

California Energy Commission

## PROGRAM DOCUMENT

# Knowledge Transfer Plan

Lead Locally, EPIC Grant EPC-17-041

Prepared for: **California Energy Commission**  
Prepared by: **Sonoma Clean Power Authority**



California Energy Commission

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March 2020 | CEC-EPC-2017-041-DCR



# California Energy Commission

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# Table of Contents

- 1. Executive Summary .....6
- 2. Introduction.....7
  - 2.1 Sonoma Clean Power and its Customers .....7
  - 2.2 About Lead Locally and the Advanced Energy Center .....7
  - 2.3 Value of Knowledge Transfer .....8
  - 2.4 Statement of Purpose .....8
- 3. Knowledge Transfer Plan Implementers and Partners.....8
- 4. Target Audiences .....9
- 5. Knowledge Transfer Process..... 10
  - 5.1 Key Messages ..... 10
  - 5.2 Knowledge Transfer Products ..... 10
  - 5.3 Activities ..... 11
- 6. Policy Development..... 14
- 7. Reporting..... 14

# Tables

- Table 1: Target Audiences and Communication Content .....9
- Table 2: Knowledge Transfer Timeline ..... 11
- Table 3: Product Development and Publication, Audiences and Implementers ..... 11
- Table 4: Knowledge Transfer Activities, Audiences and Implementers ..... 12

# Appendices

- Appendix A Key Messages
- Appendix B Project Deliverables

## Acronyms and Abbreviations

ACEEE	American Council for an Energy-Efficient Economy
AEE	Association of Energy Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BAAQMD	Bay Area Air Quality Management District
BayREN	Bay Area Regional Energy Network
CAEECC	California Energy Efficiency Coordinating Committee
CARB	California Air Resources Board
CARE	California Alternate Rates for Energy
CALBO	California Building Officials
CCA	Community Choice Aggregate
CEC	California Energy Commission
CPUC	California Public Utilities Commission
DOE	Department of Energy
DRP	Distributed Resource Planning
EBCE	East Bay Community Energy
EM&V	Evaluation, Monitoring and Verification
EPIC	Electricity Program Investment Charge
EPRI	Electric Power Research Institute
ETCC	Emerging Technologies Coordination Council
EM&V	Evaluation, Measurement and Verification
FERA	Family Electric Rate Assistance
ICC	International Code Council
IEA	International Energy Agency
IOU	Investor Owned Utility
MTC	Metropolitan Transportation Commission
NARI	National Association of the Remodeling Industry
NEEA	Northwest Energy Efficiency Alliance
NRDC	Natural Resource Defense Council
PG&E	Pacific Gas and Electric Company
Plan	Knowledge Transfer Plan
Project	Lead Locally
REACO	Redwood Empire Association of Code Officials
RFQ	Request for Qualifications
RCPA	Sonoma County Regional Climate Protection Authority
SCESD	County of Sonoma Energy and Sustainability Division

SCP	Sonoma Clean Power
sf	Square Foot
State	State of California
TAC	Technical Advisory Committee
TAG	Technical Advisory Group
TOU	Time of Use
VEIC	Vermont Energy Investment Corporation
WISE	Workforce Instructions for Standards and Efficiency

# 1. Executive Summary

Sonoma Clean Power (SCP) was awarded a grant from the California Energy Commission (CEC) as part of the CEC's Electricity Program Investment Charge (EPIC) program in May 2018, launching the Lead Locally project (Project) in July 2018.

The Project is an innovative programmatic approach to existing buildings research, development and demonstration that includes a range of innovative technologies, program features, and market strategies to engage new customers in energy efficiency upgrades and deliver benefits to California's electric ratepayers. The Project will include applied research and technology deployment activities, including the establishment of the SCP brick-and-mortar "Advanced Energy Center" where customers can procure energy efficient products. The Advanced Energy Center and other deployment activities seek to stimulate the local energy efficiency market in Sonoma and Mendocino Counties.

