BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Application of Southern California Edison Company (U 338 E) for adoption of its Energy Efficiency Rolling Portfolio Business Plan and related relief.	Application 17-01-013 (Filed January 17, 2017)
Application of Pacific Gas and Electric Company (U 39 M) for Approval of 2018-2025 Energy Efficiency Rolling Portfolio Business Plan.	Application 17-01-015 (Filed January 17, 2017)
Application of Southern California Gas (U 904 G) for adoption of its Energy Efficiency Rolling Portfolio Business Plan and related relief	Application 17-01-016 (Filed January 17, 2017)
	(NOT CONSOLIDATED)

MOTION OF THE 3C-REN, TRI-COUNTY REGIONAL ENERGY NETWORK, FOR APPROVAL OF ITS RESIDENTIAL ENERGY EFFICIENCY ROLLING PORTFOLIO BUSINESS PLAN AND BUDGET PROPOSAL

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For the 3C-REN, Tri-County Regional Energy Network
San Luis Obispo County, Santa Barbara County and Ventura County

Dated: **January 23, 2017** in Ventura, California

MOTION OF THE 3C-REN, TRI-COUNTY REGIONAL ENERGY NETWORK, FOR APPROVAL OF ITS RESIDENTIAL ENERGY EFFICIENCY ROLLING PORTFOLIO BUSINESS PLAN AND BUDGET PROPOSAL

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MOTION OF THE 3C-REN, TRI-COUNTY REGIONAL ENERGY NETWORK, FOR APPROVAL OF ITS RESIDENTIAL ENERGY EFFICIENCY ROLLING PORTFOLIO BUSINESS PLAN AND BUDGET PROPOSAL

I. INTRODUCTION

Pursuant to Rule 11.1 of the California Public Utilities Commission ("Commission") Rules of Practice and Procedure, and in accordance with the *Assigned Commissioners and Administrative Law Judge's Ruling and Amended Scoping Memorandum Regarding Procedures for Regional Energy Network Submissions for the filing of Rolling Portfolio Energy Efficiency Business Plans 2018- 2025*, issued November 2, 2016 ("Joint Ruling"),[1] The County of Ventura ("Ventura County"), for itself and on behalf of San Luis Obispo County and Santa Barbara County for the Tri-County Regional Energy Network ("3C-REN"), submits this Motion for approval of 3C-REN's Residential Energy Efficiency Rolling Portfolio Business Plan ("3C-REN Business Plan") as a Regional Energy Network ("REN") serving public agencies and their constituencies within Southern California Edison's ("SCE's"), Southern California Gas' ("SCG's") and Pacific Gas and Electric's ("PG&E's") service territories. This Motion is presented in two parts:

1) a funding request for the 2018-2025 Rolling Portfolio period in the amount of $21,105,187 million for electric energy efficiency in SCE's service territory, $15,828,890 million for gas efficiency efforts in SCG's service territory, and $15,828,890 million for electric and gas energy efficiency in PG&E's service territory; and,

2) a request to approve and fund a Tri-County Residential Energy Efficiency Rolling Portfolio Business Plan for 2017 in the amount of $1,645,475 million.

3C-REN's Business Plan: The total combined 3C-REN request for the 8-year period is in the amount of $52,762,967 million. As discussed in general terms herein and in greater

[1] *Assigned Commissioner's and Administrative Law Judge Ruling and Amended Scoping Memorandum Regarding Phase III of 13-11-005* (EE Ruling), R.13-11-015, dated November 2, 2016.

detail in the attached Business Plan, 3C-REN considers the SCE, SCG and PG&E ("the Utilities") proposals to be reasonable and consistent with the provisions set forth in the Commission Decision ("D.")15-10-028.[2] This request is designed to complement the Utilities' Applications without overlap and is therefore also reasonable and consistent with the Commission's directives on Energy Efficiency Rolling Portfolio Business Plans. Attachment "A", attached to this Motion, is the Residential Energy Efficiency Rolling Portfolio Business Plan for the 3C-REN. The 3C-REN Business Plan was developed as directed by the Commission, using the guidance in D.15-10-028 issued on October 22, 2015[3] and has been vetted through the stakeholder process at the California Energy Efficiency Coordinating Committee ("CAEECC").[4] Should the Commission require additional information, the 3C-REN will work with the Commission's staff in a timely fashion to ensure that the Commission has everything required to approve this Application.

This Motion includes a 2017 initial start-up funding request in addition to the eight-year request for the 2018-2025 period, as follows:

3C-REN Business Plan Program Initial Budget Request

Budget Element	2017	2018 – 2019 Years 1 - 2	2020 – 2022 Years 3 - 5	2023 – 2025 Years 6 - 8
PG&E Budget (30%)	$493,643	$2,193,255	$5,359,765	$8,275,870
SCE Budget (40%)	$658,190	$2,924,340	$7,146,353	$11,034,494
SCG Budget (30%)	$493,643	$2,193,255	$5,359,765	$8,275,870
3C-REN Proposal Request	**$1,645,475**	**$7,310,850**	**$17,865,883**	**$27,586,234**

This funding request seeks support for the initial steps and phase-in transition period to the proposed comprehensive and inclusive energy efficiency program. The 3C-REN Business Plan anticipates a transition will occur whereby a number of administration, programmatic elements and support programs would shift and be reformed under the 3C-

[2] D.15-10-028, p. 46-58.
[3] Ibid.
[4] D.16-08-019, p.11.

REN. If adopted, an Implementation Plan would provide greater detail describing additional budget elements and seek incremental funding associated with those elements. Should the Commission require additional information in this proceeding, 3C-REN will work with the Commission's staff in a timely fashion to ensure that the Commission has everything required to approve this proposal.

II. BACKGROUND

The Tri-County Region is presenting its 3C-REN, Tri-County Regional Energy Network Residential EE Business Plan as a formal proposal to form a REN as outlined by the CPUC. The 3C-REN has reviewed the CPUC guidance and pertinent decisions and is confident that it is well suited and needed as both an alternative and as a supplement to IOU residential programs. The 3C-REN Business Plan provides details regarding the existing gaps, and audiences that are hard-to-reach, as required by the CPUC's guidance. The following outlines the specific CPUC guidance and direction addressed in the Business Plan.

In 2012, the CPUC authorized the development of RENs as a pilot program administrator model to fill gaps that the IOU's could not. On January 22, 2013, the Commission initiated Rulemaking (R.) 13-11-005 to establish policies and procedures that would move away from the triennial review process towards a rolling review of Energy Efficiency program portfolios. On October 22, 2015, the Commission issued a Decision D.15-10-028 (EE Rolling Portfolio Decision), which adopted the energy efficiency rolling portfolio framework and directed Energy Efficiency Program Administrators (PA) to file Business Plan Applications for the adopted rolling portfolio period. More recently, the CPUC in Decision 12-11-015[5] and confirmed in Decision 16-08-019[6], refined the REN's activities providing final guidance on initial energy efficiency rolling portfolio business plan filings (Final Guidance).

A Joint Ruling was issued on November 2, 2016 that provided procedural direction for

[5] CPUC, Decision 12-11-015, November 8, 2012, page 11.
[6] CPUC Decision 12-05-015, May 18, 2012, page 150.

non-IOU PAs detailing how energy efficiency rolling portfolio business plans must be submitted and when Non-IOU PA plans are to be filed.[7] This Joint Ruling directed REN's to file, no later than January 23, 2017, a motion for approval of their EE rolling portfolio business plans to applicable IOU applications within their service territory.

III. SUMMARY OF 3C-REN'S RESIDENTIAL EE ROLLING PORTFOLIO BUSINESS PLAN

In compliance with the Joint Ruling, and the Final Guidance, the County of Ventura on behalf of 3C-REN respectfully submits the attached Residential Energy Efficiency Rolling Portfolio Business Plan for Commission approval. 3C-REN's Business Plan addresses the requirements of the EE Rolling Portfolio Decision, the Joint Ruling, and the Final Guidance. 3C-REN's Business Plan is intended to facilitate a path forward towards increased cost-effective energy efficiency programs and provides a roadmap for the evolution of public agency leadership to drive the market to increased energy efficiency in residential buildings through strategic intervention and cross-cutting strategies, while also supporting our broader state goals, such as the reduction of greenhouse gases.

3C-REN's Residential EE Business Plan is organized as follows:

- Glossary
- List of Tables and Figures
- Executive Summary
- 3C-REN Overview
- 2.0 Strategic Business Plan
- Business Plan Budget and Metrics, 3C-REN 2018-2025 Budget
- 4.0 Solicitation Plan
- 5.0 Residential Sector Chapter
- 6.0 Cross Cutting Activities
- 7.0 Appendices

3C-REN ORGANIZATION & MARKET

The Counties of San Luis Obispo, Santa Barbara, and Ventura, referred to in this

[7] Joint Ruling, p. 12.

proposal as the Tri-County Regional Energy Network (3C-REN), have been working together since July 2014 to provide residential energy efficiency financing and outreach services in support of programs offered by the three investor owned utilities (IOUs), in particular the Home Upgrade program. The Region's service area is geographically isolated and diverse with varying microclimates and pockets of urban jurisdictions surrounded by rural agricultural communities and a large Spanish speaking population. The nature of these communities carries multiple challenges requiring a more local-focused, on-the-ground approach towards the implementation of energy and water efficiency activities that can only be addressed by an experienced, coordinated regional program administrator. The Tri-County Region is unique in that it is located at the end of two electricity service areas, served by three different IOUs and is far from the hub of energy related workforce training, customer engagement and marketing efforts.

The Tri-Counties have tried to address market barriers through the jointly operated emPower Central Coast (emPower) program, funded through California Public Utility Commission (CPUC) ratepayer dollars and administered by the IOUs. As addressed in the 3C-REN Business Plan, emPower has been unable to expand its activities or apply lessons learned in a meaningful way that can address persistent market barriers and therefore, fully realize the Region's energy savings potential.

After several years of experience and experimentation with the emPower program, the Tri-County Region seeks to continue building and expanding upon the existing assets, services and systems, as well as develop new initiatives through creation of the 3C-REN. The Business Plan details the 3C-REN's vision, goals, intervention strategies and tactics to enable the Tri-Counties to establish a robust residential focused program, filling gaps in services and addressing hard-to-reach audiences and is guided by CPUC guidance documents, legislation, the California Long-term Energy Efficiency Strategic Plan (CAEESP) and California's Existing Buildings Energy Efficiency (EBEE) Action Plan. 3C-REN also seeks to build upon the success and experience of the BayREN and SoCALREN, whose original proposals where approved in CPUC D.12-11-015.

Ultimately, 3C-REN is an essential and needed organization to help both address the deficiencies in the Region and to fill a hole in the delivery of services to the area required to meet State goals. Working in concert with the IOUs, LGPs and local jurisdictions, the 3C-REN

will be able to facilitate and navigate changing community needs, and deliver a tailored set of services that improves outcomes for all the actors, resulting in higher energy savings.

The following graphic outlines the Strategic Framework for the 3C-REN Business Plan. This Business Plan is guided by the 3C-REN's long-term vision and informed by four primary goals that are activated by four intervention strategies. Specific tactics and potential programs have been identified in Section 5.0 Residential Sector. It is anticipated that while the tactics and programs may change over the next ten-years, this Framework will provide a consistent focus, and help to hone and measure activities effectively.

The centerpiece of the 3C-REN's Business Plan is the facilitation of a customer's journey from need to realization, reflecting a holistic approach to residential energy efficiency and home building performance. This approach is informed by a detailed market and gaps assessment of the Tri-County Region and activated by a series of strategies to create a fully integrated residential program that: 1) builds trust and long-term relationships via an Energy Coach service; 2) offers and connects a range of energy efficiency upgrade options, including direct install measures and bundled measures; and 4) incorporates a variety of financing mechanisms to reduce the upfront costs and barriers to upgrades. An important added layer to the 3C-REN Business Plan is the focus, as a REN, to address hard-to-reach audiences and fill gaps where utility programs cannot or will not provide services. Specifically, the 3C-REN Business Plan will target moderate-income residents who are homeowners and renters, the large Spanish speaking communities, and rural areas of the Tri-County Region.

IV. STATUTORY AND PROCEDURAL REQUIREMENTS

A. Statutory and Other Authority (Rule 2.1)

3C-REN's Application complies with the Commission's Rules of Practice and Procedure, Rules 1.5 through 1.11 and 1.13, which specify the procedures for, among other things, filing documents. In addition, this request complies with Rules 2.1 of the

Commission's Rules of Practice and Procedure.[8]

Rule 2.1 requires that all applications: (1) clearly and concisely state authority or relief sought; (2) cite the statutory or other authority under which that relief is sought; and (3) be verified by the applicant. Rule 2.1(a), 2.1(b) and 2.1(c) set forth further requirements that are addressed separately below.

The relief being sought is Commission approval of 3C-REN's Residential EE Business Plan proposal.

B. Verification (Rules 2.1 and 1.11)

As required by Rules 2.1 and 1.11 of the Commission's Rules of Practice and Procedure, this application has been verified by an officer, Alejandra Tellez, County of Ventura, lead agency for the 3-C REN, Tri-County Regional Energy Network.

C. Legal Name and Correspondence (Rules 2.1(a) and 2.1(b))

Pursuant to Rule 2.1(a) and 2.1(b) of the Commission's Rules of Practice and Procedure, the full legal name of the applicant is the County of Ventura on behalf of the 3C-REN, Tri-county Regional Energy Network. The County of Ventura is an association of local governments in California. It is not a corporation organized and existing under the laws of the State of California.

The 3C-REN's principal place of business is the County Executive Office at the County of Ventura, 800 S. Victoria Avenue, L#1940, Ventura, CA 93009 and its post office address and telephone number are:

County of Ventura

[8] Rule 2.1(a) requires the application to state the exact legal name of the applicant and location of its principal place of business, and, if a corporation, the state under the laws of which the applicant was organized. Rule 2.1(b) requires the application to state the name, title, address, telephone number, facsimile transmission number, and e-mail address of the person to whom correspondence or communications in regard to the application are to be addressed.

County Executive Office,
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Communications in regard to this Application or to request a copy of this Application, please contact:

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A copy of the 3C-REN Business Plan is available online at:
http://www.ventura.org/environment/energy-efficiency .

The 3C-REN understands that notices, orders and other papers may be served upon the individual named above, and such service shall be deemed to be service upon the 3C-REN.

D. Proposed Categorization, Need for Hearings, Issues to Be Considered, Proposed Schedule (Rule 2.1(c))

Rule 2.1(c) requires that applications shall state "[t]he proposed category for the proceeding, the need for hearing, the issues to be considered, and a proposed schedule." These requirements are discussed below.

1) Proposed Categorization

3C-REN proposes to characterize this proceeding as "rate setting" as defined in the Commission's Rules of Practice and Procedure, Rule 1.3(e) and Public Utilities Code § 1701.1(c)(3).

2) Issues to Be Considered

The issues to be considered in this Application concern the approval of 3C-REN's Residential EE Rolling Portfolio Business Plan proposal.

3) Proposed Schedule and Hearings for Resolution of Issues

The 3C-REN respectfully requests that the Commission expedite processing of this Application in order to allow for the 3C-REN to commence operation on January 1, 2018, the beginning of the rolling portfolio business plan period. As categorized in the Joint Ruling, hearings will not be required.[9] The issue to be considered by the Commission by this Application is the allocation of funding to the 3C-REN proposal.

3C-REN proposes the following schedule:

Application filed:	January 23, 2017
Responses/Protests due:	February 17, 2017
Reply to Responses/Protests:	February 27, 2017
Proposed Decision:	May 18, 2017
Comments on Proposed Decision:	May 29, 2017
Replies to Comments:	June 5, 2017
Final Commission Decision:	June 30, 2017

E. Service

3C-REN will serve this Application as required by the Public Utilities Code and the Commission's Rules of Practice and Procedure and shall be served on service list for the application proceedings for Southern California Edison Company, Southern California Gas Company, and Pacific Gas & Electric Company, as well as served on the parties to this rulemaking, R13-11-005.[10]

[9] Joint Ruling, issued November 2, 2016. p. 13.
[10] Joint Ruling, issued November 2, 2016. p. 1

V. CONCLUSION

The 3C-REN respectfully requests that the Commission approve its Residential EE Business Plan proposal.

Respectfully submitted,

/s/ Alejandra Tellez

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For the 3C-REN,
Tri-County Regional Energy Network
San Luis Obispo County,
Santa Barbara County and Ventura County

Dated: **January 23, 2017** in Ventura, California

VERIFICATION

(See Rule 1.11) **3C-REN**

I am authorized to make this verification on behalf of the applicant, the County of Ventura for 3C-REN. The statements in the foregoing document are true of my own knowledge, except as to the matters that are herein stated on information and belief, and as to those matters, I believe them to be true.

