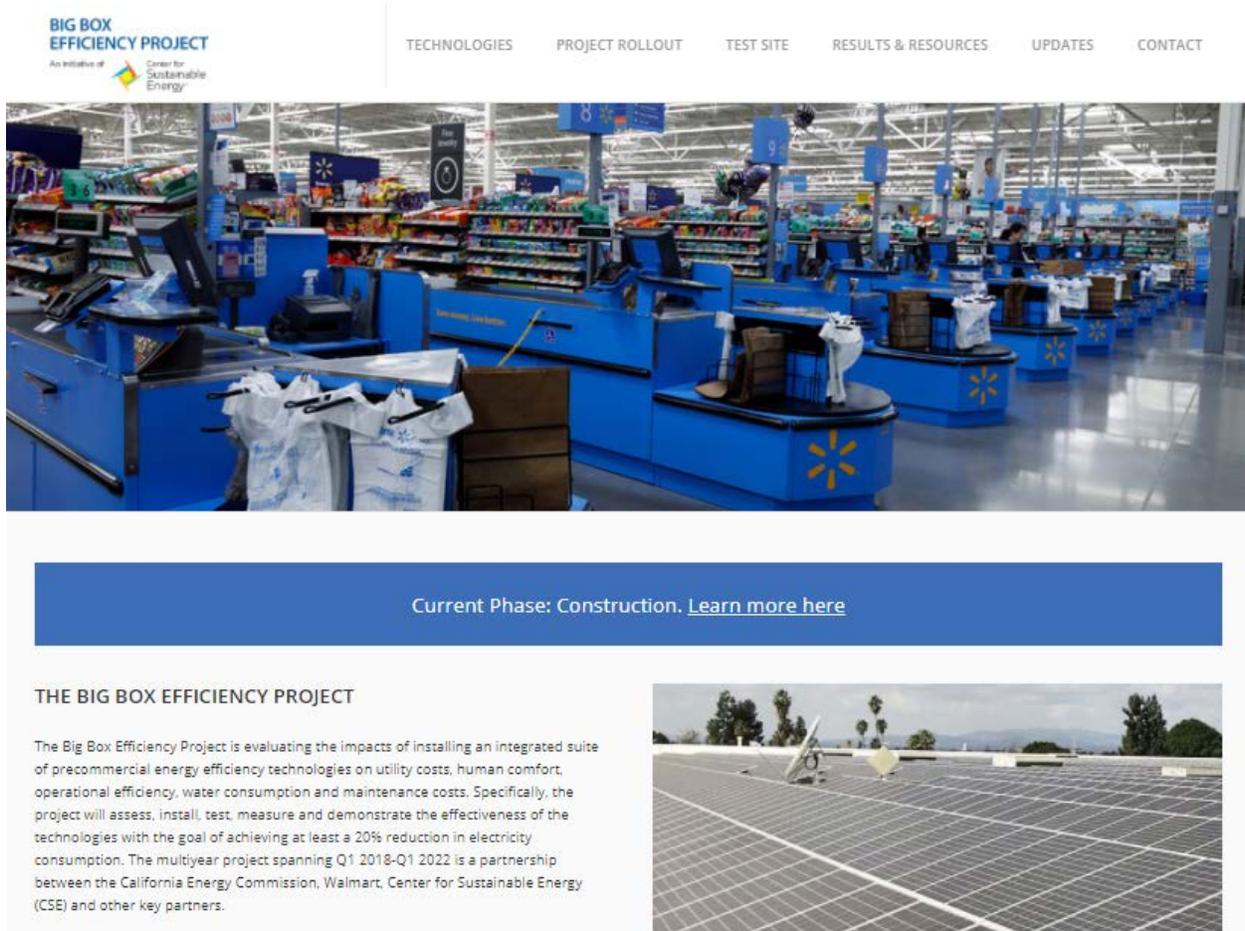
Project Website

The primary communication channel for project information and updates is the dedicated Big-Box Efficiency Project website (<https://sites.energycenter.org/bigbox>). The project website went live in July 2019 and consists of a homepage, shown in Figure 1, which includes a project overview, benefits of the project, the environmental context of the project and a list of project team members.

The project website has subpages detailing the technologies involved in the project, the project schedule and current phase in the schedule, details about the Walmart Covina, CA, store, links to results and resources and an email sign-up and contact page to gather contact details from interested stakeholders for use in communicating future project updates.