A key objective of the Project is to share lessons learned and knowledge gained with interested audiences. This Knowledge Transfer Plan (Plan) aims to make lessons learned, knowledge gained, and experimental results available to the SCP customers and key decision makers.

Target audiences across local, regional, State, national and international sectors are identified, and several activities are detailed to reach audiences in the Bay Area, throughout California and beyond. Planned activities include direct engagement at meetings, forums, symposiums and communication outreach via websites, newsletters and listservs.

Knowledge transfer activities will draw on analyses and reports already completed by the Project Team to outline key messages and lessons learned. As the project progresses and deliverables are completed, key messages will evolve to reflect these developments. This Plan identifies work products and other collateral to be developed to assist in delivering the key messages. In addition, this Plan recommends capturing metrics of activities undertaken to inform the development of the Knowledge Transfer Report.

## 2. Introduction

### 2.1 Sonoma Clean Power and its Customers

Sonoma Clean Power (SCP) is a public power provider operating as a community choice aggregator (CCA) and is the default electricity provider for Sonoma and Mendocino Counties. SCP exists to provide broad public benefits relating to affordability, reliability, climate action and sustainability; coordination with local agencies; customer programs; and support for the local economy. The default service for SCP customers is CleanStart, which comprises 49% renewable power and 91% carbon-free power (2018 Climate Registry certified values). SCP customers also have the option to select EverGreen service, which is 100% renewable power produced day and night entirely within the SCP service area.

SCP serves just over 220,000 accounts, of which 86% are residential accounts. On an annual basis, SCP's load is comprised of about 50% residential energy.

### 2.2 About Lead Locally and the Advanced Energy Center

Under funding by the California Energy Commission (CEC) through the Electric Program Investment Charge (EPIC), an electricity ratepayer surcharge authorized by the California Public Utilities Commission (CPUC), SCP launched the Lead Locally project (Project), an innovative programmatic approach to existing buildings research, development and demonstration that includes a range of innovative technologies, program features, and market strategies to engage new customers in energy efficiency upgrades and deliver benefits to California's electric ratepayers. The Project aims to identify strategies and technologies that can assist with the State's goals of doubling the efficiency of existing buildings by 2030.

The Project will include applied research, technology demonstration, and technology deployment activities, each of which will propose innovations that could stimulate the energy efficiency market. With the applied research work, the team will investigate a series of innovative technologies that have the potential to be integrated into existing program models. Lessons learned from the applied research projects will be funneled directly to consumers, contractors, real estate professionals, and building officials through SCP and its local partner organizations. This technology demonstration and deployment work will be driven in part through the SCP "Advanced Energy Center", a physical storefront where consumers can directly procure energy efficient products and services. The Advanced Energy Center will:

- Demonstrate the appeal, impact, and efficiency of multiple advanced energy technologies through technology showcases and displays, educational offerings, and performance data results from Lead Locally demonstration sites.
- Speed deployment of energy efficiency, make energy efficiency programs more accessible to all customers, and increase customer knowledge of energy efficiency and energy code requirements while addressing myths or misunderstandings about electric appliances and electrification.
- Provide customer education on the upcoming shift to Time of Use (TOU) rates, ways for customers to access California Alternate Rates for Energy (CARE) and Family Electric Rate Assistance (FERA) rates, and general benefits and opportunities for customers to be aware of when moving to any of these rate plans.

The Advanced Energy Center will be located in a 9,400 square foot (sf) space in downtown Santa Rosa. It will be staffed by SCP employees and representatives. Contractors and vendors of energy efficiency technologies will be encouraged to participate in the Advanced Energy Center through trainings and equipment displays and demonstrations; vendors may staff their display as needed.

This robust existing building initiative will also serve to complement current fire recovery efforts in Sonoma and Mendocino Counties, enabling SCP programs to affect change far and beyond the scope of this project.