/s/ Sue Hughes

By: Susan Hughes
Senior Deputy Executive Officer
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For the 3C-REN,
Tri-County Regional Energy Network
San Luis Obispo County,
Santa Barbara County and Ventura County

Dated: **January 23, 2017** in Ventura, California

Attachment A

3C-REN Residential Energy Efficiency Business Plan Proposal

2018-
2025

3C-REN

Residential Energy Efficiency Business Plan

COUNTIES OF SAN LUIS OBISPO, SANTA BARBARA & VENTURA

3C-REN | TRI-COUNTY REGIONAL ENERGY NETWORK

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GLOSSARY

3C-REN: Tri-County Regional Energy Network

AB: Assembly Bill

AEEI: Advance Energy Economy Institute

ARRA: American Recovery and Reinvestment Act

BPI: Building Performance Institute

CAEESP: California Long-term Energy Efficiency Strategic Plan

CAR: California Association of Realtors

CCE: Community Choice Energy

CEC: California Energy Commission

CHEEF: California Hub for Energy Efficiency Financing

CHERP: The Community Home Energy Retrofit Program

COB: Community Based Organization

COE: Centers for Excellence

CPUC: California Public Utilities Commission

CRM: Customer Relationship Management

C&S: Codes and Standards

DCPP: Diablo Canyon Power Plant

DG: Distributed Generation

DI: Direct Install

DIY: Do It Yourself

DOE: Department of Energy

DR: Demand Response

EBEE: Existing Buildings Energy Efficiency

EM&V: Evaluation, Measurement and Verification

ESA: Energy Savings Assistance

GHG: Greenhouse Gas(es)

GWh: Gigowatt Hours

HEMS: Home Energy Management System

HERS: Home Energy Rating System

HEScore: Home Energy Score

HUD: Housing and Urban Development

HUP: Home Upgrade Program

HVAC: Heating, Ventilation and Air Conditioning

IDSR: Integrated Demand Side Resource

IOUs: Investor Owned Utilities

kW: kilowatt

kWh: kilowatt-hour

LGP: Local Government Partnership

ME&O: Marketing, Education and Outreach

MIDI: Middle Income

MLS: Multiple Listing Services

NATE: North American Technician Excellence

P4P: Pay for Performance

PA: Program Administrator

PACE: Property Assessed Clean Energy

PAC: Program Administration Cost

PG&E: Pacific Gas and Electric Company

PSA: Public Service Announcements

QC: Quality Control

REN: Regional Energy Network

RFP: Request for Proposal

SCE: Southern California Edison

SCG: Southern California Gas

SB: Senate Bill

SOW: Statement of Work

T24: Title 24

TRC: Total Resource Cost

UC: University of California

WE&T: Workforce Engagement and Training

ZNE: Zero Net Energy

ZREH: Zero Ready Energy Home

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EXECUTIVE SUMMARY

3C-REN ORGANIZATION & MARKET

A HOLISTIC APPROACH, LOOKING TO THE FUTURE, INFORMED BY THE PAST

The Counties of San Luis Obispo, Santa Barbara, and Ventura, referred to in this proposal as the Tri-County Regional Energy Network (3C-REN), have been working together since July 2014 to provide residential energy efficiency financing and outreach services in support of programs offered by the three investor owned utilities (IOUs), in particular the Energy Upgrade California Home Upgrade Program (HUP). There are more than 1.5 million residents living in the Tri-County Region, including three counties and 28 incorporated cities, who could benefit from the services outlined in this Business Plan. The Region's service area is geographically isolated and diverse with varying microclimates and pockets of urban jurisdictions surrounded by rural agricultural communities and a large Spanish speaking population. The nature of these communities carries multiple challenges requiring a more local-focused, on-the-ground approach towards the implementation of energy and water efficiency activities that can only be addressed by an experienced, coordinated regional Program Administrator (PA).

The Tri-County Region is unique in that it is located at the end of two electricity service areas, served by three different IOUs and is far from the hub of energy related workforce training, customer engagement and marketing efforts. As a result, residents are not always aware of available energy programs and benefits associated with making energy or water efficiency improvements. Local contracting companies are typically smaller with limited resources and experience with building performance. Contractors have difficulty attending remote workforce trainings offered by the IOUs due to the location (typically Downey or Fresno) and the time and expense required to attend.

The Tri-Counties have tried to address these barriers through the jointly operated emPower Central Coast (emPower) program, funded through California Public Utility Commission (CPUC) ratepayer dollars and administered by the IOUs. However, requests to make significant program modifications have been denied by the IOUs. Due to the inability to make program changes and the required link to the HUP, emPower has been unable to expand its activities or apply lessons learned in a meaningful way that can address persistent market barriers and therefore, fully realize the Region's energy savings potential.

Vision

Tri-County Communities' energy needs are met with a 50 percent increase in energy efficiency in residential buildings and supplemented with affordable, clean, and sustainable energy sources overtime.

Goal 1. All Tri-Counties residents will have the access, information and path to achieve deeper energy retrofits.

Goal 2. The Tri-Counties Region will substantially increase implementation and adoption of energy retrofits for their residential buildings.

Goal 3. The Tri-Counties will have a profitable workforce capable of delivering buildings at quality and efficiency levels mandated by the State and through building codes.

Goal 4. Building Departments will have the necessary tools and resources to increase energy code compliance.

PURPOSE OF 3C-REN BUSINESS PLAN

After several years of experience and experimentation with the emPower program, the Tri-County Region seeks to continue building and expanding upon the existing assets, services and systems, as well as develop new initiatives through creation of the 3C-REN. This Business Plan details the 3C-REN's vision, goals, intervention strategies and tactics to enable the Tri-Counties to establish a robust residential focused program, filling gaps in services and addressing hard-to-reach audiences.

The 3C-REN Business Plan is guided by CPUC guidance documents, legislation, the California Long-term Energy Efficiency Strategic Plan (CAEESP) and California's Existing Buildings Energy Efficiency (EBEE) Action Plan. This Business Plan also seeks to build upon the success and experience of the BayREN and SoCALREN, whose original proposals where approved in CPUC D.12-11-015.

The formation of 3C-REN will result in meaningful outcomes that include:

- Access and availability to a tailored, local residential energy efficiency program for hard-to-reach audiences in the Tri-County Region, including moderate income, Spanish speaking residents, rural communities and renters;
- An increase in the adoption of energy and water efficiency related upgrades in targeted residential sectors;
- A well-trained and sustainable local contracting workforce that is ready to offer home performance and zero net energy (ZNE) services in alignment with Title 24 requirements, and compliance with building codes and State goals; and
- Implementation of programs that result in trackable energy savings that can accelerate State and local climate goals and result in economic development benefits.

The establishment of 3C-REN is the obvious next step for the Tri-Counties, enabling it to leverage existing program experience and collaborations, and address the Region's substantive market needs.[1] With a customer-centric focus and building upon program design elements that have shown to be successful, 3C-REN will place energy professionals who are certified and experienced in the position to counsel property owners toward the improvements that will yield the most substantial energy savings possible within the owner's financial constraints.

Ultimately, 3C-REN is an essential and needed organization to help both address the deficiencies in the Region and to fill a hole in the delivery of services to the area required to meet State goals. Working in concert with the IOUs, Local Government Partnerships (LGPs) and local jurisdictions, the 3C-REN will be able to facilitate and navigate changing community needs, and deliver a tailored set of services that improves outcomes for all the actors, resulting in higher energy savings.

[1] Supports California Public Utilities Commission Decisions 12-11-15 and 16-08-19.

1.0 3C-REN OVERVIEW

The 3C-REN is composed of the Counties of San Luis Obispo, Santa Barbara, and Ventura and 28 incorporated cities, with more than 1.5 million residents and approximately 512,000 occupied housing units. The Tri-County Region is characterized by its relative isolation from the large metropolitan centers of the Bay Area and Los Angeles, with rural, agricultural areas, coastal communities and a range of small cities and towns. This Business Plan lays out a vision, goals and strategies to more effectively serve these communities, in particular audiences that are hard-to-reach and those that are not well served by the utility programs.

The 3C-REN's vision supports the State's goals and is focused on creating conditions where residents' needs are met with a 50 percent increase in energy efficiency in housing units; and supplemented by clean and sustainable energy sources. This will happen through: 1) establishing programs that provide greater access and an affordable path to long-term, deeper energy saving retrofits; 2) developing and engaging an active, well-educated and trained workforce; 3) utilizing behavioral programs to bolster electrical savings that complement natural gas savings; and 4) ensuring that building departments have the tools and resources to enforce energy codes and standards.

The centerpiece of the 3C-REN's Business Plan is the facilitation of a customer's journey (See Figure 1), from need to realization, reflecting a holistic approach to residential energy efficiency and home building performance. This approach is informed by a detailed market and gaps assessment of the Tri-County Region and activated by a series of strategies to create a fully integrated residential program that: 1) builds trust and long-term relationships via an Energy Coach service; 2) offers and connects a range of energy efficiency upgrade options, including direct install (DI) measures and bundled measures; and 3) incorporates a variety of financing mechanisms to reduce the upfront costs and barriers to upgrades. An important added layer to the 3C-REN Business Plan is the focus, as a Regional Energy Network (REN), to address hard-to-reach audiences and fill gaps where utility programs cannot or will not provide services. Specifically, the 3C-REN Business Plan will target moderate-income residents who are homeowners and renters, the large Spanish speaking communities, and rural areas of the Tri-County Region.

To successfully meet these multifaceted requirements, the 3C-REN must have the flexibility and ability to design targeted and customized programs that can be effectively and regularly adapted to community conditions, scaled across the Region, and be supportive yet independent of the utility directed programs.

FIGURE 1. 3C-REN CUSTOMER JOURNEY

The establishment of the 3C-REN will allow for this and a sustainable, trusted organization that will act as trusted stewards and advocates for energy efficiency for all the residents of the Region.

1.1 TRI-COUNTY REGION ENERGY EFFICIENCY AND CALIFORNIA'S ENERGY NEEDS

> *"SB 350 also takes steps to ensure California's clean energy transformation includes a strong focus on equity to ensure benefits are realized by all Californians, especially those in the most vulnerable communities."*[2]

The Tri-County Region is topographically diverse, with mountains, rich agricultural valleys, distinct urban areas, coastal areas and inland rural lands with vibrant communities and villages. San Luis Obispo County, served by Pacific Gas and Electric (PG&E) and Southern California Gas (SCG), has 50 miles of coastline and uniquely rural communities. County of Santa Barbara, served by PG&E, Southern California Edison (SCE) and SCG, has 110 miles of coastline and approximately 39 percent of its area is located within the Los Padres National Forest and has both coastal and inland agricultural communities. County of Ventura, served by SCE and SCG, has 42 miles of coastline and 47 percent of its total area is within the Los Padres National Forest and also has both coastal and inland agricultural communities. Each County houses the termination point of a major utility service territory.

While the Tri-County Region has three Investor Owned Utilities (IOUs), the population is not well served by energy efficiency services. A combination of workforce limitations, relative geographic isolation and low density make the area difficult to serve. However, the need to serve the population is real. The Tri-County Region represents 4 percent of the State's population and through ratepayer fees contributes to the funding the IOUs receive to provide energy efficiency services. Utility workforce education and training programs are nearly absent, there are no substantial local government partnerships (LGPs) for residential customers in the Region, and residential upgrade programs are sparse and have low uptake.

Since 2014, the Tri-Counties have been administering a ratepayer funded residential energy efficiency program – emPower. The program was designed to support the utilities' Energy Upgrade California Home Upgrade Program (HUP). emPower incorporates outreach and marketing, in-home energy advising, financing, as well as contractor training, education and support into its offerings linking the program almost exclusively to HUP. While there have been some successes, due to the complexity of the HUP program and the unique character of the area, the actual number of projects has been extremely limited and therefore, so have the emPower figures.

In light of the ambitious goals set forth from the State (AB 32/SB 32, AB 758, and SB 350) and considering the fact that over 20 percent of greenhouse gas (GHG) emissions from buildings originate from residential buildings,[3] program administrators (PA) must be more creative with program design, engaging customers,

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[2] Scavo, Jordan, Suzanne Korosec, Esteban Guerrero, Bill Pennington, and Pamela Doughman, 2016. "Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-income customers and Small Business Contracting Opportunities in Disadvantaged Communities," CEC, Publication Number: CEC-300-2016-009-SD2.

[3] Knowles, III, Hal S., "Realizing residential building greenhouse gas emissions reductions," Program for Resource Efficient Communities, School of Natural Resources and Environment, https://www3.epa.gov/ttnchie1/conference/ei17/session5/knowles.pdf.

and demonstrating the value of energy efficiency and deep energy retrofits to homeowners, investment property owners, contractors and the market as a whole. A number of barriers exist in the Tri-County Region that are similar to the rest of the State - the high cost of whole house retrofits; lack of awareness and education regarding value and benefits of energy efficiency; mixed marketing messages from higher cost solutions such as windows and solar providers; plus unique circumstances of location, socio-economics and a less than fully engaged workforce.

1.2 REGULATORY REQUIREMENTS

> *"The RENs will have the independent ability, within the confines of the approvals of their proposals granted by the Commission, to manage, deliver, and oversee their own programs independently, without utility interference or direction as it relates to the design and delivery of their programs.[4]"*

The Tri-County Region is presenting this Business Plan as a formal proposal to form a REN as outlined by the California Public Utilities Commission (CPUC). The 3C-REN has reviewed the CPUC guidance and pertinent decisions and is confident that it is well suited and needed as both an alternative and as a supplement to IOU residential programs. This Business Plan provides details regarding the existing gaps, and audiences that are hard-to-reach, as required by the CPUC's guidance. The following outlines the specific CPUC guidance and direction addressed in the Business Plan.

In 2012, the CPUC authorized the development of RENs as a pilot program administrator model to fill gaps that the IOU's could not. Specifically, the initial decision looked to the RENs to do the following:

- Leverage additional state and federal resources so that energy efficiency programs are offered at lower costs to ratepayers,
- Address the water/energy nexus,
- Develop and deploy new technologies,
- Address workforce training issues, and
- Address hard-to-reach customer segments, such as low-to moderate-residential households and small- to medium-sized businesses.[5]

More recently, the CPUC in Decision 12-11-015 and confirmed in Decision 16-08-019, refined the REN's activities to three areas:

1. Activities that utilities cannot or do not intend to undertake,
2. Pilot activities where there is no current utility program offering, and where there is potential for scalability to a broader geographic reach, if successful, and
3. Pilot activities in hard-to-reach markets, whether or not there is a current utility program that may overlap.[6]

[4] CPUC, Decision 12-11-015, November 8, 2012, page 11.
[5] CPUC Decision 12-05-015, May 18, 2012, page 150.
[6] CPUC, Decision 12-11-015, November 8, 2012, page 17.

1.3 STRATEGIC PLAN AND LEGISLATIVE DIRECTION

The 3C-REN Business Plan has been informed by a number of key state, regulatory and government policies and legislation. The following is a brief summary of the key direction that influence and direct this Business Plan. In addition, citations throughout the Plan will refer to these policies influences on program development.

STRATEGIC PLAN AND ASSOCIATED ACTION PLANS

California Energy Efficiency Strategic Plan (CAEESP) and the Big Bold Goals – The 2011 CAEESP outlines bold goals for achieving zero net energy (ZNE) in all new residential buildings beginning in 2020 and directs Program Administrators (PAs) to move away from single measure programs to deeper whole house programs.

Existing Buildings Energy Efficiency (EBEE) Action Plan – The EBEE Action Plan provides detailed strategies and tactics for increasing energy efficiency in all existing buildings, including all residential buildings. The EBEE Action Plan outlines a series of priorities for single family and multifamily buildings that have been considered and incorporated when appropriate into this Business Plan.

New Residential Zero Net Energy (ZNE) Action Plan – the New Residential ZNE Action Plan details the activities required to prepare the market, workforce and customers to transition the market to achieve ZNE beginning in 2020. The 3C-REN Business Plan will focus its efforts on preparing the building departments and to an extent, the workforce, to successfully managing this transition, particularly in relations to codes and standards.

STATE LEGISLATION/GOALS

AB32/SB32 – California Global Warming Solutions Act of 2006 – AB32/SB32 are the leading legislation in California directing substantial reductions in carbon emissions. The latest extension of the Act, SB 32, mandates the reduction of GHG gas emissions to 40 percent below the 1990 levels by 2030. As a local government, this bill is central to the 3C-REN's engagement and interest in deep energy savings and GHG reductions in the built environment. Each of the counties in the 3C-REN either has or is working to develop county-wide climate action plans, which will be considered in concert with this overall state legislation to influence the Business Plan.

SB 350 Clean Energy and Pollution Reduction Act of 2015 – The primary aspect of this law relevant to the 3C-REN is the mandate to increase energy efficiency by 50 percent in existing buildings by 2030 and its focus on addressing the needs of disadvantaged communities[7] more effectively in accessing energy efficiency and solar resources, and workforce development. This Business Plan's goals and strategies draw substantially from this mandate.

AB 793 Energy Efficiency – This bill specifically expands weatherization services to include energy management technologies for homes and small businesses. The 3C-REN sees this as an important opportunity and addresses it as a specific tactic in the Business Plan.

[7] Disadvantaged Communities as defined in California Health and Safety Code Section 39711, http://law.onecle.com/california/health/39711.html.

SB 1414 – SB1414 requires increased code compliance and requirement for confirmation of appropriate permits for installation of new Heating, Ventilation, and Air Conditioning (HVAC) and heat pumps systems. The 3C-REN will incorporate these requirements into its programs and work with building departments to establish successful approaches to implement this across the Region.