To date, the project website has had over 1,541 site visits, mainly from five locations in California. Additionally, there have been site visits from locations across the U.S. and other countries including Canada and South Korea. Details of the most recent analytics for 2020 can be found in Figure 2. Enhancements will be added to initial analytics to provide greater detail into specific subpage visits and resource downloads in Q4 2020.

Figure 1. Big-Box Efficiency Project Website

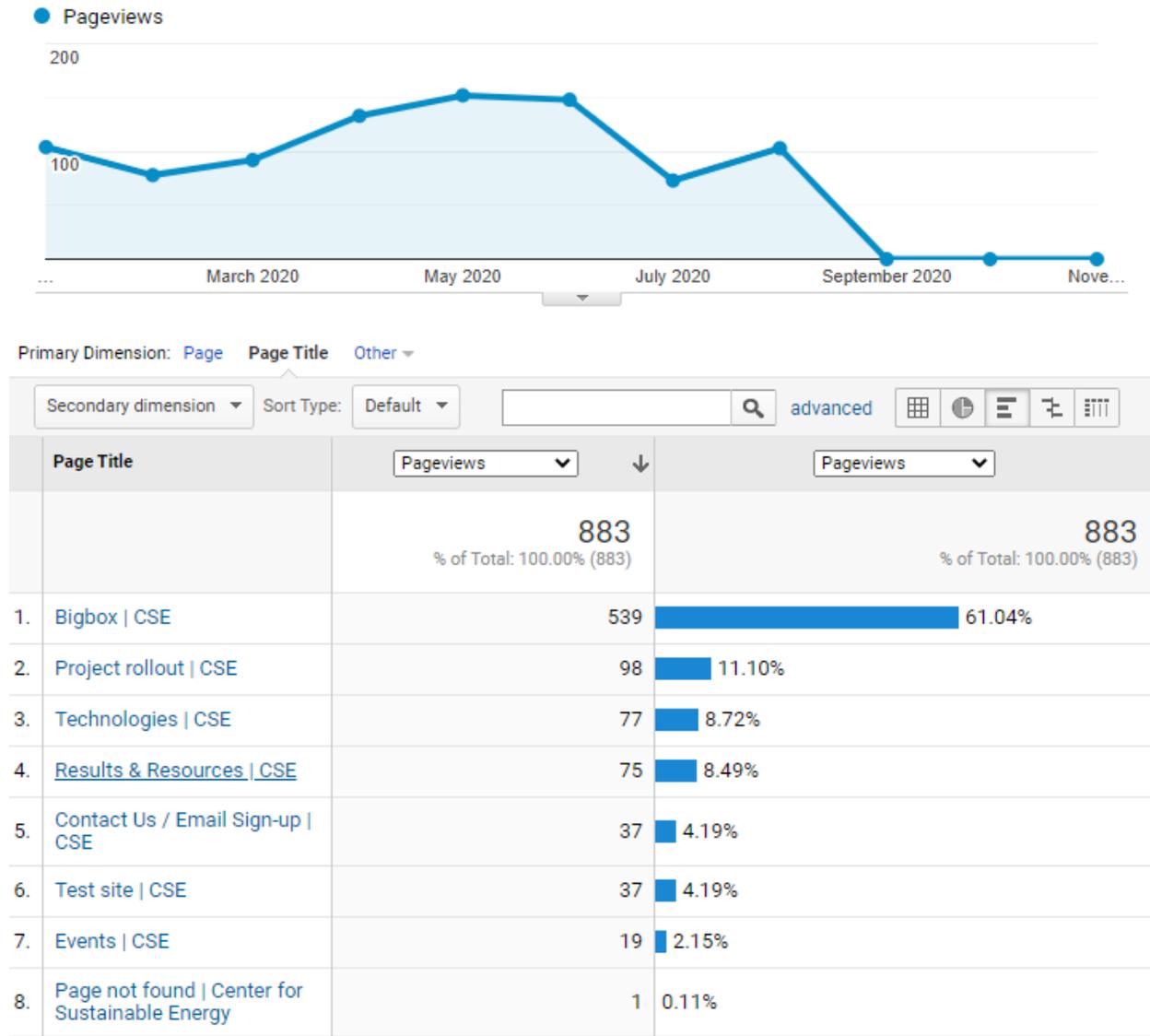


THE BIG BOX EFFICIENCY PROJECT

The Big Box Efficiency Project is evaluating the impacts of installing an integrated suite of precommercial energy efficiency technologies on utility costs, human comfort, operational efficiency, water consumption and maintenance costs. Specifically, the project will assess, install, test, measure and demonstrate the effectiveness of the technologies with the goal of achieving at least a 20% reduction in electricity consumption. The multiyear project spanning Q1 2018-Q1 2022 is a partnership between the California Energy Commission, Walmart, Center for Sustainable Energy (CSE) and other key partners.