## 2.3 Value of Knowledge Transfer

Knowledge transfer refers to the process by which information gained is documented and communicated to identified key audiences. The process of capturing, archiving and sharing knowledge has many benefits. By sharing the successes and challenges of a project, other project managers can more effectively evaluate if undertaking a similar project will be of value to their organization. In addition, project managers can reduce project costs by learning from past projects and implementing past successes while avoiding past failures.

Sharing knowledge and lessons learned from the Project can extend the benefit of the applied research and findings to communities such as local governments, professional organizations, research institutes throughout the State and beyond. Policy recommendations can influence policy development at all levels of government to enable future energy assurance and resilience, and to incentivize the uptake of renewables and onsite energy storage in a microgrid setting.

## 2.4 Statement of Purpose

This Knowledge Transfer Plan aims to document how SCP and the Project team will make lessons learned, knowledge gained, and experimental results from the Project available to the SCP customers and key decision makers at local, State, national and international levels, including local governments, program administrators, industry and trade professionals, utilities, the CEC, the CPUC, and others. To support this goal, the Plan outlines the method and type of knowledge that will be documented, identifies the target audiences, and describes the activities for how the knowledge will be transferred to the target audiences. These activities will be implemented in coordination with those outlined in the Lead Locally Training Plan to support complementary goals.

# 3. Knowledge Transfer Plan Implementers and Partners

Regarding the Knowledge Transfer Plan (Plan), there are two key roles - implementers and partners. "Implementers" lead the development of the plan, define the messages, deliver the activities and report on outcomes. "Partners" share the message and represent the team in delivering activities but are not expected to report on outcomes or define messages. Partners for the Project are all members of the Technical Advisory Committee (TAC), which was organized for the purpose of overseeing the Project's development and implementation. Implementers and Partners of the Plan include:

### **Implementers:**

- Sonoma Clean Power (SCP)



- DNV GL
- Frontier Energy (Frontier)
- County of Sonoma - Energy and Sustainability Division (SCESD)
- Design Avenues, LLC
- Sonoma County Regional Climate Protection Authority (RCPA)

**Partners:**

- Bay Area Regional Energy Network (BayREN)
- Bay Area Air Quality Management District (BAAQMD)
- Natural Resource Defense Council (NRDC)
- Pacific Gas & Electric (PG&E)
- Electric Power Research Institute (EPRI)
- Metropolitan Transportation Commission (MTC)
- East Bay Community Energy (EBCE)
- StopWaste
- Carbon Free Palo Alto
- Northwest Energy Efficiency Alliance (NEEA)
- Vermont Energy Investment Corporation (VEIC)
- ConSol

## 4. Target Audiences

Key lessons learned from the Project will be of value to a variety of local, State, national and international audiences. As the project is funded through a CEC grant, the focus of the project is within California to maximize the financial benefits to California ratepayers. However, the team is hopeful that some of the lessons learned can apply more broadly to local jurisdictions in other mild climate zones across the country and beyond. The following table identifies the target audiences of this plan and the content to be communicated with each audience.

**Table 1: Target Audiences and Communication Content**

<b>Audience</b>	<b>Project Summary<sup>1</sup></b>	<b>Project Benefits<sup>2</sup></b>	<b>Project Deliverables<sup>3</sup></b>	<b>Lessons Learned<sup>4</sup></b>
<b>Local &amp; Regional Level</b>				
Elected Officials	✓	✓	✓	
Local governments, Policy Makers	✓	✓		✓
SCP Customers (Residents and Businesses)	✓	✓		
Utilities (IOUs, CCAs, Municipals)	✓	✓		✓

Industry Professionals, Networks & Organizations	✓	✓	✓
Program Managers & Administrators	✓	✓	✓
<b>State Level</b>			
Legislature	✓	✓	✓
CEC		✓	✓
CPUC	✓	✓	✓
Industry Professionals, Networks & Organizations	✓	✓	✓
Program Managers & Administrators	✓	✓	✓
<b>National &amp; International Level</b>			
Academic/Research Institutions	✓	✓	✓
Industry Professionals, Networks & Organizations	✓	✓	✓

<sup>1</sup> Examples of Project Summary content could include Lead Locally goals, technologies, partners, activities.