1.4 TRENDS AND ISSUES

There are a variety of issues and trends related to energy efficiency and to the broader perspective as a local government entity that impacts and influences the 3C-REN Business Plan. Some of these elements are within the 3C-REN's ability to leverage, change and address. Some elements will need to be considered, but cannot be directly changed or impacted by the 3C-REN. Below is a summary of these elements, many of which are explored in more depth in Section 5.1 Market Analysis.

GEOGRAPHY

As indicated in a number of sections in this Business Plan, geography is a major consideration for the 3C-REN - both as a motivation to create a REN, and as a barrier that needs to be directly and consistently addressed. The Tri-County Region's relative isolation from the two major metropolitan areas, large areas of rural and agricultural lands, limited options for access, and smaller population and workforce are issues that make it a less desirable place for investment by the IOUs in part due to the modest possibilities for savings relative to the challenge of obtaining those savings.

MODERATE INCOME RESIDENTS

SB 350 and the recent study by the California Energy Commission (CEC) on Low-Income Market Barriers to Energy Efficiency[8] highlight the need to better address access to and availability of energy efficiency for low-income and moderate income communities. (Low-income programs are not addressed in this Business Plan, as it is part of a separate proceeding.) While low-income energy efficiency needs are fairly well described, studied and funded, including an IOU Energy Savings Assistance (ESA) approved budget of $2.3 billion over the next 3 years,[9] moderate income resident's needs are often overlooked or included as part of low-income or main stream efforts. In part, this is because they are so difficult to segment efficiently. Moderate income residents have a much more varied demographic characterization and may include homeowners, renters, Spanish speaking, rural and urban residents. Additional details and information on this important segment is detailed in the Section 5.1 Market Analysis.

RURAL AND AGRICULTURE

The Tri-Counties, particularly San Luis Obispo and Santa Barbara, have a substantial percentage of land devoted to agriculture and a rural population. This is a hard-to-reach audience as well as one that is typically underserved. In most cases, this population has a higher percentage of English as a second language, is in lower income brackets and lives inland with warmer/cooler climates. Within those populations, the 3C-REN programs will target single family and small multifamily programs for owners and renters.

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[8] Scavo, Korosec, Guerrero, et al, 2016. "Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-income customers and Small Business Contracting Opportunities in Disadvantaged Communities." CEC. Publication Number: CEC-300-2016-009-SD2.

[9] CPUC Decision 16-11-022, November 11, 2016.

GREENHOUSE GAS REDUCTIONS, CLIMATE CHANGE AND RESILIENCY

As representatives of local government agencies, the 3C-REN is motivated to provide energy efficiency programs in large part to impact GHG emissions, climate change and to improve the resiliency of the Tri-County Region. A range of challenges faces the Tri-Counties in this regard: sea level rise as a threat to the extensive coastal areas in the Region; drought for the population as a whole and the agricultural areas; limited opportunities for alternative transportation to reduce GHG emissions; and an inefficient building stock that needs to be upgraded to reduce energy use and increase water conservation; and need for improved resiliency by employing renewables and energy storage solutions.

RESIDENTIAL ENERGY EFFICIENCY IS DIFFICULT

State goals direct Californians to increase energy efficiency in all of the State's existing buildings by 50 percent. At the same time, the State has rules to ensure that energy efficiency activities are "cost-effective." This cost-effectiveness calculations, informed by the Warren-Alquist Act, result in nearly all (if not all) deep, whole house residential energy efficiency upgrades not meeting cost effectiveness thresholds. The disconnect between the need and value of residential upgrades and the lack of regulatory/policy support is a substantial challenge for the 3C-REN – even though as a REN it is not held to the same cost-effectiveness standards as the IOUs. Establishing clear and measureable value for energy efficiency work in the residential sector is paramount to meeting State goals. The RENs may be the best suited to take on the residential challenge and if the CPUC balances the overall portfolio across utilities and PAs, as indicated in Decision 12-11-015, these less cost-effective activities can be offset by more cost-effective activities implemented by the IOUs.[10]

MEETING CUSTOMERS WHERE THEY ARE – AN ALTERNATIVE TO CURRENT WHOLE HOUSE APPROACH

The 2011 residential section of the CAEESP directed PA's to move away from single measure efforts to whole house programs and inspired the development of Energy Upgrade California HUP. However, whole house energy efficiency programs across the country, including in California have suffered widely from low participation and/or poor cost-effectiveness. In many regions across the nation, climate zones and varied demographic factors (such as income level, education level, and property value) seem to have little impact on success.[11] What more, whole house retrofits are currently not the norm when looking at the residential energy efficiency retrofit market, especially in diverse regions and for hard-to-reach populations. However, these national examples have provided valuable insights into what is effective and what is not for residential programs.

What has become apparent is that energy efficiency, especially deep whole-home retrofits, is not something that homeowners value as much as other improvements, and that when they do upgrade their homes, it is often due to a trigger event (for example, HVAC or hot water heater replacement) or due to non-energy reasons, such as comfort or health. It is also difficult to capture all the potential energy savings at one time in large part due to the costs and time required. This translates into the need to develop

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[10] CPUC, Decision 12-11-015, November 15, 2012, Page 17-18. "Instead, it becomes the responsibility of the Commission to approve a portfolio, including both utility and REN proposals that is cost-effective overall."

[11] Matthew Socks, Phil Mosenthal, Optimal Energy, Inc., Donna DeCostanzo, Ashok Gupta, Natural Resources Defense Council, "The Energy Efficiency Extra Value Menu: Streamlining Energy Efficiency Delivery," 2016 ACEEE Summer Study on Energy Efficiency in Buildings.

programs and financing that can meet customers where they are and helping them to make incremental changes over time. The EBEE Action Plan highlights this in Strategy 2.2.

CONTRACTOR DRIVEN – NOT PROGRAM OR MARKETING DRIVEN

Multi-measure residential programs are driven by contractors, not by customers or program marketing efforts. High uptake programs, such as the HERO program, embrace a contractor-driven approach consistent to the historically proven approaches of equipment manufacturers. This approach reduces burden on the contractor, focuses on creating easy to implement and low entry to-barrier options, while allowing for consistent profits. This fact needs to inform how marketing is conducted, and to whom, how incentive are structured, and where PA resources should be focused. In a recent PG&E evaluation study, HUP participants responded that contractors were the leading cause of program awareness at 46percent, out-performing all other marketing by a wide margin.[12]

Photo: Target Home Management Tools

HIGH PERFORMANCE BUILDINGS AND SKILLS GAP IN WORKFORCE

As the State moves towards ZNE residential codes, and high performing existing buildings, the gap in the skills of the existing workforce will be exacerbated.[13] The future reality of more complex building design, construction, and operation will require technical training and engagement with all contractor types to make sure that advance measures, technologies and approaches are installed/constructed correctly and achieve the anticipated savings. In addition, these complex concepts will require improved "soft skills" to communicate effectively to job crews, customers and building departments, and others.

HOME ENERGY MANAGEMENT SYSTEMS AND THE INTERNET OF THINGS

Technology tools are becoming more and more popular, available and affordable for homeowners of all socio-economic status. These tools, paired with a smart phone, can help the operation of houses, influence ongoing behavior and overall assist people with improving and maintaining their home's efficiency more easily than ever. Incorporating low-cost solutions that also appeal to the market is an important emerging strategy and supports AB 793.

NEIGHBORHOOD APPROACHES

The State's aggressive goals necessitate moving away from building by building approaches and exploring options for achieving greater scale, such as treating entire neighborhoods. Approaches that incorporate scale, affordability and optimize convenience for both contractors and customers will be essential. Neighborhood approaches will also enable lower cost solar and energy storage solutions to help move closer to ZNE and manage loads/grid integration. In addition, integrating community based social

[12] EMI Consulting, "Energy Upgrade California – Home Upgrade Program Process Evaluation 2014-2015", for PG&E, 2016.
[13] National Governor's Association, "America Works: Education & Training for Tomorrow's Jobs," NGA Chairs Initiative, 2013-2014.

marketing will open up opportunities to leverage social marketing, peer competition, community advocates and local workforce development to increase participation.

BEHAVIOR AND PAY FOR PERFORMANCE

Resident's behavior is essential to address in residential energy efficiency programs to meet our goals. This is particularly true for renters who may not have control over the building major systems and/or not have the same price signals as owners. Plug load management, understanding what influences bills and picking the right appliances are just a couple of areas that need to be considered with behavior programs. Ultimately incorporating incentives for behavior with upgrades, such as proposed by the PG&E Pay for Performance (P4P) pilots, will be important strategies to ensure long-term, sustained savings.

CUSTOMER DECISION-MAKING

Over the last five or so years, California has learned a great deal from its efforts in whole house upgrades and the challenges and variability in customers' motivations and decision-making processes. One-size fits all approaches are not effective in meeting the variety of needs and motivations of customers. The following table is from a recent study that evaluated homeowners' motivations, drivers and influences among other elements, regarding energy efficiency renovations. The study reveals that there are multiple elements that will influence a homeowner and those elements can change over time.[14] The 3C-REN seeks to establish a new paradigm in program delivery that is streamlined, flexible and attuned to the customer needs, and is designed to be as malleable as customers' decision-making.

[14] C. Wilson, L. Crane, G. Chryssochoidis, "Why do homeowners renovate energy efficiently? Contrasting perspectives and implications for policy". Energy Research & Social Science, Volume 7, May 2015, Pages 12–22.

TABLE 1. INFLUENCES ON HOMEOWNERS RENOVATION DECISIONS IN ENERGY EFFICIENCY

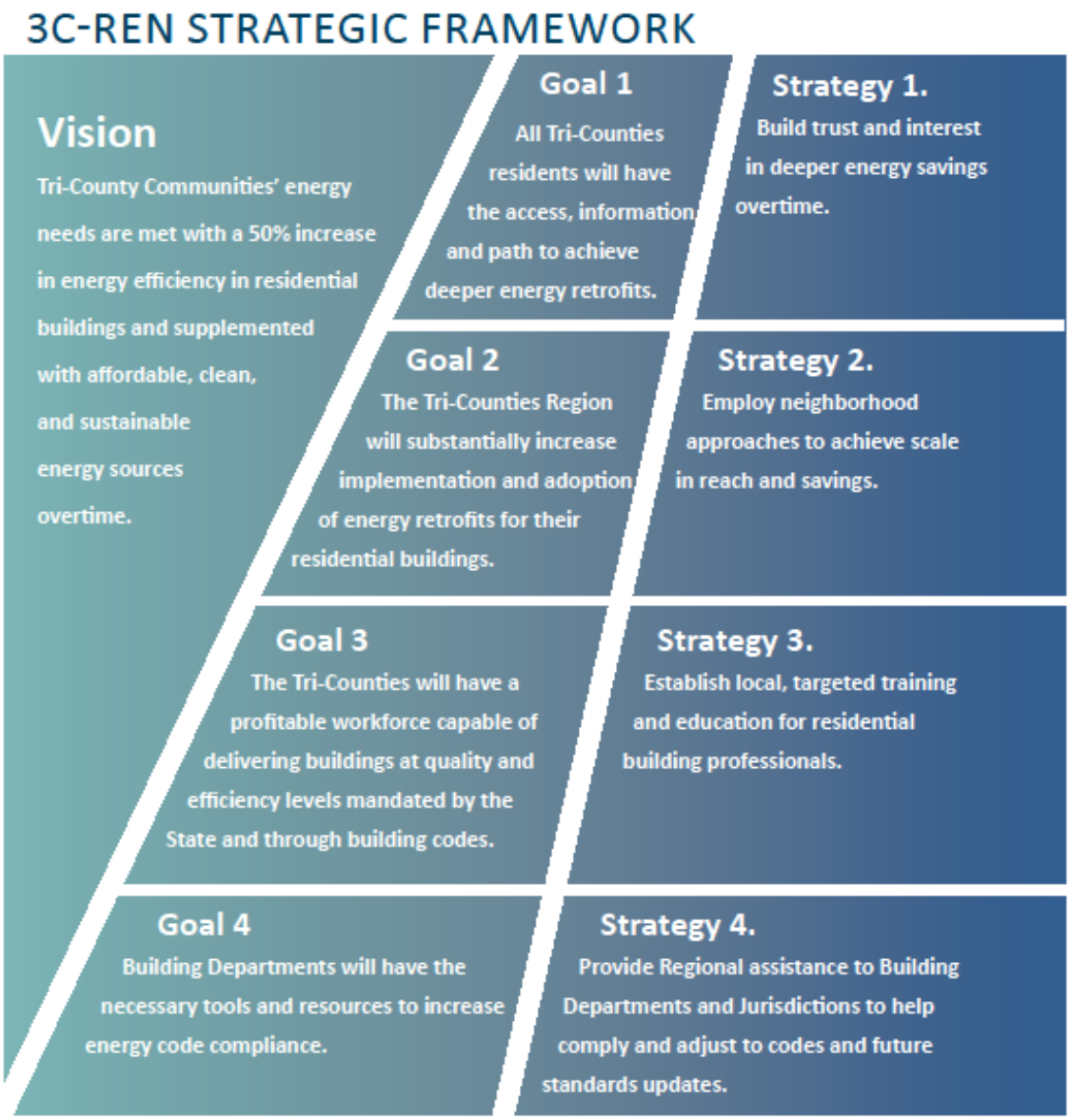
	Topic	Commonly Identified	Occasionally Identified
Drivers (also: motivations)		Cost savings Thermal comfort Environmental benefits	Drafty Condensation/air quality/health Property value Aesthetics/appearance
Barriers	Finances	Capital availability interest rates Delayed gains	Irreversibility
	Information	Uncertain cost savings Contractor reliability & quality	Uncertain comfort/health outcomes Low salience of energy Misperceptions of energy use
	Decision making	Disruption hassle	Transaction costs Information search costs
Attributes of efficiency renovations	Technical	Energy savings	Complexity
	Financial	Capital cost/cost savings payback period	Financing mechanisms
	Other	Comfort	Compatibility, observation, trialability
Personal influences	Information & awareness	Expert advice or recommendations energy audits or assessments Expected cost savings	Availability/credibility of information Peer (interpersonal) advice Behavior/social learning
	Attitudes & beliefs	Beliefs, attitudes and understanding of energy-environment issues	Future energy prices Implicit rates of time preference Attitudes towards homes/renovating
	Experience skills		DIY technical skills know-how Past experience with renovating or efficiency measures
Contextual influences	Household characteristics	Size composition lifecycle (e.g. number of children)	Gender/decision making roles Routines/habits
	Demographics	Age, education, income, employment	Location (e.g. urban/rural)
	Home tenure	Status (own/mortgage)	Duration (current expected)
	Property characteristics	Size/age heating system insulation	Number of different types of room Infrastructure availability
	Salient events	Moving home	Triggers or disruptions to routine
	Incentives	Amount	Ease of access/timing

2.0 STRATEGIC BUSINESS PLAN FRAMEWORK

2.1 VISION, GOALS AND INTERVENTION STRATEGIES

The following graphic outlines the Strategic Framework for the 3C-REN Business Plan. This Business Plan is guided by the 3C-REN's long-term vision and informed by four primary goals that are activated by four intervention strategies. Specific tactics and potential programs have been identified in Section 5.0 Residential Sector. It is anticipated that while the tactics and programs may change over the next ten-years, this Framework will provide a consistent focus, and help to hone and measure activities effectively.

FIGURE 2. 3C-REN STRATEGIC FRAMEWORK



2.2 EVOLVING FROM PAST CYCLES AND 3C-REN ROLE

The residential energy efficiency program known as emPower has shown great success in branding, name recognition, customer satisfaction, contractor engagement including education and certification, developing robust data management systems, remote job bidding systems, and customer relationship management systems. The Tri-Counties have been able to make strong progress towards instituting lasting changes in the market. The existence of the emPower program allowed the Tri-Counties to develop a well-rounded team of staff from different and complementary backgrounds, including firsthand knowledge from the trades. The impact of this team can be seen in the energy savings results of the HUP, with consistently deeper retrofits being implemented. The Tri-County Region has consistently achieved some of the highest energy savings results in the State. **This foundation of experience, coordination and administration will enable the 3C-REN to ramp up its programs in an effective and streamlined manner.**

The emPower program was originally created by the County of Santa Barbara in 2011 with American Recovery and Reinvestment Act (ARRA) funding via the U.S. Department of Energy's Better Buildings program and was limited to single family homeowners in County of Santa Barbara. As the original ARRA funds were expiring, the CPUC directed the IOUs to continue programs originally funded under ARRA through the ratepayer funding stream. An initial contract for ratepayer funding was executed in 2012. Subsequently, in June 2013, the program contract was expanded to include the Counties of Ventura and San Luis Obispo. The expanded program was relaunched in July 2014 as emPower Central Coast. Funding contracts have subsequently been extended in 2015, 2016, and 2017.

The emPower program supports single family residential energy efficiency retrofits completed through HUP/Advanced HUP offered by the utilities. emPower was designed to facilitate access to energy efficiency services and help homeowners overcome obstacles to making energy saving upgrades to their homes. emPower helped to make improvements easier and more affordable through access to utility incentives affordable, unsecured financing, connecting homeowners to qualified contractors, and expert energy advice. emPower provides free in-home consultations designed to keep homeowner investments as cost-effective as possible.