Figure 2. Big-Box Efficiency Project Website Google Analytics Results²



The project team will maintain an ongoing build out of the website throughout the project timeline. CSE’s internal marketing team of professional web developers, creative and graphic designers, and marketing associates will design and implement the website. All marketing tactics will point visitors back

² There was a drop in page views in September 2020 due to a prior project blog post from April 2020 moving off a main page on CSE’s website. Planned outreach in 2021 will include blog posts and other marketing tactics to boost traffic to the project website. Analytics for October 2020 are still pending.

to the website. This includes the destination of the QR code featured throughout the in-store display screens, printed collateral and shared during presentations. The site will be used to monitor trends and continually optimized to facilitate a clear user path. Website metrics and digital tracking codes will be used to ascertain performance and return on investment of tactics.

Tactic Performance Metrics



Audience

- Store shoppers and employees from QR code on in-store display
- Commercial industry leaders, with emphasis on big-box retail/grocery store owners and facility managers, IOUs and policymakers from press releases, fact sheet or blogs



Conversion Metric

- Downloads of online resources



Key Performance Indicators

- Website page visits
- Time spent on site
- Return visits

Tactic Strategic Value

As the heart of project communications, the project website will be a key contributor to knowledge sharing to target big-box retailer stakeholders. This will be a key method for target stakeholders to learn from the project, as well as sign up for updates as the project continues to progress and enter the measurement and verification period in 2021.

Energy Dashboard & In-Store Display

Using the an IoT platform, energy dashboards will be created highlighting real-time energy monitoring of the store's energy consumption, general project information, energy savings, carbon offsets and detailed monitoring graphs and descriptions of each of the installed technologies. While the specific monitoring data and graphics to be used in the dashboard is still under development, Figure 3 demonstrates a sample for styling and metrics of the dashboard interface.

Figure 3. Sample Energy Dashboard Styling Built on Loabit's IoT Platform



In-store shoppers will be able to view the dashboard on a television in the Customer Service area at the front of the store. The dashboard will include a call to action to visit the project website, and shoppers will be able to scan a QR code to visit the website to learn more about a specific technology at the store, as well as how they can implement similar technologies in their own home (for example, installing LED lights or a smart thermostat). CSE and the Walmart team also are exploring potential opportunities to direct shoppers to energy-saving products available for purchase in the store.

In addition to the in-store display, the energy dashboard will also be available for public viewing on the project website. Website visitors will be able to access individual technology dashboards, as well as additional information about the technologies.

Tactic Performance Metrics



Audience

- Store shoppers, managers and facility staff from observing store display & collateral
- Commercial industry leaders, with emphasis on big-box retail/grocery store owners and facility managers
- Other target audiences (e.g., IOU staff) who choose to make a site visit



Conversion Metric

- Number of QR code scans per dashboard page



Key Performance Indicator

- Number of visitors to energy dashboard pages on website

Tactic Strategic Value

By providing an insider’s look into how the project is performing in real time, target audience members will be able to better understand the value the technologies bring individually and as a package.

Webinars

The project team will host two webinars in 2021 to provide target audiences with an opportunity to learn about the project, including project successes and lessons learned. CSE has conceptualized at least two potential webinar topics, outlined in Table 1: one at the end of the construction phase and one at the end of the measurement and verification period. Attendees will learn about various phases of the project, which include, but are not limited to, initial scoping, installation and commissioning, retrocommissioning, measurement and verification, project management and project partnerships.

Table 1. Proposed CSE-Hosted Webinars

Webinar #	Topic	Anticipated Date
1	<i>Obtaining Deep Energy Saving in Big-Box Retail: Designing, Modeling and Installing Energy Efficiency Technologies for the Big-Box Efficiency Project</i>	Q2 2021
2	<i>Obtaining Deep Energy Saving in Big-Box Retail: Measuring and Verifying Savings for the Big-Box Efficiency Project</i>	Q4 2021

Additionally, CSE plans to participate in external webinars on a case-by-case basis, depending on opportunities presented by external parties, such as the New Buildings Institute (NBI), California Energy Alliance (CEA), San Diego Green Building Council (SDGBC), U.S. Green Building Council - Los Angeles, California Energy Commission and others.