<sup>2</sup> Examples of Project Benefits content could include information on customer comfort and health, GHG emissions reductions, water savings, customer bill savings, economic impact.

<sup>3</sup> Project Deliverables are listed in Appendix B.

<sup>4</sup> Examples of Lessons Learned content could include varying interest in mid- and up-stream rebates from actors in supply chain and installation best practices.

## 5. Knowledge Transfer Process

### 5.1 Key Messages

Key messages will be summarized in Appendix A and will include knowledge gained, results from technical models, and lessons learned as identified in Project deliverables, which are listed in Appendix B. While documents include extensive discussion on their areas of focus, high-level key messages will be outlined in Appendix A and should be referenced when developing knowledge transfer products. Please note that as this project is ongoing, not all deliverables have been submitted and additional key messages will continue to be developed even after the submission of the Final Knowledge Transfer Plan.

### 5.2 Knowledge Transfer Products

Project deliverables (Appendix B) will be used by the project team to support the transfer of knowledge and help develop additional products and communications that will tailor

information from these deliverables as necessary to reach and engage specific target audiences. All products prepared for public dissemination will include the CEC’s Legal Notice Requirement.

### 5.3 Activities

Knowledge transfer activities will occur from July 2018 through February 2022, with reporting on activities beginning in August 2020. The publication of developed products identified in section 5.2 “Knowledge Transfer Products” will generally precede engagement activities identified in this section. Any new products developed or activities identified for knowledge transfer following the publication of the Plan must be approved by SCP and the CEC.

Table 2 maps out an approximate timeframe for the publication of products, communication outreach, direct engagement activities and reporting. Please note this schedule is subject to change.

**Table 2: Knowledge Transfer Timeline**

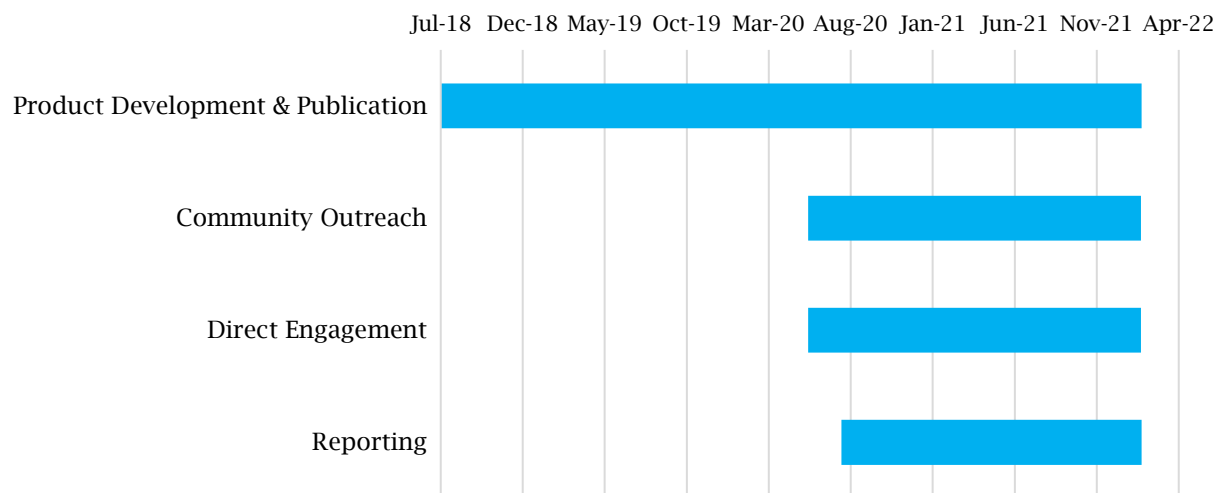


Table 3 lists products to be published to support knowledge transfer activities, target audiences and the implementer/partner responsible for publishing.