EMPOWER'S ACHIEVEMENTS

The following are highlights of emPower's achievements:

- 246 total projects reported completed, of which 134 are Energy Upgrade California rebated projects; 28 solar thermal and Photovoltaics, 51 other single measure energy efficiency projects and 32 were Do It Yourself (DIY) projects or non-participating contractors.
- There are 102 projects currently in progress that may result in either HUP or other energy efficiency projects. HUP average nearly 30 percent energy savings (highest savings rate in California).
- Provided 1023 Energy Coach site visits leading to greater project conversion and deeper energy savings; 86 percent of those surveyed planned to complete upgrades within one year.
- 900 contractor training attendees at over 76 local workforce trainings; 37 contracting companies currently participating with the program.
- More than $3 million in loan applications received; approximately $1.6 million closed to date.
- 350 educational events, community partner outreach, and regular media coverage resulting in more than 19,000 engaged homeowners.

EMPOWER CHALLENGES

However, the emPower program has not been able to achieve all of its desired goals, due in large part, to significant restrictions placed on program by the IOU PA's. Despite multiple requests to make scope changes, emPower has not been allowed to adapt and adjust the program to local conditions, contractor and customer needs, and market realities. As a result of these restrictions, emPower faces the following challenges:

- Financing is tied to projects that participate in IOU rebate programs such as HUP, which better serve higher income households (typically over $100,000 annually) and typically ranges in costs from $10,000 - $20,000.
- IOUs judge program performance entirely on quantity of loans rather than on the larger impacts of the program like energy savings, revenue generated in the community, and workforce education and training.
- New competitive programs have entered the market (e.g. Property Assessed Clean Energy (PACE), California Hub for Energy Efficiency Financing (CHEEF) programs, etc.), which do not require a customer to meet the strict requirements of a utility program, thereby offering more flexible and market friendly products. Potential emPower customers may take advantage of these more accessible financing options, but these projects are not recognized by the IOU's as part of emPower's performance metrics.
- Contracts with the IOUs have been limited to one year, and contracts and program changes are typically last minute, rendering substantive improvements difficult, if not impossible.
- Numerous efforts to modify program scope to be more innovative, incorporate new legislation and regulation, and increase impact have been almost entirely denied every year.
- IOUs disallow service to customers outside of the single family residential sector, restricting the stock of buildings that could participate.

MOVING FORWARD

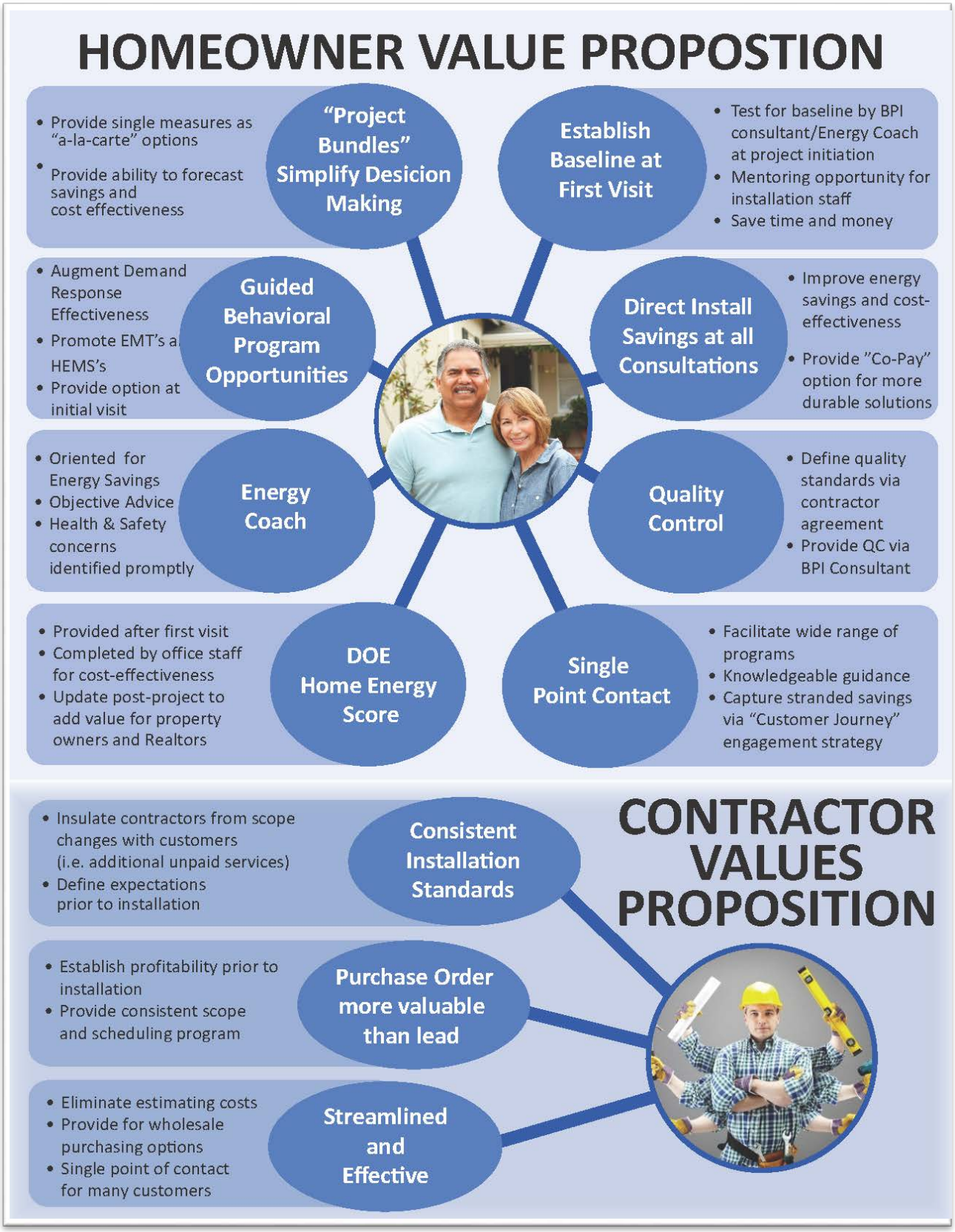
The new 3C-REN will provide a framework and strategies to serve the Tri-County Region effectively and will be tailored to resident's particular needs and characteristics, utilizing the best performing aspects of the emPower program. The 3C-REN offerings will evolve to include the following essential elements:

- Expand and enhance the Energy Coach service by allowing coaches to deliver DI (free to home owner) energy improvements while onsite.
- Develop affordable bundled-measures retrofit programs.
- Enhance existing financing options to formally engage, and report lending activity from multiple financing providers including CHEEF lenders, PACE programs, and other local energy efficiency financing providers.
- Include financing for projects that do not receive HUP or other IOU incentives.
- Support and provide additional services to the building departments of participating counties and cities.
- Increase focus on local workforce training and develop strategies to provide a diversified workforce that can execute with a higher level of knowledge and quality at a greater scale.

- Create services that streamline code compliance processes
- Expand the program over the Business Plan timeframe to provide customer services to the multifamily housing segment, renters and rural communities.
- Incorporate performance indicators important to local constituents, including economic development, local workforce outcomes, completed measures, energy savings, and financing activity - including from non-rebated, moderate income, and DIY projects.

The following Value Proposition Graphic (Figure 3) shows the interconnected parts of the 3C-REN service model designed to continuously improve energy efficiency program effectiveness and add value to the interests of homeowners and the workforce.

FIGURE 3: VALUE PROPOSITION GRAPH



2.3 BUSINESS PLAN PHASING

The 3C-REN anticipates three major phases of activities and implementation over the Business Plan timeframe from 2018- 2025. These phases are reflected in the budget and metrics in the following section.

2018-2019 – TRANSITION PHASE

This phase will be a transition period from the current emPower program to a more comprehensive cohesive Residential Portfolio. In this initial start-up phase of the 3C-REN, administration and reporting systems will be expanded and improved, staff and energy coaches increased in numbers, with a focus on single family homes and renters. The following are the key activity areas for this Phase:

- Targeted Outreach and Engagement to Key Audiences, including Spanish Language Speakers
- Focus on Single Family Homeowners
- In-Home Energy Coach Service
- Program Engagement and Expansion
- Enhanced Financial Decision-Making
- Launch HEScore
- Establish and Deliver Contractor Training
- Pilot Neighborhood and Renter Approaches
- Outreach and Engagement with Building Departments
- Introduce DI

2020-2022 – EXPANSION PHASE

After two years, the 3C-REN will gradually expand its services to incorporate the primary offerings to most of its target audiences, including beginning support for the ZNE Code. The following are the anticipated activities for this Phase:

- Continued Targeted Outreach and Engagement to Key Audiences, including Spanish Speaking Residents
- Expand Energy Coach Service and Code Coach; including Spanish Speaking Coaches
- Launch DI as First Engagement
- Launch Online Permitting and Compliance Tools
- Expand Use of HEScore
- Launch Multifamily Property Owner Program
- Rural and Urban Neighborhood Programs
- Expand Training Tools and Offerings
- Expand ZNE Building Department Support

2023-2025 – LEARN AND REFINE PHASE

In this final phase of the Business Plan, the 3C-REN will refine and enhance existing programs based on lessons learned and launch a larger effort to engage single family rental property owners. Activities will likely include the following:

- Targeted Outreach & Engagement to Key Audiences
- Expand Relationships with Building Departments and HERS raters
- Focus on Single Family Rental Property Owner Deep Retrofits
- Continue ZNE Code Support
- Enhance and Update Program Delivery and Design
- Update and Focus on Highest Need Markets

3.0 BUSINESS PLAN BUDGET AND METRICS

Building upon existing resources and current emPower contractors and professionals in the Tri-County Region, implementation of the 3C-REN service model can be executed in an efficient and effective manner. In addition, it is the intention of 3C-REN to make effective use of existing utility training resources, programs, and collateral.

3.1 3C-REN 2018-2025 BUDGET

3C-REN will implement the Business Plan in three Phases as outlined in the previous section. It is anticipated that the initial program ramp-up will be minimal due to existing structures, organization and capabilities in place. Over time, 3C-REN will increase program resources and funding as new programs are added or expanded in the mid- and long-term. The following proposed budget is for full fiscal years of 2018-2025.

Pending approval of this Business Plan, the 3C REN requests the option to work with the CPUC and 3C REN's IOU partners to secure funding to launch approved activities in 2017. 3C REN further proposes that potential funds for 2017 would be calculated from 3C REN's 2018 requested budget, on a pro-rated basis.

The proposed 3C-REN budget itemizes Administration costs, estimated 3C-REN Evaluation, Measurement and Verification (M&V) budget, and spending breakdowns for Program Implementation, Program Marketing, and Incentives. Administrative costs include overall costs for operating the 3C-REN, including limited staff for overall management and oversight as well as administrative costs for Program implementation. Due to the 3C-REN service territory and population distribution, the budget suggests the following IOU funding percentages: PG&E 30%, SCE 40%, and SCG 30%.

TABLE 2: 3C-REN IMPLEMENTATION BUDGET

	Phase 1		Phase 2			Phase 3		
	Short Term Target		**Mid Term Target**			**Long Term Target**		
3C REN TOTAL	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Admin	$ 319,000	$ 365,000	$ 394,000	$ 426,000	$ 478,000	$ 513,000	$ 571,000	$ 610,000
Implementation	$ 2,309,000	$ 2,820,000	$ 3,161,000	$ 3,932,000	$ 5,050,000	$ 5,465,000	$ 6,205,000	$ 6,739,000
Marketing & Outreach	$ 261,000	$ 270,000	$ 277,000	$ 284,000	$ 364,000	$ 373,000	$ 384,000	$ 395,000
Incentives	$ 348,000	$ 499,000	$ 713,000	$ 1,055,000	$ 1,439,000	$ 1,780,000	$ 1,940,000	$ 2,159,000
3C REN EM&V	$ 53,950	$ 65,900	$ 75,750	$ 94,950	$ 122,183	$ 135,517	$ 151,667	$ 165,050
3C REN Total:	**$ 3,290,950**	**$ 4,019,900**	**$ 4,620,750**	**$ 5,791,950**	**$ 7,453,183**	**$ 8,266,517**	**$ 9,251,667**	**$ 10,068,050**

ACCOUNTING PRACTICES

The California State Auditor's Report regarding accounting protocols has yet to be released, thereby precluding a discussion of how the 3C-REN intends to comply with the Report's recommendations. Until that time, the 3C-REN will continue to be consistent with local government accounting protocols, the CPUC's Energy Efficiency Policy Manual, and Generally Accepted Accounting Principles. 3C-REN will follow the Energy Efficiency Policy Manual protocols and allocate Administrative costs to the overall 3C-REN Portfolio budget. This approach will help 3C-REN continue to maintain budget allocations under the CPUC's 10percent cap on administrative costs. In the Business Plan Budget, all Administrative allocations have been removed from Sector Program budgets.

EM&V CONSIDERATIONS

The 3C-REN will work with the CPUC to provide input on the development of CPUC EM&V Roadmaps and participate in CPUC EM&V studies and working groups. This work will be supplemented through 3C-REN use of its own EM&V budget to conduct evaluations. Table 3 below is a preliminary list of potential areas for study for the 3C-REN. These studies will be prioritized and aligned with other CPUC and utility activities to ensure the highest impact and benefit from any new studies. 3C-REN led EM&V efforts are proposed to verify the non-resource benefits of programs such as the Moderate Income and Codes and Standards Program efforts to promote energy code best practices. 3C-REN will work with staff at the CPUC during all phases of the studies.

TABLE 3. 3C-REN PROPOSED EM&V SUMMARY

Study Title/Topic Focus	Objective	Timeframe
Home Energy Coach	Determine impact of the Home Energy Coach program	Short-term, and subsequently as needed
Moderate Income Participation/ Demand	Understand moderate income market	Short-term
Code Compliance	Determine impact of Code Coach and Online Permitting on Code Compliance	Mid-term
Multifamily Property Owner Engagement	Determine best approaches to the sector for the region, and what the appropriate program structure will be for property owners.	Mid-term

LEVERAGING OTHER FUNDING

Local government interest in improving energy efficiency programs and stimulating energy efficiency investments within the residential sector is rooted in the realization that energy efficiency can be a cost-effective means to address resiliency, energy security, pollution reduction, and climate change, as well as improve home comfort and property values. As a REN, the Tri-Counties will be able to leverage and attract additional funding from a range of sources including, but not limited to:

- Department of Energy, FEMA and other Federal sources
- Revolving loan fund initiatives
- State bonding authority

- Community Choice Energy (CCE) funding capacity
- Cap and trade funding
- Foundations and trusts
- Non-profit support

3.2 EVALUATION BENEFITS FRAMEWORK

The 3C-REN, in coordination with the BayREN and SoCALREN, are adopting a two-part approach to establish an effective and comprehensive evaluation framework and the associated benefits that their Business Plans and subsequent programs provide. This approach is designed to measure and evaluate value in the RENs offerings and to provide a common framework, in lieu of cost-effectiveness, total cost resource (TRC), and program administration cost (PAC) calculations required for the traditional IOUs.[15]

The first part of the approach is to clearly articulate the measureable value that RENs provide to ratepayers, their communities and the State through the operation of energy efficiency programs. The second part of the approach is to actively participate in ongoing discussions at the CPUC regarding cost-effectiveness frameworks, including the ongoing Integrated Demand Side Resource (IDSR) Proceeding (R.14-10-003). The current cost-effectiveness approach is too limited in its consideration of non-energy benefits and underestimates the importance of local government efforts in enabling increased energy savings over time and reaching underserved audiences. Further, the current EM&V and cost effectiveness calculators do not align to the State's increasingly aggressive climate change goals and emphasis on disadvantaged communities' engagement.

GUIDING PRINCIPLES

The REN's Evaluation Benefits Framework focuses on the following essential principles:

- Recognizing that ratepayers benefit from equal access to services and more comprehensive approaches than can be offered by utilities alone.
- Valuing and supporting non-energy benefits.
- Calculating and incorporating the value from leveraged resources and dollars not associated with Ratepayer funding.
- Asserting that both resource and non-resource programs are essential and have clear value for ratepayers.
- Understanding that climate change and the reduction of carbon emissions is a primary objective of energy efficiency programs.
- Recognizing that State goals cannot be met within the current cost-effectiveness framework
- Integrating demand response (DR) and distributed energy resources (including storage) with

[15] CPUC D. 12-11-015, page 18, "the Commission will not set a threshold cost-effectiveness level, either TRC or PAC, for RENs at this time. Rather the dual test for overall portfolio cost effectiveness, taking into consideration passing both the TRC and PAC tests for each service territory and for the entire approved portfolio, including RENs, will continue to govern the CPUC's cost-effectiveness for the energy efficiency programs."

energy efficiency.

- Addressing water efficiency with energy efficiency is essential.

KEY EVALUATION BENEFITS AND METRICS

The RENs propose two general areas for consideration of the benefits of energy efficiency programs, and target metrics that can help measure the progress in reaching goals. These metrics are designed to specifically measure progress in programs that are: 1) designed to serve hard-to-reach populations and/or utility service gaps; and/or 2) focused on creating economic and quality-of-life benefits for communities, including a reduction in the impacts of climate change. These metric categories, described below, are designed as a group of potential areas to measure programs and not designed to all be used for each program.