Tactic Performance Metrics



Audience

- Commercial industry leaders, with emphasis on big-box retail/grocery store owners and facility managers
- Investor-owned utilities (IOUs)
- Policymakers and regulatory agencies



Conversion Metrics

- Open, bounce and click-through rates for webinar-related emails
- Webinar registrations



Key Performance Indicators

- Number of registrations
- Number of attendees
- Audience webinar engagement (polls and questions)
- Email subscription increases

Tactic Strategic Value

Webinars will be a key tool in educating target audience groups on how the project team worked toward achieving the goal of unlocking over 20% in energy savings from the baseline using the precommercial suite of technologies. Webinars will include question and answer components so audience members can get a deeper understanding of the technical aspects of implementing this type of project.

Conferences and Events

CSE will look to participate in conferences and events throughout the project term based on timing, resources and opportunities. Additionally, as directed by the Commission Agreement Manager (CAM), the project team will participate in California Energy Commission-sponsored events, seminars and workshops. One notable sponsored event is the Energy Commission's annual EPIC symposium. The event is hosted in partnership with the IOUs and is focused on showcasing innovative research behind EPIC projects. CSE plans to participate in several of these events, as time and budget allows.

The identified potential conferences and events, as well as event descriptions, anticipated dates, target audiences and strategic role are outlined in Table 2. In addition to these activities, CSE also will work collaboratively with Walmart management to explore additional opportunities for engagement and knowledge-sharing through their corporate memberships in industry organizations such as the National Retail Federation.

Table 2. Potential Conferences, Events and Business Meetings Throughout the Project Term

Conference	Potential Date(s)	Target Audience	Strategic Value
<p><u>Association of Energy Engineers Conference</u> The Association of Energy Engineers® (AEE®), founded in 1977 by Albert Thumann, is a nonprofit professional society of over 18,000 members in more than 100 countries. The mission of AEE is “to promote the scientific and educational interests of those engaged in the energy industry and to foster action for Sustainable Development.”</p>	October 20-22, 2021	Commercial Industry	Share lessons learned with modeling and engineering community on how to make this type of project work
<p><u>ASHRAE Winter Virtual Conference</u> ASHRAE, founded in 1894, is a global society advancing human well-being through sustainable technology for the built environment. Focus of the conference is on codes, health, energy conservation, building performance and design related to HVAC and refrigeration.</p>	February 9 – 11, 2021	Commercial Industry	Share lessons learned with modeling and engineering community on how to make this type of project work
<p><u>NREL Industry Forum</u> The Industry Growth Forum (IGF) is the premier event for cleantech entrepreneurs, investors and experts from industry and the public sector to build relationships, showcase innovative technologies and identify disruptive business solutions. The IGF builds on decades of technical expertise and market analysis accumulated at the National Renewable Energy Laboratory, the nation’s only federal lab dedicated to renewable energy and energy efficiency research. Locbit has applied to present at this forum.</p>	April 20-22, 2021	Commercial Industry	Promote the growth of precommercial energy efficiency technologies that provide innovative solutions to unlocking energy savings
<p><u>BuildingEnergy Boston</u> BuildingEnergy Boston is a conference designed by and for practitioners in the fields of high-performance building and design, energy efficiency and renewable energy. It brings more than 1,000 industry leaders and emerging professionals together to learn from and share ideas with each other.</p>	May 3-5, 2021	Government Officials, Commercial Industry, Building Owners, Policymakers, Utilities, Designers	Promote the pursuit of similar projects in big-box retail stores, help policymakers and utilities take project information to inform future incentives to drive project adoption, engage the