**Table 3: Product Development and Publication, Audiences and Implementers**

<b>Product Publication</b>	<b>Audience(s)</b>	<b>Implementer/ Partner</b>
Lead Locally page on SCP website	All, especially Customers	SCP
Advanced Energy Center	All, especially Customers and Industry Professionals	SCP, Frontier
Press release(s)	All, especially SCP Customers and Contractors	SCP
Presentation materials	Local and State level implementers, contractors and trade professionals, policy makers, CEC	SCP, Frontier

To deliver key messages identified and communicated in the products, implementers will conduct activities identified in Table 4 below. To encourage the exchange of ideas and discussion, as the targeted sector is a professional audience of stakeholders (see Section 4), a strong focus will be on networking and interactive activities. Each implementer/partner will have the responsibility for fine-tuning the key messages for its respective audience and developing any additional products for the activity as required. Please note that the list below includes suggested activities and is subject to change.

**Table 4: Knowledge Transfer Activities, Audiences and Implementers**

<b>Activity</b>	<b>Audience(s)</b>	<b>Implementer/ Partner</b>
<b>Communication Outreach</b>		
ConSol/Workforce Instructions for Standards and Efficiency (WISE)	Contractors, trade professionals, manufacturers, distributors, suppliers, utilities	SCP, Frontier, ConSol
Associated General Contractors of California	Contractors, trade professionals, public agencies	SCP, Frontier, DNV GL
Air Conditioning Contractors of America	Contractors, trade professionals, manufacturers, distributors, suppliers, utilities	SCP, Frontier, DNV GL
Institute of Heating and Air Conditioning Industries	Contractors, trade professionals, manufacturers, distributors, suppliers, utilities	SCP, Frontier, DNV GL
Illuminating Engineering Society	Engineers, researchers, educators, architects, designers, contractors, trade professionals, manufacturers, distributors, suppliers, utilities, SCP Customers	SCP, Frontier, DNV GL
Whole Building Design Guide (National Institute of Building Sciences)	Government representatives, engineers, researchers, educators, architects, designers, contractors, trade professionals, manufacturers, distributors, suppliers, utilities, SCP Customers	SCP, Frontier, DNV GL
American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)	Engineers, researchers, educators, architects, designers, contractors, trade professionals, manufacturers, distributors, suppliers, utilities, SCP Customers	SCP, Frontier, DNV GL
Consortium for Energy Efficiency	Program administrators, manufacturers, government agencies	SCP, Frontier, DNV GL
California Restaurant Association	Restaurant and food facility operators, manufacturers, distributors, suppliers, consultants	SCP, Frontier, DNV GL

California Energy Wise	Utilities, contractors, trade professionals, builders, designers, SCP Customers	SCP, Frontier, DNV GL
Association of Energy Engineers (AEE)	Engineers, architects, designers, manufacturers, distributors, suppliers, SCP Customers	SCP, Frontier, DNV GL
North Bay Association of Realtors	Real estate professionals, including sales, realty, and property management	SCP, Frontier
California Association of Realtors	Real estate brokers and other real estate professionals	SCP, Frontier
National Association of the Remodeling Industry (NARI)	Builders, designers, contractors, trade professionals, manufacturers, distributors, suppliers, supply chain partners	SCP, Frontier, DNV GL
National Association of Real Estate Brokers (NAREB)	Real estate professionals, including sales, realty, and property management	SCP, Frontier
California Homebuilding Foundation	Researchers, contractors, trade professionals, public agencies	SCP, Frontier, DNV GL
<b>Direct Engagement - Meetings</b>		
Local Government Commission, MTC, BAAQMD and other regional agencies	Various	Various
International Code Council (ICC) Chapter Meetings, including Redwood Empire Association of Code Officials (REACO)	Planning agencies, building departments, policy makers	BayREN
American Council for an Energy-Efficient Economy (ACEEE)	Policy makers, program managers, consultants	SCP, Frontier
California Energy Efficiency Coordinating Committee (CAEECC)	CPUC, CEC, program administrators, utilities, stakeholders, policy makers, contractors, trade professionals, government agencies and municipalities	SCP, Frontier
Emerging Technologies Coordination Council (ETCC)	CPUC, CEC, IOUs, government agencies and municipalities, researchers, engineers	SCP, Frontier
<b>Direct Engagement - Forums, Symposiums, Trainings, and Conferences</b>		
BayREN Quarterly Forum	Planning agencies, building departments, policy makers, CEC, CPUC	SCP, BayREN
ACEEE Hot Water Forum and other aligned ACEEE channels	Policy makers, program administrators and managers, consultants	SCP
Dry Climate Forum	Policy makers, program administrators and managers, consultants	SCP, Frontier