1. EFFECTIVENESS IN REACHING HARD TO REACH CUSTOMERS AND FILLING UTILITY SERVICE GAPS.

A significant part of the Business Plan's intention is to create better access to energy efficiency program for all ratepayers, in particular hard to reach audiences and those underserved by current utility programs. The RENs' programs will target these audiences and track success in reaching and converting outreach into actual projects. Local governments operate a variety of housing, economic development, and social programs that can be linked to energy efficiency and hard-to-serve customers either through marketing and outreach support or direct provision of services, such as earthquake retrofits linked to energy efficiency retrofits.

Target Metrics:

- Number of property owners reached and conversion to projects
- Number of participating households, businesses and jurisdictions
- Number and percentage of hard-to-reach populations served
- Number of kWhs, kW and Therms saved by program activities

2. ECONOMIC DEVELOPMENT AND COMMUNITY IMPACTS.

Energy efficiency programs can have substantial economic development and quality-of-life impacts on communities including creating jobs, increasing property values, enhancing the comfort and health of residents, supporting business vitality and creating discretionary income. The RENs will develop a consistent and measurable methodology to estimate the value of the community impacts using current community tracking systems, county property values sources among others and, where needed, evaluation activities.

The State of California and local governments have adopted a variety of policies to reduce the impacts of climate change on communities and economy. Carbon reduction related impacts include changes to the built environment, implementation of local climate action plans, capacity building such as training of government staff and integration of climate goals in non-energy programs and policies, and enhancements to community resilience.

Target Metrics:

- Dollar Value of Economic Impact Created by Business Plan
    - Number of jobs and economic value
    - Contractor business retention and expansion
    - Housing stock/neighborhood enhancement

- Near-Term Carbon Metrics
    - Permitting rates and compliance and/or permitted projects that exceed Title 24, Part 6
    - Alignment and support in reaching Local Government Climate Action Plan Implementation, and GHG reduction goals
    - Increase local government building actions (i.e. increasing ability for jurisdictions, particularly small, to engage in energy efficiency; streamline and create efficiencies in processes, engagement and other energy efficiency activities; and training)
    - Value of pilot programs that have been scaled (to other jurisdictions, utilities or others etc.)
- Long-Term Carbon Metrics
    - GHG reductions accomplished
    - Ongoing monitoring, prevention and reduction mechanisms

TABLE 4. 3C-REN METRICS

Intervention Strategies	Market Effect Metrics	Baseline *	Metric Source	Phase 1. Short Term Target (2018-19)	Phase 2. Mid Term Target (2020-22 years)	Phase 3. Long Term Targets (2023 - 2025)
Strategy 1. Build trust and interest in deeper energy savings over time.	Increase participation in 3C-REN programs	2018	Program Tracking	Average 1,100 new Participants/Year** Average total energy savings: 706,000 kWh/year 65,000 therms/year 500 kW/year Average CO2 avoided: 800 tons/yr	Average 2,500 new Participants/Year** Average total energy savings: 1,628,000 kWh/year 157,000 therms/year 1,200 kW/year Average CO2 avoided: 1,850 tons/yr	Average 4,100 new Participants/Year** Average total energy savings: 2,765,000 kWh/year 276,000 therms/year 2,100 kW/year Average CO2 avoided: 3,200 tons/yr
	Project Conversion from Energy Coach Service	2018	Energy Coach Service CRM	35% of Energy Coach Site visits convert to "Bundled" Projects	40% of Energy Coach Site visits convert to "Bundled" Projects	45% of Energy Coach Site visits convert to "Bundled" Projects
Strategy 2. Employ neighborhood approaches to achieve scale in reach and savings.	Incremental increase in "Bundled" Projects in targeted neighborhoods	2018	Program Tracking	Starts in Phase II	50% of homes in targeted neighborhoods receive site visit; 40% convert to "Bundled" Projects	60% of homes in targeted neighborhoods receive site visit; 45% convert to "Bundled" Projects
Strategy 3. Establish Local, Targeted Training for Residential Building Professionals.	Increase in Home Performance /engaged EE Contractors and HERS Raters in program	2018	Program Data	Average 120 new Contractors Trained/Year.	Average 200 new Contractors Trained/Year.	Average 360 new Contractors Trained/Year.
	Increase QC/Permit Close out.	2018	Bi-Annual Survey; 3C Permitting Tool once launches	2.5% average annual increase in permit closure for projects that trigger T24, Part 6 Compliance	5% average annual increase in permit closure for projects that trigger T24, Part 6 Compliance	5% average annual increase in permit closure for projects that trigger T24, Part 6 Compliance
Strategy 4. Provide Regional assistance to Building Departments and Jurisdictions to help comply and adjust to Codes and future updates.	Increase use of centralized tools to enhance code compliance	2018	3C Permitting Tool outputs	Starts in Phase II	14 Jurisdictions use 3C-REN Permitting Tool	28 Jurisdictions use 3C-REN Permitting Tool

** 2018 is proposed as the 3C-REN's baseline as that will be the first year of program activity for this new REN.*
*** Based upon work under the emPower Program, 3C REN participation rates are proposed to reach ~11.5 percent of the REN's target population by 2025.*

4.0 SOLICITATION PLAN

As indicated in the CPUC Decision D.12-11-015, the RENs were established as unique entities with the ability to design and deliver programs in ways that the utilities cannot. The RENs have "the independent ability, within the confines of the approvals of their proposals granted by the Commission, to manage, deliver, and oversee their own programs independently, without utility interference or direction as it relates to the design and delivery of their programs."[16] The 3C-REN will leverage the expertise and creativity of local governments for program design and delivery. Any consultants contracted to assist in the design and implementation of discrete elements or entire programs will do so under the guidance and direction of the 3C-REN.

As the 3C-REN expands programs in the Residential Sector, consultants may be engaged. To that end, solicitations for services to design and/or implement 3C-REN programs will be issued as programs come online or as needed. For the benefit of potential bidders interested in providing such services, this Business Plan includes a general outline of proposed 3C-REN programs and their envisioned implementation timelines. Any solicitation required for programs will be conducted according to the specific local government procurement protocols for the lead 3C-REN County, as outlined below.

The 3C-REN will follow current bidding and solicitation rules set by the Tri-Counties and led by County of Ventura as the lead agency. These rules were designed to ensure fair and equitable bidding in accordance with State and local laws. As a local government, our procurement processes are open and transparent, and all contracts must be reviewed and executed by our Board, comprised of elected officials. Contract approvals are agendized and discussed at our public Board meetings that are subject to the Brown Act. We have built into our procurement, compliance with State requirements found in statute, and local rules and procedures related to competitive solicitations. Also as local governments, we are subject to the Public Records Act, so documents and correspondence related to procurement are available to the public.

County of Ventura, as the lead agency for 3C-REN, will utilize County of Ventura Procurement procedures. The County of Ventura operates a centralized purchasing and materials management system, which is under the authority of the Purchasing Agent. (For additional contracting details see Appendix 7.2 Solicitation Details.) The County of Ventura has a Vendor Self Service that allows vendors to create and manage an account where they can search and respond to County bid opportunities, review financial transactions, and submit invoices. Procurement develops and utilizes a standard service contract that has been approved by County Counsel.

As requested by stakeholders in the CAEEEC process, the 3C-REN will post any request for proposal (RFP) and solicitations on the "Proposal Evaluation & Proposal Management Application" web site designed for energy efficiency programs, as well as on other sites as needed. Further, as requested by CAEECC stakeholders, the 3C-REN will work with the IOUs to determine how the RENs may utilize common PA procurement channels, such as the IOU's Proposal Evaluation & Proposal Management Application, if feasible and aligned with the 3C-REN procurement policies.

[16] CPUC, D.12.11-015, at page 11.

5.0 RESIDENTIAL SECTOR CHAPTER

3C-REN will focus and provide services to the residential customers in the Tri-County Region. This will include both single family and multifamily units, addressing both owners and renters. The 3C-REN will use its understanding of the communities, its role as a trusted regional agent, and its proximity to customers to develop and provide a range of programs specifically targeted and tailored to the needs of these residents. The unique characteristics of the Tri-Counties will require long-term relationships, and a variety of strategies that consider innovative engagement strategies to build interest, affordable upgrades, and a better prepared and trained workforce, supported by building departments that can offer streamlined permitting and compliance capabilities. The following section includes a detailed market analysis with relevant trends and market barriers, and strategies and tactics to address these issues.

5.1 MARKET ANALYSIS

> *"On the whole, participants in two of the biggest residential programs (by authorized budget), whole-home retrofit ($100 million budget) and plug load and appliance incentive programs ($141 million budget) were more likely than the comparable general population to be white, English speakers, homeowners, have incomes over $100,000, or have a college degree."*[17]

The 3C-REN intends to offer services to all residents in the three counties, however, the hard-to-reach populations of moderate income and rural areas will be targeted in marketing and outreach, as well as in program design. For purposes of this Plan, "moderate income" is defined as households with median incomes of $48,000 to $100,000.[18] This range represents the income for a family of four just above those eligible for low-income energy efficiency programs and below the median income of those who participate in typical utility programs.[19] For planning purposes, "rural" is broadly defined as towns and cities with fewer than 8,000 people and those who live outside of the primary urban areas, approximately 8 percent of the population (See Table 5). Additional hard-to-reach audiences, which may overlap with rural and moderate income, include those who speak English as a second language.

The moderate income sector does not have as much evaluation literature and studies to draw from as the low-income segment. However, many of the same concerns and issues, particularly in the areas where there are high costs of living, apply to moderate income households. The 3C-REN has drawn from studies addressing low-income, moderate income, as well as from experience in more mainstream programs to establish and define needs.

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[17] M. Frank and S. Nowak, "Who's Participating and Who's Not? The Unintended Consequences of Untargeted Programs", American Council for an Energy-Efficient Economy, 2016.

[18] This "moderate income" target range is defined based on several inputs: 1. HUD's definition of moderate income, which is 120% of area mean income (AMI) (average of $80,000 in Tri-Counties); 2. Filling the gap in the lower income range and eligibility for low-income programs, which is just below $48,000 for a family of four; and 3. Based on housing affordability index, which indicates an average of $125,000 income is required to afford a median priced house.

[19] M. Frank and S. Nowak, "Who's Participating and Who's Not? The Unintended Consequences of Untargeted Programs", American Council for an Energy-Efficient Economy, 2016.

BUSINESS PLAN MARKET FOCUS SUMMARY CHART

The following is a summary of the overall market segmentation for the 3C-REN service area, including hard-to-reach populations. For planning purposes, this summary is the basis for energy savings goals, outreach and marketing, workforce engagement and overall market penetration estimate discussed in Section 3. Business Plan Budget and Metrics.

TABLE 5. 3C-REN TARGET MARKET SEGMENTS[20]

Market Segment	Ventura County	San Luis Obispo County	Santa Barbara County	Total	Percentage*
Total Households	267,829	102,350	142,028	512,207	
Moderate Income	86,131	36,077	45,977	168,186	33%
Single Family Owner (Est.)	118,518	47,497	55,976	221,991	43%
Single Family Renters (Est.)	93,100	37,300	43,900	174,300	34%
Multifamily 3+ units	56,011	18,196	40,816	115,023	22%
Rural Household Units	9,783	20,394	9,392	39,569	8%
**Will not add to 100% - they are segments within the total with some overlaps between areas.*					

SUMMARY OF IMPORTANT FINDINGS FROM THE MARKET ANALYSIS

The following are key findings that impact the ultimate design, delivery and growth of the 3C-REN programs informed by this Business Plan.

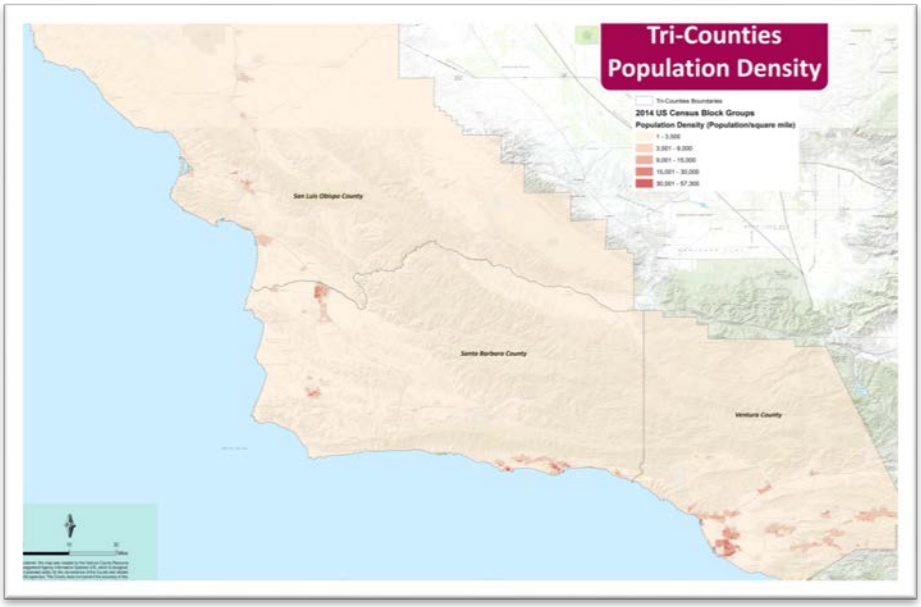
- 3C-REN's service area is geographically diverse with varying microclimates, but with a large percentage on the coast in Climate Zone 5.
- The Tri-Counties have three different IOUs providing programs in the Region.
- The limited service population means that contractors must work across counties to be profitable and the current situation with multiple IOUs offering programs with different requirements, make it difficult to achieve efficiencies of scale.
- Fewer than 30 percent of the community can afford the median priced house with a minimum income of $125,000.
- 33 percent of the Tri-Counties population has household incomes between $50,000 and $100,000, which is just above the eligibility for low-income programs and below the typical level of service for mainstream utility programs.
- 34 percent of all housing units and 45 percent of the single family homes are occupied by renters, which complicates program delivery.
- 33 percent of the population's primary language is not English.
- Approximately 8 percent of the population is located in rural areas, which are traditionally underserved by utility programs.
- 37 percent of the housing stock in the Tri-Counties was built before 1970.

[20] Estimated based on analysis of the US Census Bureau American Community Survey, 2011-2015 Data and Tri-Counties Assessor Data.

- There is the opportunity for high job growth in key energy efficiency occupations in the Region, however, employers have found it difficult to fill these jobs with skilled workers.

TRI-COUNTY AREA DEFINTION AND CHARACTERISTICS

FIGURE 4. TRI-COUNTY POPULATION DENSITY

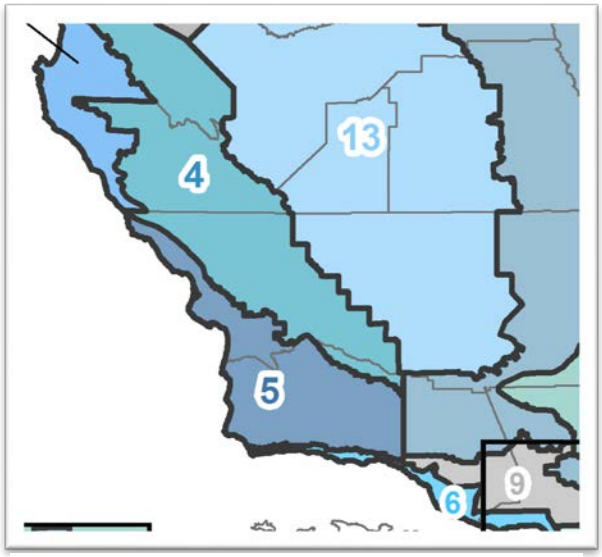


3C-REN service area includes County of San Luis Obispo, County of Santa Barbara, and County of Ventura. There are ten incorporated cities in County of Ventura; and a Naval Base, which is composed of three operating facilities – Point Mugu, Port Hueneme, and San Nicolas Island. Major utility providers include SCE and SCG. County of Santa Barbara has eight incorporated cities, Vandenberg Air Force Base, and the University of California Santa Barbara (UCSB). Major utility providers include PG&E, SCE, and SCG. There are seven incorporated cities in the County of San Luis Obispo and a major university, California Polytechnic State University (CalPoly). The major utility providers are PG&E and SCG. In total, the 3C-REN service area includes more than 1.5 million residents.

Common across all three counties are pockets of urban jurisdictions surrounded by rural agricultural communities - an average of 8 percent being rural in the three counties.[21] The service area is especially hard to reach in Santa Barbara and San Luis Obispo Counties where rural communities are widely spread. The nature of these communities carries multiple challenges, including dispersed populations and a workforce with limited energy efficiency capacity. The urban areas, particularly in County of Ventura, face their own challenges, including more multifamily structures and contractors from the greater Los Angeles Region providing conflicting messaging to residents regarding programs and savings options. For example, Los Angeles Region contractors advising residents on building and code measures not pertinent to County of Ventura or its cities.

[21] US Census Bureau, American Community Survey, 2011-2015.

FIGURE 5. TRI-COUNTY CLIMATE ZONES



SOURCE: CEC

3C-REN's service area is geographically diverse with broadly varying microclimates. The Central Coast Region has coastal weather typical of Mediterranean climates, coastal and inland mountain ranges, and inland areas with desert-like climate conditions and a total of five different climate zones (See Figure 5). County of Ventura has 42 miles of coastline with a total area of 1,843 square miles, approximately 50 percent of which are located in the Los Padres National Forest. Residential, agricultural, and business uses are primarily located in the southern portion of County of Ventura. County of Santa Barbara has 110 miles of coastline with a total area of 2,774 square miles, approximately 39 percent of which are located in the Los Padres National Forest. County of San Luis Obispo has over 50 miles of coastline miles with a total area of approximately 3,300 square miles. The inland areas of County of San Luis Obispo are comprised of rural lands much of which is active agriculture, including an abundance of vineyards. The majority of the population is located near the coast in Climate Zone 5. All three counties are topographically diverse, with mountains, rich agricultural valleys, and distinct urban areas, all within close proximity of the Pacific Ocean.