Conference	Potential Date(s)	Target Audience	Strategic Value
			design/engineering community on how to pursue such projects
<p><u>ASHRAE Annual Conference</u> ASHRAE, founded in 1894, is a global society advancing human well-being through sustainable technology for the built environment. Focus of the conference is on codes, health, energy conservation, building performance and design related to HVAC and refrigeration.</p>	June 26 – 30, 2021	Commercial Industry	Share lessons learned with modeling and engineering community on how to make this type of project work
<p><u>California – Germany Bilateral Energy Conference</u> The California – Germany Bilateral Energy Conference highlights the ongoing partnership between California and Germany as they work together to accelerate the global transition to clean energy. The conference focuses on decarbonizing economies to achieve clean air and climate and energy goals. The focus area of the 2021 conference is to be determined.</p>	Q4 2021	Government Officials, Commercial Industry, Policymakers, Utilities	Promote the pursuit of similar projects in big-box retail stores, help policymakers and utilities take project information to inform future incentives to drive project adoption
<p><u>Emerging Technologies Coordinating Council Summit</u> This conference focuses on the role of emerging efficiency technologies in supporting building decarbonization and optimizing building resources. Other topics include the embodied energy in new buildings and pilot testing of emerging technologies.</p>	Q4 2021	Government Officials, Commercial Industry, Policymakers, Utilities	Promote the pursuit of similar projects in big-box retail stores, help policymakers and utilities take project information to inform future incentives to drive project adoption
<p><u>EPIC Symposium</u> The conference converges clean tech innovators to learn about emerging technology, share best practices and connect about future projects and partnerships.</p>	Oct. 2020 Q4 2021	Government Officials, Commercial Industry, Policymakers, Utilities	Promote the pursuit of similar projects in big-box retail stores, help policymakers and utilities take project information to inform future incentives to drive project adoption

Conference	Potential Date(s)	Target Audience	Strategic Value
<p><u>Greenbuild International Conference and Expo</u> Greenbuild is the world's largest conference and expo dedicated to green building. The conference brings together industry leaders, experts and frontline professionals dedicated to sustainable building in their everyday work.</p>	November 2020 November 2021	Government Officials, Commercial Industry, Facility Managers, Designers	Promote the pursuit of similar projects in big-box retail stores, help policymakers and utilities take project information to inform future incentives to drive project adoption, engage the design/engineering community on how to pursue such projects
<p><u>Intersolar & Energy Storage North America</u> Intersolar North America and Energy Storage North America come together for the first time in 2021, connecting installers, developers, utilities, technology providers, policymakers and key stakeholders from around the world to advance the clean energy future. This would be a great opportunity for the project to connect with solar and storage developers to present findings from our DC lighting demonstration and discuss the future of DC-DC buildings.</p>	July 14-16, 2021	Government Officials, Commercial Industry, Building Owners, Policymakers, Utilities	Promote the pursuit of similar projects in big-box retail stores, identify the gaps and lessons learned in existing storage/DC technologies and where there could be opportunities for additional savings
<p><u>San Diego Green Building Council Annual Conference</u> Annual Green Building Conference and Expo with attendees including local public and private organizations. The expo has a focus on emerging trends in sustainability and green buildings.</p>	2021	Government Officials, Commercial Industry, Building Owners, Policymakers, Utilities, Designers	Promote the pursuit of similar projects in big-box retail stores, help policymakers and utilities take project information to inform future incentives to drive project adoption, engage the design/engineering community on how to pursue such projects
<p><u>Sustainable Brands</u> Sustainable Brands' mission is to inspire, engage and equip brands to succeed by leading the way to a sustainable future. Attended by corporate social responsibility and sustainability executives from some of the most well-known brands, including many big-box retail stores like Target and Walmart.</p>	June 7 – 10, 2021	Executive Management (top big-box stores)	Promote the pursuit of similar projects in big-box retail stores

Conference	Potential Date(s)	Target Audience	Strategic Value
<p><u>U.S. Green Building Council – Los Angeles</u> (Multiple opportunities) USGBC-LA holds events throughout the year that support sustainability and build community through education, thought leadership and connections.</p>	2021	Government Officials, Building Owners, Commercial Industry, Policymakers, Utilities, Designers	Promote the pursuit of similar projects in big-box retail stores, help policymakers and utilities take project information to inform future incentives to drive project adoption, engage the design/engineering community on how to pursue such projects

Tactic Performance Metrics



Audience

- Event attendees including big-box retail, grocery store owners, facility managers and commercial industry leaders



Conversion Metrics

- Presentation downloads
- Website visits



Key Performance Indicators

- Number of contacts met
- New email subscribers
- Approximate # of people in audience during presentation (if applicable) and at conference

Tactic Strategic Value

In addition to the strategic values listed for each conference in the Table 2, overall conferences and events provide a great opportunity for various project team members to discuss the project and network with target audience groups, with the goal of advancing the implementation of similar projects in other big-box retail stores.