CALBO Training Institute	Homeowners, contractors, builders, designers, planning / government agencies	SCP, Frontier
Professional Organization Training Programs	Homeowners, contractors, trade professionals	Various
PG&E Training Programs	Homeowners, contractors, trade professionals	PG&E
Emerging Technologies Summit	IOUs, government agencies and municipalities, manufacturers, researchers, engineers	PG&E

## 6. Policy Development

To the knowledge of the Project team, at the time of writing this report, the Project has not been cited in government policy publications, nor has it been used to inform regulatory bodies. This plan will be updated if this changes.

## 7. Reporting

Following the implementation of the Knowledge Transfer Plan, activities conducted will be reported in the Knowledge Transfer Report. Implementers and partners will aim to track metrics that provide a framework to measure the success of the Plan. Such metrics could include websites and pages published; number of presentations delivered; and number and type of products published.

Outreach and direct engagement activities detailed in this plan will be implemented in coordination with those discussed in SCP's Advanced Energy Center Training Plan, the availability of which will be aligned with the opening of the Advanced Energy Center. Metrics tracked for training and education activities will be included in reporting associated with this Plan.

# Appendices

## Appendix A Key Messages

The team has identified several key messages from Applied Research, Technology Demonstration, Technology Deployment, and project development phases of the Lead Locally project. Please note that as this project is ongoing, not all deliverables have been submitted and additional key messages will continue to be incorporated. As such, this appendix is intended to be a living document that will be updated with further messages as they are developed.

### 1. Project background:

- a. Cities, municipal utilities, Investor Owned Utilities (IOUs), and Community Choice Aggregators (CCAs) face challenges in meeting state and local energy efficiency targets and ensuring energy security.
- b. New technologies and customer programs/deployment strategies present an opportunity for utilities and local governments to achieve energy efficiency and resiliency goals.
- c. CCAs are in a unique position to leverage their role as a trusted community partner to provide a valuable proving ground to test, promote, and facilitate the installation of scalable energy efficiency technologies in existing residential and commercial properties
- d. Sonoma Clean Power (SCP) has recognized the abundant potential for energy and energy-related cost savings in residential and commercial properties via adoption of energy efficiency technologies.
- e. Customer engagement strategies such as the Advanced Energy Center storefront will provide customers with unique opportunities to work with building professionals and purchase new energy efficiency technologies that will support reduced energy usage and increased energy savings.