UTILITY COVERAGE

The 3C-REN Region is served by three different IOUs – PG&E to the north, SCE to south, SCG in all three counties – with overlapping electrical services in Santa Barbara and Ventura. This increased coverage has not resulted in a higher level of service, but instead led to increased confusion due to different programs, requirements and providers. The limited population means that contractors must work across counties to be profitable and these multiple administrators with different requirements make it difficult to achieve efficiencies of scale.

FIGURE 6. IOU OVERLAPPING SERVICE AREAS

POPULATION CHARACTERISTICS[22]

The Tri-Counties have a total population of approximately 1.5 million people and is growing at a steady rate of a little more than 10 percent (See Table 6). The Tri-County area represents approximately 4 percent of the population of California. The average median income is $66,733, slightly higher than California's $61,500. At the same time, the median house price is just under $440,000, nearly $70,000 higher than California's median house price of $371,400. This results in higher housing costs and cost of living, creating affordability concerns for owners and renters alike.

Ventura is the most populous and dense with San Luis Obispo being about one-fourth the size and much less dense. While there are clear differences between the three counties, they are similar in their overall housing prices, relation to the coast and long-term relationships between the three counties in sharing resources, providing unified programs in other areas, including emPower, Tri-County Wireless Broad Band, and the Standard Emergency Management System (SEMS) for California Emergency Management Agency (*Cal*EMA). Moreover the three counties make up a well-known Region referred to as the Central Coast.[23] This designation represents the recognition that they are not northern, southern or central California but a Region, unique unto itself.

TABLE 6. 3C-REN POPULATION CHARACTERISTICS

	Ventura County	San Luis Obispo County	Santa Barbara County	Tri-County Total/Averages
Population	835,790	274,184	431,555	1,541,529
Population Growth	10.97%	11.15%	8.07%	10.1%
Population Density	378.46/sq mi	75.83/sq mi	113.89/sq mi	189.39/avg sq mi
Median Household Income	$77,335	$59,454	$63,409	$66,733
Median House Price:	$444,800	$426,200	$446,500	$439,167
% Rural Housing Units	3.10%	16.60%	5.00%	8.23%

Source: 2011-2015 American Community Survey, US Census Bureau

RURAL COMMUNITIES

> *"Rural areas have higher rates of poverty and economic disparity, lower per capita income and disproportionate elderly and veteran populations when compared to more urban areas.... Many homes lack adequate insulation, weather stripping around windows and other basic improvements that reduce energy use and add dollars to household budgets."*[24]

The Tri-Counties are difficult to get to; with no major airports, and an overall lower density than larger metropolitan areas and the other RENs. The area is covered by three IOUs with headquarters and primary

[22] All demographic statistics are sourced from US Census Bureau, American Community Survey data for 2011-2015, 5-year estimates unless otherwise noted.
[23] Note that Monterey and Santa Cruz Counties can be considered part of the Central Coast, but more frequently that is known as the Monterey Bay Region.
[24] Marsh-Robinson, Marilynn, "Public and private financing drives energy efficiency in rural America", Economics Energy, January 15, 2014.

offices located either in the Bay Area or in Los Angeles/Southern California. The Tri-Counties have approximately 8 percent of the communities living in rural areas[25] and about 13 percent living in small towns with less than 8,000 people (See Table 7). These residents are hard-to-reach due to geographic distance and lack of robust workforce to serve the communities in a routine and consistent manner. While this is not a large percentage of the community, they tend to be located in the inland areas, have higher rates of poverty,[26] higher rates of Spanish language speakers, and are historically underserved by utility programs[27] and in Climate zones that offer greater savings opportunities.

TABLE 7. 3C-REN RURAL COMMUNITIES CHARACTERISTICS

	Ventura County	San Luis Obispo County	Santa Barbara County	Region Totals
Small Towns (Under 8,000)				
Population	45,838	47,720	44,048	137,606
Est. Percentage	6%	21%	12%	13%
Rural Population as Defined by US Census				
Rural Housing Units	9,783	20,394	9,392	39,569
Percentage of Units	4%	20%	7%	8%
Rural Population	25,725	44,750	21,269	91,744
Percentage of Population	3%	16%	5%	8%

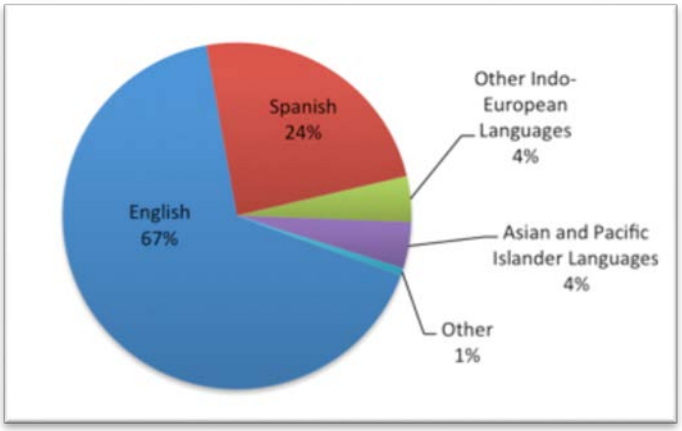
Source: US Census, America Community Survey 2011-2015

LANGUAGE

> *"Language and education barriers can impede participation in energy retrofit programs, due to a lack of awareness or difficulty understanding program requirements."*[28]

The Tri-Counties population is diverse and includes a large Hispanic population with Spanish as the primary language for 24 percent of the population. Other languages represent another 9 percent of the population (See Figure 7). For the provision of energy efficiency services, this characteristic is critical to address and ensure that all outreach and

FIGURE 7. LANGUAGES SPOKEN IN THE HOME



[25] "Rural encompasses all population, housing, and territory not included within an urban area." US Census Bureau, https://www.census.gov/geo/reference/urban-rural.html.
[26] USDA Economic Research Service, "Rural America at a Glance," November 2016.
[27] Scavo, Korosec, Guerrero, et al, 2016. "Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-income customers and Small Business Contracting Opportunities in Disadvantaged Communities." CEC. Publication Number: CEC-300-2016-009-SD2, page 2.
[28] Scavo, Korosec, Guerrero, et al, 2016. "Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-income customers and Small Business Contracting Opportunities in Disadvantaged Communities." CEC. Publication Number: CEC-300-2016-009-SD2, page 48.

materials are provided in English and Spanish, as well as offering Spanish speaking staff and Energy Coaches.

HOUSEHOLD CHARACTERISTICS

There are approximately 512,000 *occupied* households[29] in the three counties with an average household size of 2.8 persons per home (See Table 8). 69 percent of the households are considered families. 55 percent of households are owner occupied with 37 percent renter occupied. The majority of households, 63 percent, are single family detached with another 8 percent single family attached. 12 percent of the households have 2-9 units and 10 percent are over 10-units (See Table 9). Initial analysis of county property assessor data indicates that there is a high percentage of single family housing that is rented. In County of Santa Barbara, 43 percent of single family houses are rented, in County of San Luis Obispo 48 percent are rented and in County of Ventura 44 percent are rented. (If multifamily properties are included there is an average of 37 percent renter-occupied housing units.)[30] In the 3C-REN Region, multifamily, particularly large multifamily is less prevalent than in the metropolitan areas of the Bay Area, Los Angeles and San Diego. There are larger multifamily buildings associated with student housing for CalPoly and University of California Santa Barbara. There are a number of owner occupied condominiums units, as well as more traditional rental housing.

This diversity requires careful targeting and focus on the particular needs and attributes of each of these market segments. Recognizing these dynamics between owners and renters, the issue around split incentives is an important component to address and incorporate into any program offered by the 3C-REN. Using property assessor data and mapping tools, the 3C-REN will be able to map and identify target areas, and who occupies each dwelling.

TABLE 8. 3C-REN HOUSEHOLDS

Household and Family	Ventura County	San Luis Obispo County	Santa Barbara County	Tri-County Total/Averages	
Total Households	267,829	102,350	142,028	512,207	
Average Household Size	3.07	2.52	2.91	2.8	
1 Person Households	55,160	26,856	35,131	117,147	23%
2 or More Person	212,669	75,494	106,897	395,060	77%
Family Households	197,214	65,084	93,059	355,357	69%
Average Family Size	3.69	3.10	3.61	3.5	
Married-Couple Family	149,020	51,691	69,156	269,867	53%
Nonfamily Households	70,615	37,266	48,969	156,850	31%

[29] Please note this is a sub-set of all households in the area, excluding vacant properties.
[30] Tri-County Property Assessor Data, December, 2016.

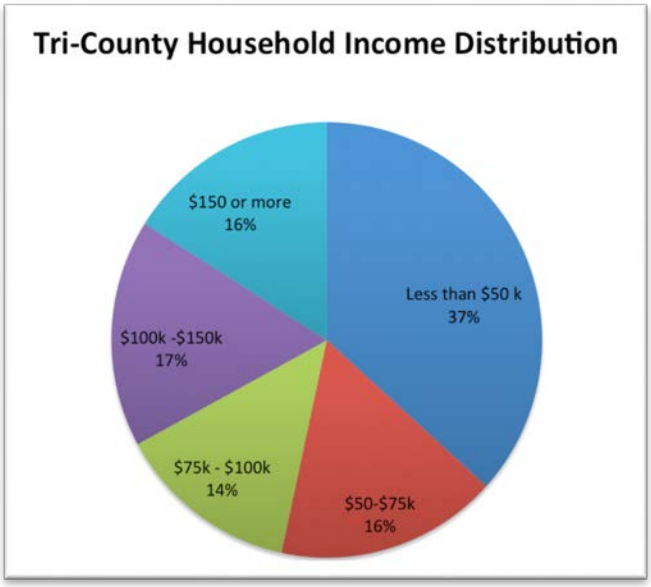
TABLE 9. 3C-REN OWNER AND RENTERS, UNITS PER HOUSEHOLD

Housing Occupancy	Ventura County		San Luis Obispo County		Santa Barbara County		Tri-County Total	
Total Housing Units	283,047		118,209		153,565		554,821	
Occupied Housing Units	267,829	95%	102,350	87%	142,028	92%	512,207	92%
Owner Occupied	172,637	61%	59,381	50%	74,300	48%	306,318	55%
Renter Occupied	95,192	34%	42,969	36%	67,728	44%	205,889	37%
Units in Structure								
Total Housing Units	283,047	100%	118,209		153,565		554,821	
1-unit, Detached	181,792	64%	78,879	67%	89,263	58%	349,934	63%
1-unit, Attached	29,826	11%	5,918	5%	10,613	6.9%	46,357	8%
2 Units	4,139	1.5%	4,003	3.4%	5,040	3.3%	13,182	2%
3 or 4 Units	13,585	4.8%	6,148	5%	9,961	6.5%	29,694	5%
5 to 9 Units	13,459	4.8%	5,076	4.3%	11,734	7.6%	30,269	5%
10 or More Units	28,967	10%	6,972	5.9%	19,121	12.5%	55,060	10%
Mobile Homes, etc.	11,279	3.98%	11,213	9.49%	7,833	5.10%	30,325	5%

INCOME AND AFFORDABILITY

"Low-income customers who own their homes do not face split incentives, but they face other challenges gaining access to energy efficiency and renewable energy opportunities. Because they have limited disposable funds, they may be more risk-averse and less capable of participating in programs with high upfront payments or copayments for energy efficiency or renewable equipment. At the same time, poor credit or lack of collateral may restrict access to financing options."[31]

FIGURE 8. HOUSEHOLD INCOME DISTRIBUTION



In the Tri-County Region, 37 percent of households have incomes under $50,000, while 30 percent of the households fall in the moderate income range with incomes between $50,000 and $100,000. These statistics are important for the 3C-REN as it develops programs and understands the level of discretionary income available for retrofits and the potential capacity for financing those retrofits. Low-cost options with easy to access, low-burden incentives and financing will be essential to driving deeper savings.

[31] Scavo, Korosec, Guerrero, et al, 2016. "Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-income customers and Small Business Contracting Opportunities in Disadvantaged Communities." CEC. Publication Number: CEC-300-2016-009-SD2, page 5.

An added issue is the high cost of housing. Census demographic data from 2011 indicates that the average median house price in the 3C-REN Region is approximately $440,000. Data from 2016 indicates a much worse situation. The California Association of Realtors (CAR) indicates that in 2016 the average median cost of a house in the Region was $645,043. (The substantial difference is likely due to more recent and accurate data available to CAR and the accelerated housing prices since the Census data was developed.[32]) CAR's assessment indicates that the average household in the Tri-County needs an average income of $125,000 to qualify to purchase a house. It also establishes an affordability index that indicates the percentage of the population who can afford a house – in this case, 30 percent or less (See Table 10). Affordability, especially in County of Santa Barbara is a concern, with a median house price of $717,460. The average income levels in the three counties means that a high percentage of homeowners – 37 percent – invest more than 30 percent of their incomes in housing costs. Rental costs are fairly in line with California median rents with the average median rent in the Tri-County Region being $1,360 a month.

TABLE 10. AFFORDABILITY INDEX FOR TRI-COUNTIES[33]

County	Affordability Index (percent who can purchase a house) Q3 2016	Median Home Price	Monthly Payment Taxes & Insurance	Minimum Qualifying Income
Ventura	30	$642,740	$3,120	$124,930
San Luis Obispo	25	$574,930	$2,790	$111,750
Santa Barbara	20	$717,460	$3,490	$139,460

Source: http://www.car.org/marketdata/data/haitraditional/

VINTAGE OF HOUSING STOCK

Like the rest of California, the median age of the housing stock in the 3C-REN Region is generally composed of older homes. In Santa Barbara the median vintage is 1971, in Ventura its 1976 and San Luis Obispo has slightly newer properties with a median of 1981. On average, 37 percent of the housing stock was built before 1970. The age of the housing stock is important in two primary ways: 1) Older homes, built before Title 24, Part 6 went into effect have more opportunities for energy savings than newer homes; and 2) In lower income properties, there are often other aging systems and issues that are more pressing than energy that must be considered and addressed.[34] Targeting these older properties will enable enhancements to the building stock as a whole, especially if there is the opportunity to address other essential systems and ability to leverage financing to upgrade the house needs as a whole – not just energy.

[32] The American Community Survey US Census data was estimated based on sample community surveys and built from the 2010 US Census and is the source of the data in Table.

[33] C.A.R.'s Traditional Housing Affordability Index (HAI) measures the percentage of households that can afford to purchase the median priced home in the state and regions of California based on traditional assumptions. The higher the number, the more affordable a house is.

[34] Scavo, Korosec, Guerrero, et al, 2016. "Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-income customers and Small Business Contracting Opportunities in Disadvantaged Communities." CEC. Publication Number: CEC-300-2016-009-SD2, page 5.

TABLE 11. VINTAGE OF TRI-COUNTY HOMES

Vintage of Homes	Ventura County	San Luis Obispo County	Santa Barbara County	Total
1959 or earlier	16.6%	16.3%	25.8%	19.6%
1960 to 1969	20.5%	9.8%	21.9%	17.4%
1970 to 1979	23.0%	21.7%	18.3%	21.0%
1980 to 1989	17.5%	22.0%	15.4%	18.3%
1990 to 2000	10.7%	13.2%	8.9%	10.9%
2000 to 2010	11.4%	16.4%	9.3%	12.4%
Median Built Year	1976	1981	1971	
Built before 1970	**37.2%**	**26.1%**	**47.7%**	**37.0%**

WORKFORCE

"The residential construction industry, in which home performance is embedded, is characterized by intense competition between numerous small firms, with upfront costs being the primary consideration for many homeowners. The structure of the residential construction industry is similar to what we have described above as the "low-road" side of the HVAC sector. Much of the market is unregulated, and some contractors operate without proper licenses and/or without the required building permits. Firm size is small and employment relationships are often casual.... It is also relatively easy for contractors to enter the residential retrofit market, as licensing requirements are not stringent, and many homeowners are not aware whether or not their contractor holds a license."[35]

BROAD TRENDS AND WORKFORCE NEEDS

The Don Vial Center on Employment in the Green Economy prepared a Needs Assessment for the CPUC in 2011 to evaluate the character and needs for a green workforce. The study outlined a series of challenges to establishing a strong and viable residential workforce able to meet the retrofit needs demanded by state goals. These challenges include:

- Small firm size- 40 percent of the firms in California have only 1 to 4 employees with the vast majority – 81 percent – having less than 24 employees. [36]
- Seasonal, irregular work cycles with relatively low pay and little ability to establish a career with benefits. [37]

[35] Donald Vial Center On Employment In The Green Economy, "California Workforce Education and Training Needs Assessment", 2011, page 103.
[36] Ibid.
[37] Donald Vial Center On Employment In The Green Economy, "California Workforce Education and Training Needs Assessment," 2011, page 103.