Fact Sheet

CSE will develop a fact sheet for Walmart Covina once the identified energy efficiency measures are implemented and measurement and verification (M&V) activities are complete. Using information collected from the assessment and verification period (Task 5), CSE will assess project benefits and results. The fact sheet will provide a clear snapshot of project objectives, design, performance and results. The fact sheet will contain the following information:

- Precommercial technology package installed
- System design and performance
- Project economics and cost savings
- Lessons learned

Once complete, the fact sheet will be available on the project website.

Tactic Performance Metrics



Audience

- Event attendees including big-box retail, grocery store owners, facility managers and commercial industry leaders
- Website visitors
- Investor-owned utilities (IOUs)
- Policymakers and regulatory agencies



Conversion Metrics

- Links clicks
- Document downloads



Key Performance Indicators

- Number of downloads

Tactic Strategic Value

The fact sheet will help drive traffic to the website, spur conversations for in-person events and aid target audience members in quickly understanding key facts about the project and how to learn more.

Additional Marketing Material

To further raise general awareness of the project and to drive traffic to the project website, CSE will work in conjunction with the project team to develop additional marketing materials.

Employee Content Kit – Employees will receive a content kit outlining the project benefits to the store and how energy efficiency is beneficial to consumers. Employees will be encouraged to direct consumers and all questions to the website.

Store Management and Facility Staff Guide – Store management and facility staff responsible for ongoing maintenance at the store will receive a detailed technical guide including information on the technologies installed, important information or notes regarding operations and preventive maintenance considerations, and contact details for appropriate Walmart corporate team members involved in the project should they have further questions after the project is concluded.

Digital Content Kit – Partners will receive a comprehensive kit with content for promotion in emails, websites and at events. Content will direct viewers to the website.

Blog Posts – Posts will function as a deeper dive into the progress of the project and will feature the case study/fact sheet for download.

Press Releases – Media submissions will include details about the project and a promotion of the case study. All releases will direct readers to website.

Tactic Performance Metrics



Audience

- Store employees, management and facilities maintenance staff
- Commercial industry leaders, with emphasis on big-box retail/grocery store owners and facility managers
- Investor-owned utilities (IOUs)
- Policymakers and regulatory agencies



Conversion Metrics

- Website visits
- Published news story in media



Key Performance Indicators

- Number of website referrals attributable to marketing material
- Number of distributed content kits
- Number of distributed flyers
- Number of mentions in news media
- Number of case study downloads
- Number of email subscriptions

Tactic Strategic Value

Digital content kits, blog posts and press releases will help raise overall awareness of the project, so that other big-box retailers know about the project and its goals and engage with the project website to learn more about how to pursue such a project in their stores.

Technical Advisory Committee

CSE will leverage expertise and relationships with Technical Advisory Committee (TAC) members to transfer findings from this demonstration. The TAC will consist of executives, researchers, consultants and government and utility officials representing public, private and nonprofit organizations with expertise in energy efficiency, precommercial technologies and big-box retail energy management disciplines. The proposed TAC meetings are outlined in Table 3.

Table 3. TAC Meeting Schedule

TAC Meeting #	Date
1	March 6, 2019
2	June 9, 2020
3	Q2 2021

Tactic Performance Metrics



Audience

- Commercial industry leaders, with emphasis on big-box retail/grocery store owners and facility managers
- IOUs
- Policymakers and regulatory agencies



Conversion Metrics

- Website visits
- TAC member List



Key Performance Indicators

- Attendees for each TAC meeting
- Number of email subscriptions

Tactic Strategic Value

Direct input on the project from key industry stakeholders, including employees at other big-box retailers, has been key to project success and development. Through TAC meetings, the project team is able to engage directly with these key stakeholders and learn from their industry knowledge and expertise, as well as help them better understand the project.

III. Policy Development

As part of the project, CSE will utilize our recognized strengths as an innovative and trusted source of objective, market-informed policy guidance to inform policy guidelines for the State of California. Utilizing our extensive on-the-ground program implementation experience, CSE provides a much-needed, objective feedback loop from the energy marketplace to policymakers to go beyond program execution. CSE provides policymakers with insights into how policies and programs are working to affect the energy marketplace and how they may be improved and integrated in the form of white papers,

research and public comments. The following section has information about state policy developments that the results of this project hope to influence.

The State of California

CSE's government affairs team provides elected officials in priority states with objective and accurate information to help effectively shape clean energy policies and programs. To this end, the government affairs team will use results from this project to help educate California government officials on the market integration of energy efficiency, integrated distributed energy resources and demand response. Following is the list of current California Public Utility Commission (CPUC) proceedings that are related to this demonstration project.