### 2. Energy Efficiency and Electrification of buildings benefits to local governments, communities, and the State:

- a. Accelerated Adoption of Energy Efficiency Technologies
  - i. SCP's position as a municipal power provider responsible to SCP's customers provides a flexible environment for quickly iterating on programs and strategies to accelerate the adoption of energy efficiency and advanced energy retrofit projects.
  - ii. Energy efficiency technologies with load shifting capabilities, such as Grid-Integrated Heat Pump Water Heaters, can be integrated into Sonoma Clean Power's demand response platform to reduce peak demand, save customers high demand and time of use charges, and facilitate increased grid reliability.
  - iii. Strategic incentive options such as on-bill financing and mid/up-stream rebates may help increase customer access energy efficiency technologies that they otherwise would not be able to adopt in their homes or businesses.
  - iv. The permitting process, including Title 24 compliance, is especially difficult for new or unfamiliar technologies where building code and equipment standards are ambiguous. Early engagement with local code officials can help identify and resolve potential barriers to code compliance and enforcement.
- b. Ease of Procurement and Contracting



- i. Strategies to support customer purchasing, such as the Advanced Energy Center and online Energy Marketplace, will enable customers to purchase technologies that are suitable to their energy needs with confidence that the field and lab tested technologies can deliver significant reductions in electricity consumption and costs.
    - ii. Program approaches to better connect customers directly with contractors, such as the Advanced Energy Center and the online Energy Marketplace, will result in increased leads with less upfront time for contractors.
  - c. Environmental Impact and Health
    - i. Incentive strategies designed to prioritize greenhouse gas reductions and occupant health benefits will accelerate the deployment of technologies with the greatest potential to reduce the environmental impacts of existing buildings while improving the health of those living and working in them.
    - ii. Widespread adoption of air sealing and improved ventilation systems, including nighttime ventilation, will help address underventilation, a serious and widespread health and safety issue in the multifamily housing sector.
  - d. Economic Stimulation and Diversification
    - i. Technologies and program strategies to reduce total electricity consumption in the mild climates of Sonoma and Mendocino Counties can provide valuable lessons and strategies to help local governments, residents, and businesses in other California climate zones deliver on the State's energy efficiency and renewable energy goals.
    - ii. Accelerating the adoption of market-ready technologies via innovative consumer resources such as the Advanced Energy Center will support stimulation of local and regional economies.

### 3. Lessons learned from the Applied Research and Technology Demonstration

- a. Lessons Learned: Technology
  - i. Field demonstrations of new technologies and technology applications, such as Radiant Ceiling Panel, are critical to identifying barriers to larger scale deployment, such as site design challenges impacting standardized installation and needs for contractor and workforce training to increase adoption of best installation practices.
  - ii. Engagement with other parties pursuing their own research and demonstrations, such as National Renewable Energy Laboratory (NREL), which has a patent for their own heat pump water heater optimizing algorithm, present opportunities for increased learning and leveraging of resources but take time and flexibility to coordinate.
  - iii. Considering efficiencies of the average home in a specific climate zone, preliminary modeling shows that targeting buildings that are low on the energy efficiency scale is necessary to cost-effectively meet energy savings between 10 and 20 percent.
- b. Lessons Learned: Site Recruitment
  - i. Project promotion pages that include interest-based applications, such as the Lead Locally page on SCP's website, are successful recruitment strategies to engage residential participants.

- ii. Residential audiences are receptive to “No Cost” messaging and are generally amenable to taking on retrofit projects when presented with cost savings or other incentive opportunities.
- iii. Despite providing full financial support, lead time of at least 6 to 12 months is necessary to recruit commercial sites to participate in a retrofit project due to the time it takes a commercial business or similar organization to plan a large scale construction project in a way that minimizes operational impacts. For public sites, including schools, this lead time also needs to account for budget planning cycles in any public agency’s fiscal-year calendar. Recruitment of commercial and public sites is easier if the project champion for the company is also the building owner.
- c. Lessons Learned: Energy Efficiency Testing Laboratory Set Up
  - i. Achieving desired in-lab control of test chambers for innovative technologies such as radiant heat panels presents various obstacles, including technical, practical, and safety barriers.