- Large percentage of undocumented workers hired as day laborers.
- Multiple labor violations.
- Inconsistent quality and compliance with codes.[38]
- Limited or no requirements for certification for specialty skills related to home performance.

POTENTIAL FOR ENERGY EFFICIENCY WORKFORCE

In the Tri-County Region, there are approximately 5,500 Class B Contractors. Within that there are a number of specialty contractors, including .9 percent Insulation and Acoustic, 8.1 percent HVAC, .6 percent Solar, and 20 percent Electrical Contractors (See Table 12). Of these professionals, it is not clear the percentage of who are currently interested, skilled and/or actively involved in energy efficiency.

TABLE 12. CONTRACTOR MARKET COMPOSITION

Contractor License Type	Number	Percent
Class B	5,511	
C-2 Insulation and Acoustical	49	0.9%
C-6 Millwork and Finish Carpentry	305	5.5%
C-10 Electrical	1,110	20.1%
C-17 Glazing	126	2.3%
C-20 HVAC	445	8.1%
C-36 Plumbing	782	14.2%
C-46 Solar	32	0.6%

Source: 2014 CSLB Contractor Database

According to Advance Energy Economy Institute (AEEI) 2014 report on the Advanced Energy Economy in California, the Central Coast has approximately 4 percent of the advance energy workforce in the state or approximately 14,000 advance energy jobs.[39] Overall, the AEEI survey found that 70 percent of all advanced energy jobs are in energy efficiency (the balance is in solar, transportation and other similar areas). Using these numbers, it is assumed that there is the potential for nearly 9,000 energy efficiency related jobs in the Tri-County area.

A complete workforce to successfully deliver high-quality energy efficiency upgrades requires a number of key occupations and skills. A 2009 study by the Centers for Excellence (COE) detailed eight energy efficiency occupations and surveyed the South Central Coast (Ventura, San Luis Obispo, Santa Barbara and Northern Los Angeles) to determine the availability and potential growth in the Region for those occupations (See Table 13). These occupations include energy efficiency managers; construction project managers; HVAC mechanics, technicians or installers; building performance specialists; building operators; energy auditors/raters; compliance analysts; and building controls technicians. The COE study found that most of the occupations would have double digit job growth over three years, with the highest job growth – over 50 percent - for project management, building performance and energy raters.

TABLE 13. SOUTH CENTRAL COAST ENERGY EFFICIENCY OCCUPATIONAL DATA

[38] Ibid., page 108.

[39] BW Research Partnership for the AEE Institute, "California Advanced Energy Employment Survey", December 2014. Note, the actual number is 18,600, however their definition of Central Coast includes Monterey and Santa Cruz, so this assumes about 75% may be found in the Tri-County Region.

Energy Efficiency Occupations	2009 Employment Estimates	3-year Projected Growth	Growth Rate
Resource conservation or energy efficiency managers - assess current energy and resource consumption and develop strategies to reduce usage.	410	170	41%
Project managers for construction or design work - responsible for communicating with project partners and ensuring that the project is completed in a timely manner and within budget	2,060	1,060	51%
HVAC mechanics, technicians or installers - install, repair and maintain heating, ventilation, air-conditioning and refrigeration systems.	1,020	240	24%
Energy auditors or home energy raters - responsible for collecting, analyzing and validating energy usage in the field and preparing reports on a building or home's total energy profile.	240	130	54%
Compliance analyst or energy regulation specialists - evaluate if projects are meeting regulatory requirements and/or incentives and provide recommendations as needed to meet compliance.	370	170	45%
Building performance or retrofitting specialists – contractors who improve the efficiency of homes or buildings by installing insulation, windows, lighting and other energy efficient products.	890	470	53%
Building operators or building engineers troubleshoot, install, replace, and repair building energy systems and controls to optimize energy efficiency.	430	<10	1%
Building controls systems technician - combine some of the traditional skill sets of building technicians with advanced skills in controls programming, networking, and systems integration.	340	60	19%
Total, All Occupations (totals may not add due to rounding)	**5,760**	**2,300**	

This potential demand illustrated in these two studies, supports the 3C-REN's focus and expansion of workforce education and training through the 3C-REN.

WORKFORCE EDUCATION AND TRAINING

The COE Study found that a majority of employers surveyed have difficulty filling open positions in key energy efficiency occupations with qualified and trained people. The top three knowledge and skill areas employers want to see their employees have are: 1) Ability to communicate with customers in writing and in person; 2) Understanding of local and state codes and standards as well as incentives; and 3) General technical understanding of the mechanics and engineering of energy systems such as HVAC, lighting and renewables. [40]

The current IOU training and education programs require substantial travel to energy centers outside of the area and are often not designed to meet the needs of a residential home performance workforce. In the Phase I Gaps and Market Analysis of the California Energy Efficiency Coordinating Committee process,

[40] Centers of Excellence, Economic and Workforce Development, "Energy Efficiency Occupations in the South Central Region, Key Findings 2009".

PG&E's Workforce Education & Training presentation indicated that just 16 percent of its classes are residential-oriented and that "energy efficiency is not a core education emphasis." SCE's presentation indicated a similar gap with just 9 percent of courses oriented to home performance even though 29 percent of its portfolio is for whole building programs. Additionally, SCE's home performance classes were focused on controls (commercial oriented) and commercial and industrial topics.[41] These figures indicate that services within the Tri-County Region would be even less, since so few programs are offered locally. While PG&E indicates training locations within the area, an evaluation of upcoming training for 2017 indicated no residential or multifamily classes in the Tri-County Region, with 55 in other parts of PG&E's territory.[42] Considering the size and scale of the housing stock that needs to be upgraded for the State to reach its goal of doubling the energy efficiency of buildings,[43] it is clear that the Tri-County Region will need a much greater quantity of quality, active and well-trained contracting companies.

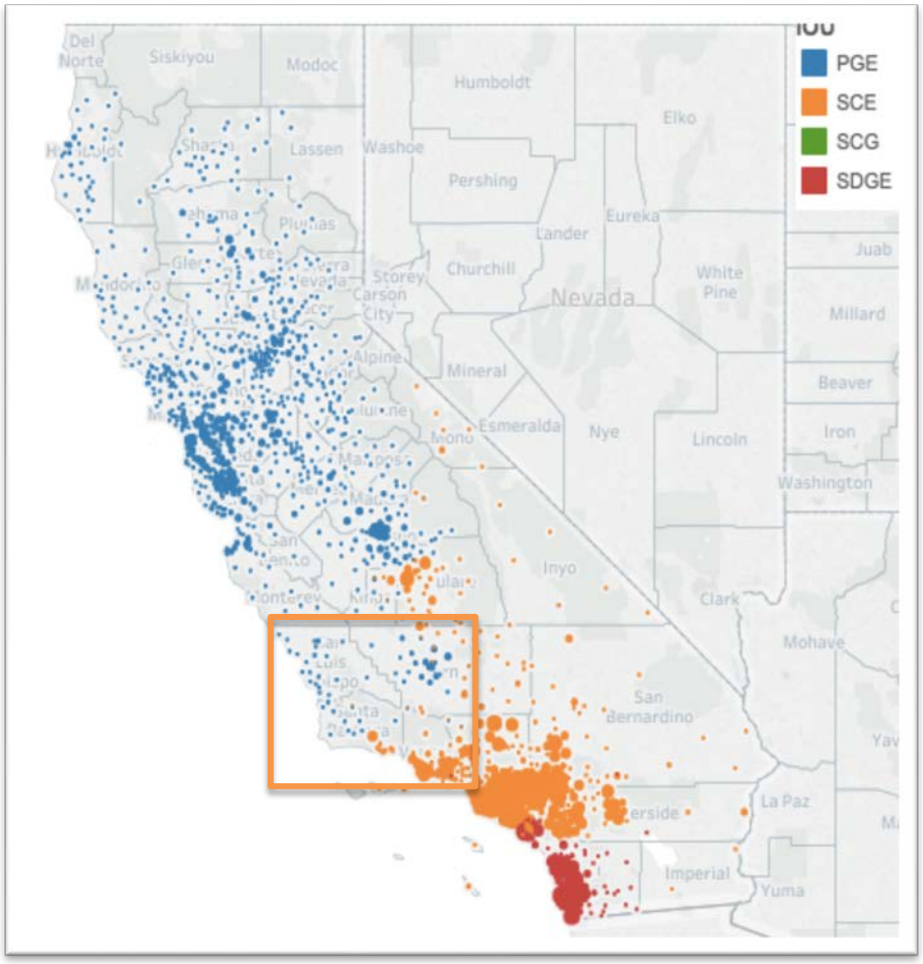
The 3C-REN is dedicated to addressing these issues to help build and establish a locally trained and developed workforce, better suited to meet the needs of the Tri-Counties and State goals.

[41] http://www.caeecc.org/we-t-gap-analyses
[42] http://66.198.243.12/?WT.mc_id=Vanity_energyclasses
[43] SB 350 Clean Energy and Pollution Reduction Act: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350.

ENERGY USAGE AND POTENTIAL SAVINGS

The 3C-REN has limited access to energy usage data in sufficient detail to analyze and determine where there is the highest opportunity for savings. The 2016 Navigant Potential and Goals study presents information based on utility territory. Given the multiple IOUs in the Tri-Counties it is difficult to parse out pockets of information from the study or request data from the IOUs in a cost-effective manner. An analysis of the Market Potential for residential electric savings within the three IOUs covered in the 3C-REN service area indicates declining potential after 2018, except for appliances and plug loads.[44] This analysis likely includes savings derived from codes and standards and indicates the steep drop anticipated in savings due to ZNE code in the 2019 cycle. It is not anticipated that potential savings in the target market or for existing buildings for the 3C-REN service area will be declining at this level. In addition, the new Potential and Goals Study for 2018 will incorporate a new baseline and include to code savings as directed by SB 350 that will likely dramatically change potential savings in existing buildings.[45]

FIGURE 9. GEOGRAPHICAL DISTRIBUTION OF RESIDENTIAL ELECTRICTY SAVINGS (NET GWH)

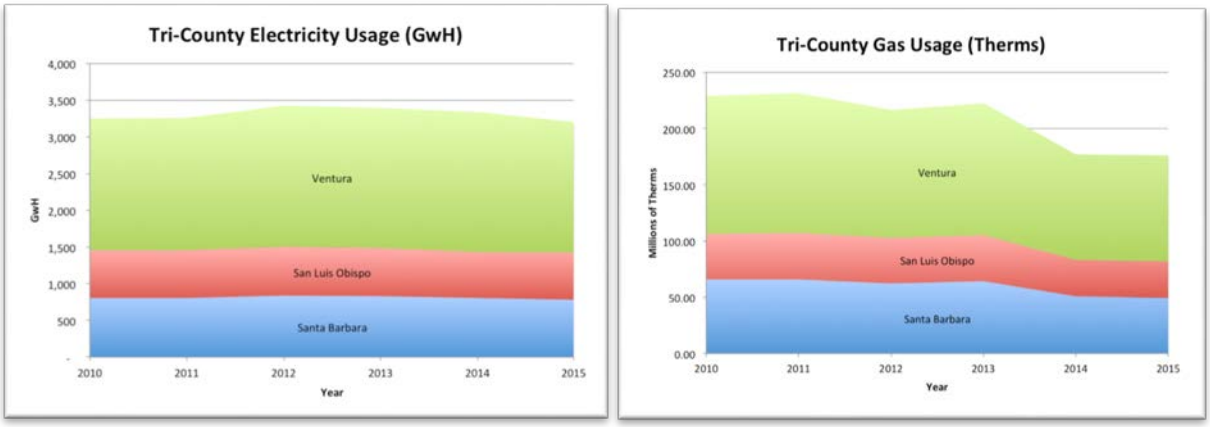


SOURCE: EESTATS.COM

[44] Navigant, "2015 and BeyondPotentialandGoalsResultsViewer62615PUBLICDRAFT.xlsx"
[45] CPUC Decision 16-08-019, August 25, 2016.

Information from the eestats.com website indicates that reported IOU residential savings in Tri-Counties is not substantial, as illustrated in Figure 10. The reason for the gap in savings is not clear and could be due to the hard-to-reach elements of the geographic area and a lack of ability to effectively reach customers consistently. Data from the CEC Consumption database indicates that residential electricity usage in the three counties has remained relatively flat, and while gas usage declined in 2013, it then flattened out again. This indicates an opportunity to work within the counties to better serve and encourage deeper savings. When comparing the consumption for the entire SCE and PG&E territories for residential electricity customers, the Tri-Counties represent 5 percent of total energy usage (4 percent of the total population of California).[46] Ultimately, the 3C-REN will require better access to energy usage data to pair with available county data to estimate savings and target potential customers. 3C-REN will work with the CPUC and with IOU's towards an agreeable solution.

FIGURE 10. TRI-COUNTY ENERGY USAGE (ELECTRICITY AND GAS)



[46] CEC, http://ecdms.energy.ca.gov/

5.2 MARKET BARRIERS

Based on market analysis, experience with emPower, and review of relevant State policy, the 3C-REN has identified the key barriers for the Tri-County Region's residents and market actors. Table 14 maps the market impacts from the known barriers of residential energy efficiency program participation. Each market actor has its own barriers, and 3C-REN will address these barriers with strategic interventions with clear performance indicators. The table shows the expected effect in overcoming these barriers toward an improved program and increased residential energy efficiency participation.

TABLE 14: RESIDENTIAL HOME ENERGY EFFICIENCY MARKET BARRIERS AND INTERVENTIONS

Market Actor	Barrier	Intervention Strategy	Expected Effect	Target Metrics
Moderate Income Homeowners	Confusion and lack of engagement due to silos, fragmented program delivery and multiple messages, in large part due to multiple IOUs.	S1. Build trust and interest in deeper energy savings over time.	Simplified and streamlined program approaches, Energy Coach Service and implementation of HEScore allow for ease of engagement and allow cost to benefit proposition to be more clearly defined, results in higher uptake and long-term involvement with energy upgrades.	Energy Savings; Number of Participants; Project Conversions from Energy Coach
		S2. Employ neighborhood approaches to achieve scale in reach and savings.	Utilizing community based outreach and workforce engagement, build stronger trust and ease in treating multiple units.	Percent of homes treated in a neighborhood; Percent of Project Conversions to "Bundled" projects
Property Owners, and Renters	Lack of understanding and value of energy efficiency and non-energy benefits.	S1. Build trust and interest in deeper energy savings over time.	Energy Coaches to illustrate issues with homes and clear approaches to improve it based on customer benefits.	Energy Savings; Number of Participants; Project Conversions from Energy Coach
			Renters and homeowners utilize a toolkit or install measures to address needs.	Energy Savings; Number of Participants; Project Conversions from Energy Coach; GHG avoided

Market Actor	Barrier	Intervention Strategy	Expected Effect	Target Metrics
General and Specialty Contractors	Contractors do not appreciate the value of energy efficiency and how it can be incorporated into their work.	S3. Establish local, targeted training and education for residential building professionals.	Accessible and stackable training modules provide contractors with a path to higher quality projects and a more profitable business.	Number of Contractors Trained; Increase in permit closures
			Local contractors engage in programs more frequently and more deeply, providing higher quality upgrades.	Increase in permit closures; Energy Savings
Workforce	Inadequately trained and engaged workforce.	S3. Establish local, targeted training and education for residential building professionals.	Use low cost and easy access measures to get energy savings.	Number of Contractors Trained; Increase in permit closures; Energy Savings
Renters, Single Family and Multifamily	Split Incentives for rental properties make it difficult to achieve deep retrofits.	S1. Build trust and interested in deeper energy savings over time.	Through relationships with tenants, reach landlords to reach deeper retrofits and energy savings.	Energy Savings; Number of Participants; Project Conversions from Energy Coach
		S2. Employ neighborhood approaches to achieve scale in reach and savings.	Flexible incentive structures, paired with neighborhood approaches provide affordable upgrade options, and deeper reach and engagement with rural communities.	Percent of homes treated in a neighborhood (categories of rural, single family and student); Percent of Project Conversions to “Bundled” projects
Property Owners and Renters in Rural Communities	Dispersed population over wide geographic area.	S1. Build trust and interested in deeper energy savings over time.	Consistent and ongoing engagement with customers allow for long-term savings throughout Tri-County Region.	Energy Savings; Number of Participants; Project Conversions from Energy Coach

Market Actor	Barrier	Intervention Strategy	Expected Effect	Target Metrics
			Low cost (or no cost) options designed specifically for renters allow for short-term energy savings.	Energy Savings; Number of Participants; Project Conversions from Energy Coach
Investment Property Owners and Renters	Difficult to engage and achieve energy savings with renters and landlords (split incentives).	S1. Build trust and interested in deeper energy savings over time	Long-term relationship with renter and ultimately property owner provides opportunity for whole building retrofits.	Energy Savings; Number of Participants; Project Conversions from Energy Coach
			In mid- to long-term, property owner targeted multifamily outreach and engagement will lead to greater whole building upgrades	Number of properties upgraded; Energy Savings
		S4. Provide Regional assistance to Building Departments and Jurisdictions to help comply and adjust to Codes and future updates.	Lower cost and ease of execution will result in greater compliance. Building departments will be capable to complete field inspections through the use of HERS Raters. The program will capture deemed savings levels and communicate these to applicable State agencies.	Number of jurisdictions participating; Number of permits closed
Municipal Building Departments	Building Departments lack the capacity and resources to effectively enforce codes.	S4. Provide Regional assistance to Building Departments and Jurisdictions to help comply and adjust to Codes and future updates.	Building Departments utilize training and technical support to better fulfill efforts toward code compliance and enforcement.	Regional permitting and enforcement services aligned; Greater code compliance and improved permit processing

5.3 STRATEGIES AND TACTICS

The 3C-REN will offer a beginning-to-end Energy Coach Service, supported by DI services, affordable upgrade measures, and multiple financing resources, resulting in trusted and objective assistance to navigate the energy efficiency process. While the following strategies address the full range of customers and actors in the residential market segment for the 3C-REN, the engagement of particular segments will be phased in over time, initially targeting moderate income single family owners; and expanding to multifamily and single family renters; and finally multifamily and rental property owners. Concurrently, the market actors who will support upgrades, including building departments, contractors and (HERS) raters and others will be engaged in a phased manner to ensure effective implementation.