- **Demand Response (R.13-09-011)** Rulemaking to enhance the role of demand response for resource planning. Corresponding Demand Response Program Applications (A.17-01-012) are reviewed in a consolidated proceeding to approve the demand response applications filed by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E) and Southern California Edison Company (SCE) and resolve policy issues.
- **Energy Efficiency Strategic Plan Update and Action Plans (D.10-09-047) Rulemaking R.13-11-055** encompasses current energy efficiency portfolios through 2015, implements energy efficiency “rolling portfolios” and various relates policy issues and is used to inform energy efficiency planning through 2020.
- **Energy Efficiency Rolling Portfolios (R.13-11-055)** This proceeding is the most recent in a series of ongoing proceedings for policy changes and regulatory oversight associated with the energy efficiency programs of the large investor-owned electric and natural gas utilities, community choice aggregators (CCAs) and regional energy networks (RENs). It serves as the primary venue for overarching policy issues related to administration of the energy efficiency policies, portfolios and programs, such as recent decisions regarding custom projects and market transformation.
- **Integrated Distributed Energy Resources (R.14-10-003)** This proceeding considers the development and adoption of a regulatory framework to provide policy consistency for the direction and review of demand-side resource programs. The framework is envisioned to be a unified mechanism to authorize and direct the commission-regulated electric and gas utilities to achieve demand reduction and load shaping using integrated demand-side management resources.

IV. Conclusion

CSE developed this Technology Knowledge Transfer Plan to identify education and outreach activities that effectively transfer the knowledge gained from this project, with the primary objective of educating big-box retail owners and facility managers, in-store shoppers, store managers and facility staff and commercial industry leaders. The goal is to demonstrate and emphasize the benefits of incorporating a

package of precommercial energy efficiency technologies in big-box retail stores to big-box retail/grocery store owners and facility managers, IOUs, policymakers, regulatory agencies and other related industry stakeholders. As described in the plan, the project team will educate these targeted stakeholders through online media and dashboards, a project website, webinars, case studies, fact sheets, conference presentations, marketing collateral and other outreach activities where opportunities arise.

Timeline of Activities

Table 4. Timeline of Technology Knowledge Transfer Activities

Activity	Estimated Date
TAC Meeting #1	March 6, 2019
TAC Meeting #2	June 9, 2020
Project Website	July 2019
<u>EPIC Symposium</u>	October 19-21, 2020
Energy Dashboard Phase I	Q4 2020
Energy Dashboard Phase II	Q1 2021
Blog #1	Q1 2021
Press Release #1	Q1 2021
Digital Media Kit	Q1 2021
<u>2021 ASHRAE Winter Virtual Conference</u>	February 9 – 11, 2021
Proposed Webinar #1	Q2 2021
TAC Meeting #3	Q2 2021
<u>NREL Industry Forum</u>	April 20-22, 2021
<u>BuildingEnergy Boston</u>	May 3-5, 2021
<u>Sustainable Brands</u>	June 7 – 10, 2021
<u>2021 ASHRAE Annual Conference</u>	June 26 – 30, 2021
Fact Sheet	Q3 2021
<u>San Diego Green Building Council Annual Conference</u>	Q3 2021
<u>Intersolar & Energy Storage North America</u>	July 14 – 16, 2021
Proposed Webinar #2	Q4 2021

Activity	Estimated Date
Blog #2	Q4 2021
Press Release #2	Q4 2021
<u>California – Germany Bilateral Energy Conference</u>	Q4 2021
<u>Emerging Technologies Coordinating Council Summit</u>	Q4 2021
<u>EPIC Symposium</u>	Q4 2021
<u>Greenbuild International Conference and Expo</u>	Q4 2021
<u>Association of Energy Engineers Conference</u>	October 20 – 22, 2021
<u>U.S. Green Building Council – Los Angeles</u>	2021 (Multiple Opportunities)



Center for
Sustainable
Energy™

One simple mission — DECARBONIZE.™

The Center for Sustainable Energy® (CSE) is a nonprofit offering clean energy program administration and technical advisory services. With the experience and streamlined efficiency of a for-profit operation, CSE leads with the passion and heart of a nonprofit. We work nationwide with energy policymakers, regulators, public agencies, businesses and others as an expert implementation partner and trusted resource.

EnergyCenter.org