#### **4. Lessons Learned from Technology Deployment (i.e., the Advanced Energy Center and online Marketplace; Incentives and On-Bill Financing)**

- a. Lessons Learned: Community and vendor involvement
  - i. Engaging vendors and distributors in program activities for a wide number of energy efficiency technologies is difficult, as different products have different supply chains where each actor may need to be presented different value proposition to participate in the program. But a dedicated and local organization like SCP is nimble and can tailor its program to effectively lower costs for customers and deliver value to participating vendors.
  - ii. Direct referrals and recommendations to connect with specific contacts are efficient strategies to make successful initial contact with vendors.
  - iii. Collaboration between program staff and any third party partner (vendor, contractor, or otherwise) is critical to successful engage on operational and legal issues required to have those third parties deliver services through a public program, particularly for those market actors (i.e., vendors and contractors) that do not normally participate in Programs or public procurements.
- b. Lessons Learned: Education and Training Facilities
  - i. Key Messages currently in development and will be based on early training activities yet to be implemented by the grant.

#### **5. Other lessons learned**

- a. Bundling measures with aligned work scopes and complementary energy use profiles, as being documented by the Optimal Retrofit Strategies Analysis, can provide increased value and benefit to customers and power providers like SCP.
- b. Increasingly, the past can’t be used to predict the future, as past weather models do not effectively account for the energy savings that could be achieved in a changing climate. Project costs become impossible to estimate as increasingly common natural disasters like wildfires interrupt supply chains and labor availability. Energy efficiency programs and grant activities must be given room to be nimble to navigate these changing pressures in order to achieve desired participation and energy savings goals.

- c. Incorporating budget flexibility to accommodate additional, often unforeseeable costs, such as prevailing wage requirements, time allotted to subcontractors to learn unfamiliar technologies, federal tariffs on product and materials imports, is important for programs that aim to deployment of innovative technologies.
- d. Demonstrating actual energy savings in the field is complicated by unforeseeable events that impact energy use (such as wildfires, shelter in place warnings and orders, etc.), making it critical that programs have flexible methodologies to measure energy savings claims.

# Appendix B Project Deliverables

## Project Deliverables

- Final Report
- Final Phase 1 Research, Instrumentation, and Monitoring Plan - *Complete*
- Final Phase 1 Evaluation, Measurement and Verification (EM&V) Framework
- Final Phase 2 Research, Instrumentation, and Monitoring Plan - *Complete*
- Final Phase 2 EM&V Framework
- Final Efficiency Optimizing Control Strategies for Grid Integrated Heat Pump Water Heater Report
- Final Radiant Ceiling Heating and Cooling/Air to Water Heat Pumps Report
- Final Radiant Ceiling Heating and Cooling/Air to Water Heat Pumps Sizing and Installation Guide
- Final Commercial Daylighting Retrofits Report
- Final Phase Change Materials in Residential Applications Report
- Final Phase Change Materials in Residential Applications Best Practice Installation Guide
- Final Technology Demonstration Program Implementation Plan - *Complete*
- Final Energy Marketplace Outreach and Communication Plan
- Final Optimal Retrofit Strategies Analysis
- Final Marketplace Request for Qualifications (RFQ)
- Final Marketplace Training Plan
- Final Marketplace Web Design
- Final Initial Fact Sheet
- Final Project Fact Sheet
- Final Presentation Materials
- High Quality Digital Photos
- Final Knowledge Transfer Plan
- Final Knowledge Transfer Report
- Program Participant Satisfaction Questionnaire for Homeowners
- Program Participant Satisfaction Questionnaire for Building Occupants and Maintenance Staff
- Kick-off Meeting Benefits Questionnaire - *Complete*
- Mid-term Benefits Questionnaire
- Final Meeting Benefits Questionnaire

## Additional Products and Communications Proposed

- Training materials and collateral developed through the Advanced Energy Center for contractor, building professional, and building department trainings
- Advanced Energy Center's Marketing & Co-Branding Efforts
- On-Bill Financing Participants Agreement
- Advanced Energy Center Vendor Agreement - *Complete*
- Advanced Energy Center Vendor Agreement - Incentive Only - *Complete*
- Advanced Energy Center Vendor Agreement - Display Only - *Complete*