RENTERS AND MULTIFAMILY PROPERTIES

While 3C-REN's primary target is moderate income homeowners, the area's demographic information indicates that 37 percent of housing is rented, and significantly that 45 percent of single family housing is rented rather than owned by the occupants. While this diversified market offers significant challenges to engaging property owners, it is also likely that household incomes are lower and energy bills are more likely to be a burden in rented single family properties.

In the mid-term, 3C-REN wants to research the rental market, especially the 1-4 unit market, to better understand who owns these properties, who rents them, and the energy characteristics of the areas rental properties. Based on the research results, 3C-REN intends to develop one or more programs to work with property owners on upgrade strategies. In the interim, many renters will be served through DI, behavioral initiatives, emerging technologies, and educational programs to have some initial impacts on energy bills.

Multifamily intervention strategies and processes will differ based upon specific multifamily market barriers and the motivations of the property owners, such as asset value, rental rates and retention of tenants. 3C-REN will evaluate the multifamily program developed by BayREN to determine how to import strategies and lessons from that program to the smaller scale Central Coast properties. 3C-REN will also research other model programs as appropriate to determine the elements most likely to work in the Region.

For smaller scale buildings, 3C-REN will leverage single family administrative and contracting processes in order to maximize effectiveness when additional energy efficiency services are provided to rental properties. For larger rental properties, 3C-REN can also work through infrastructure and relationships already residing within the purview of the counties (examples include Housing and Urban Development and affordable housing programs). In either case, opportunities exist to bolster energy efficiency uptake and outcomes in this underserved market segment.

STRATEGY 1. BUILD TRUST AND INTEREST IN DEEPER ENERGY SAVINGS OVER TIME

Objective: Program delivery will help increase uptake due to lower-cost projects offering stronger value, which will increase support for the private market to offer a stronger value proposition.

> *"…support the 'bundling' of efficiency measures into other types of home renovation rather than try and stimulate efficiency-only renovations in a narrow market segment of committed efficiency renovators. This recognizes [sic] that renovations are predominantly about adapting and improving the amenity features of a home."*[47]

The focus on the hard-to-reach segments identified in the previous sections, requires an innovative and different approach than current residential programs in the Tri-County Region. These changes are three-fold:

1. How customers are engaged;
2. The product they are offered; and
3. How the product is delivered.

Briefly, the 3C-REN residential efforts will be based on establishing trusted relationships through a hybrid-DI approach, delivered by a Building Performance Institute (BPI) trained technician (aka Energy Coach) who will assess and identify deeper savings opportunities to connect to other contractors. First touch engagements are essential and will be the focus to get as much done at the initial contact as possible, thereby providing a positive experience and encouraging future projects to get deeper retrofits. The 3C-REN seeks to strengthen the value proposition to homeowners by combining many points of value and by delivering these services with a limited number of visits.

TABLE 15. INTERVENTION STRATEGY 1. BUILD TRUST & INTEREST IN DEEPER ENERGY SAVINGS OVER TIME

Intervention Strategy	Tactics	Anticipated Programs
S1. Build trust and interest in deeper energy savings over time.	1.1 Establish "Energy Coach" Service as go to, trusted, one-stop energy solution in the County.	• Direct Install Engagement Program (New, Mid-term) • Single Family Multi-Measure Incentive Program (New, Short-term) • Multifamily Multi-Measure Incentive Program (New, Mid-term)
	1.2 Utilize Direct Install program to build base for deeper savings.	
	1.3 Develop a range of simple upgrade packages to streamline and offer easy installation and adoption of deeper retrofits.	

[47] C. Wilson, L. Crane, G. Chryssochoidis, "Why do homeowners renovate energy efficiently? Contrasting perspectives and implications for policy". Energy Research & Social Science, Volume 7, May 2015, Pages 12–22.

Intervention Strategy	Tactics	Anticipated Programs
	1.4 Conduct robust outreach and marketing to residents throughout the Tri-Counties in coordination with local jurisdictions.	• Energy Coach Service (Modified, Short-term)
	1.5 Integrate Behavior and Home Energy Management Systems into all Service packages.	
	1.6 Deploy Valuation Tools to build awareness of energy efficiency benefits and drive deeper energy retrofits.	

TACTIC 1.1 ESTABLISH "ENERGY COACH" SERVICE AS GO TO TRUSTED, ONE-STOP ENERGY SOLUTION IN THE COUNTY

The Energy Coach Service will provide a team of expert energy advisors, BPI certified contractors, and customer service specialists to serve as an objective third-party who will be trusted and available for property owner and renter guidance on multiple issues at each phase of a project. The design of the 3C-REN Energy Coach Service model has been guided by lessons learned from programs from around the nation, including the BayREN Energy Advisor. A recent analysis by Lawrence Berkeley National Lab found that programs that integrated an energy advisor with multiple pathways and DI elements were more successful and completed more upgrades.[48]

The Energy Coach Service will help residential customers with a range of elements to upgrade their homes, including the following:

1. Home assessments and evaluation
2. HEScores and actionable steps to improve it
3. Scoping and job descriptions (potentially Energy Plans for a long-term approach to deeper savings)
4. Financing Options
5. Incentive Program alignment and referral, including IOU programs
6. Contractor engagement
7. Renter/owner strategies and relationship building
8. Connection to local water conservation programs and other local non-energy efforts

An important role of the Energy Coach Service is the ongoing relationship management of customers. This includes initial contact capture, DI program enrollees, and encouraging customers to complete a full plan of upgrades over time. The existing emPower Customer Relationship Management (CRM) software

[48] Megan Billingsley, Chris Stratton, Emily Martin Fadrhonc , "Energy Advisors: Improving Customer Experience and Efficiency Program Outcomes," Lawrence Berkeley National Labs Program Brief, January 2016.

platform will be expanded and utilized to track and keep residents engaged over time with minimized administrative needs. In phase one, the program will engage new and existing emPower participants with materials and consultation regarding potential programs and will be guided through the steps of how to participate. Previous energy efficiency program participants within the Tri-County Region will have opportunities to seek deeper energy savings.

It is envisioned that over time, the Energy Coach Service will transition the market from primarily relying on contractors as the sales force for energy efficiency projects, to this third-party model. This expectation is due to the ability to brand and solidify a trusted third-party as an advisor, and the fact that the Energy Coach will be program agnostic, facilitating access and engagement to any residential programs in the Tri-County Region, including low-income programs, HUP, future P4P and others.

TACTIC 1.2 UTILIZE DIRECT INSTALL PROGRAM TO BUILD BASE FOR DEEPER SAVINGS.

The last few years of experience with the HUP and emPower program has illustrated how difficult it is to get homeowners to commit and to invest in high-cost multiple measure upgrades. This dynamic will be changed by using a 3C-REN employed Energy Coach to work with homeowners and renters to offer a series of low cost measures at time of visit (See Strategy 2 for more details on Energy Coach Service). This is anticipated to include conducting a baseline assessment of the home/unit, providing a HEScore, and offering a package of DI measures.[49] With the information gathered, the Energy Coach will educate the customer on their home, energy efficiency benefits, and how they may be able to make additional improvements to get a more energy efficient home. The Energy Coach will then manage the relationship and help move to next steps over the coming years to achieve as much of the energy savings, as possible. This approach is in line with Strategy 2.2 Customer-Focused EBEE Action Plan,[50] which focuses on meeting customers where they are and offering flexible options at key times in a customer's decision time-frame. Identified key market segments will be reached with targeted outreach (Tactic 1.4).

TACTIC 1.3 DEVELOP SIMPLE UPGRADE PACKAGES TO STREAMLINE AND OFFER EASY INSTALLATION AND ADOPTION OF DEEPER RETROFITS.

For some customers, there may be an immediate need and desire to conduct some energy upgrades, or they may have expanded their interests after utilizing the DI efforts. For these customers, multiple measures will be combined into "bundles" that will have been vetted for affordability and energy savings for homeowners and offer reasonable profitability for the contractor. A central element of the 3C-REN strategy is to offer a streamlined process enabled by pre-qualified and vetted contractors. Contractors who wish to participate will need to hold a license appropriate to work scope performed, sign a memorandum of understanding, attend a program participation orientation, and complete all other requirements applicable to participate in the incentive programs appropriate to the contractor's scope.

Contractors will find many benefits to working within the program. From a contractor's perspective, this will distinguish them from competitors who cannot complete certification requirements or 3C-REN's vetting process and benefit from being associated with a County sponsored program. Continuing education opportunities will be provided. 3C-REN staff that are familiar with the construction industry, will be able to

[49] Scavo, Korosec, Guerrero, et al, 2016. "Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-income customers and Small Business Contracting Opportunities in Disadvantaged Communities." CEC. Publication Number: CEC-300-2016-009-SD2, page 5.
[50] CEC, "Existing Buildings Energy Efficiency Action Plan", September 2015, page 68.

exemplify and refine best practices and sales methods that aid smaller and less sophisticated companies to scale up operations. This model is supported by the EBEE Action Plan Strategy 3.1. Streamlined and Profitable Industry.

3C-REN will work with contractors who wish to perform services in support of upgrade bundles proposed by the program and agree to a pricing schema. A few examples of this would include set cost for ductwork systems based on quantity of supply registers or set cost per R-value of insulation per foot. Doing so will allow the program to price packages while in the home performing assessments and/or DI installations. It will also allow for estimates to be executable over set time frames (for example, "offer valid for 90 days").

3C-REN is aware that some structures will not fall into typical construction types or uses such as historic properties or otherwise unique construction elements. In these cases the 3C-REN Energy Coach will work collaboratively with qualified builders. Energy Coaches in these cases will work as advocates for the property owner, as well as the builder to ensure that measures installed are appropriate, durable, and of quality suitable to field conditions.

Energy Coaches will be employed to guide homeowners through all steps of the decision-making process, from selection of improvements to which financing option suits the homeowner's circumstance. In addition, the Energy Coaches will facilitate the engagement between the homeowner and contractor; thus, improving the experience and the comfort of both parties.

TACTIC 1.4 CONDUCT ROBUST OUTREACH AND MARKETING

> *"All cities have relationships with their citizens as a result of their core service delivery responsibilities (waste, water, permitting, public safety, etc.) that can provide valuable channels of communication to potential utility program participants."*[51]

The outreach element of the program will drive homeowners to connect with the Energy Coach Service that is designed to transfer the educational experience into actionable items. Based on experience with the emPower program, 3C-REN will conduct a variety of outreach events and utilize a range of marketing techniques to reach the target markets identified in the previous section. 3C-REN will focus on the moderate income element of each group. While the delivery channels may be similar, the focus, messages and location of the effort will be unique for each group. For example, for the Hispanic community, outreach events will be held at local faith based locations and community centers. For student housing, college resources and marketing tools will be leveraged to reach students. For multifamily properties, both owners and tenants will be reached - owners through letters and materials sent directly to them; and tenants through local outreach events and targeted collateral. A complete marketing and outreach plan will be developed to reflect the focus and needs for each of the Business Plan phases.

The following chart is a summary of anticipated approaches for each group. It is assumed that these approaches will be evaluated regularly and change based on deeper experience and feedback. Following the chart, additional details are provided for each reach method.

[51] ACEEE, "Increasing Participation in Utility Energy Efficiency Programs," August 2015.

TABLE 16. MARKETING, EDUCATION AND OUTREACH ACTIVITIES BY AUDIENCE

	Single Family Homeowners (Homeowners)	Single Family Renters (Tenants/ Owners)	Multifamily Renters (Tenants, Property Mgrs, Associations)	Rural (Residents, Local Jurisdictions)	English as Second Language (In Spanish – Residents)	Neighborhood (Residents/ Community Groups)
Door to Door Outreach			■	■		■
Outreach Van Exhibits	■	■	■	■	■	■
Farmer's Markets/Cafes/Local	■	■	■	■	■	■
Community/In Home Workshops	■				■	
Lunch and Learns	■					■
Exhibit/Home Showcases/Events	■					
Community Group Engagement	■	■	■	■	■	
Presentations/Referral Relationships	■	■	■	■	■	
Leverage Local Government Resources	■	■	■	■		
Leverage Partner Marketing Resources		■	■			
Social Media	■	■	■		■	■
Earned Media/Public Relations/PSAs	■	■	■		■	
Utility Bill Inserts (Water/Trash)	■		■	■		
Collateral (Print, Video, online)	■		■	■	■	■
Targeted Ads	■				■	■

DETAILED MARKETING AND OUTREACH TACTICS

Door to Door Outreach – Working with volunteers, community groups and others, go door to door in targeted areas/neighborhoods to talk with potential customers.

Mobile Outreach Van Exhibits – Utilizing a branded van or minibus with all the outreach and exhibit materials on board to conduct residential outreach where people live.

PHOTO: HUP LOS ANGELES OUTREACH VAN

Farmer's Markets/Cafes/Local – Go to locations and areas where residents go for other reasons than home upgrades. Create a trusting and comfortable location to share information locally.

Community/In Home Workshops – Conduct workshops at community centers or in homes for people who have already done an upgrade. Incorporate contractors in to the event.

Lunch and Learns – Hold brown bag learning sessions in targeted communities.

Exhibit/Home Showcases/Events – Participate and exhibit at targeted events such as home and garden shows or housing related events such as the Coastal Housing Conference, Earth Day festivals, faith based organizations, rotaries and the like.

Community Groups – Build awareness by educating and leveraging community group activities.

Presentations/Referral Relationships - Build relationships while educating and increasing awareness of programs by attending and presenting with partner organizations such as with cities, realtors, low-income providers, Housing Authorities, Student Associations, etc.

Leverage Local Government Resources – Work with local government to leverage existing marketing and outreach activities such as listservs, newsletters, and websites.

Leverage Partner Marketing Resources – Work with partners, such as colleges, and property management companies to share marketing efforts.

Social Media – Provide information and campaigns via social media including Facebook, Twitter, Cell-Phone campaigns, NextDoor and the like. Potential to leverage Energy Upgrade California Statewide Marketing.

Earned Media/Public Relations/PSAs – Increase awareness through media impressions targeted at key audiences. Potential to leverage Energy Upgrade California Statewide Marketing.

Utility Bill Inserts (Water/Trash) – Work with local utilities to send out information in bill inserts.

Collateral (Print, Video, Online) – Develop suite of collateral for the programs targeted at key audiences including all materials in Spanish.

Targeted Ads – When appropriate, place targeted ads on bus shelters, benches, radio or print. Potential to leverage Energy Upgrade California Statewide Marketing.

TACTIC 1.5 INTEGRATE BEHAVIOR AND HOME ENERGY MANAGEMENT SYSTEMS INTO PACKAGES.

In Decision R. 13-11-005, the CPUC outlined new baseline rules and expectations for behavior programs. The 3C-REN intends to incorporate behavior change and education into each element of its program designs, in particular through use of the Energy Coach. As quoted in the EBEE Action Plan, "Significant behavior changes and improved knowledge are needed to create an energy-aware culture to deliver our ambitious energy targets."[52] Behavior programs will be essential in renter-occupied homes, as well as in homes that are striving to achieve ZNE after 2020.

AB 793 established a mandate for the IOUs to deliver in its DR programs home energy management systems (HEMS) for residential customers.[53] 3C-REN sees a substantial opportunity to deliver greater savings and services by providing information and incentives for HEMS/components as part of its suite of

[52] CEC, "California's Existing Buildings Energy Efficiency Action Plan", September 2015, page 63.
[53] California Assembly Bill No. 793, CHAPTER 589, October 8, 2015.

services. This is particularly true for multifamily and renter properties where other deeper retrofits may not be as accessible. Whole House programs are currently heavily weighted towards gas savings and not electrical. HEMS can offer greater savings in kWhs and smaller bills. Home automation contractors will participate to implement emerging technologies and behavioral incentives, such as real time Smart Meter usage, remote control of lighting, and individual appliances via "smart" applications.

TACTIC 1.6 DEPLOY VALUATION TOOLS TO BUILD AWARENESS OF ENERGY EFFICIENCY BENEFITS AND DRIVE DEEPER ENERGY RETROFITS.

An essential component of a successful retrofit is to ensure that the benefits achieved are tangible and have true value for the property owner and the market. Currently, most homeowners and renters lack a reliable and simple way to assess their energy efficiency and employ clear actions to improve their buildings. Equally, the home resale market does not effectively capture the value of improvements in property valuations and in sales material. The 3C-REN sees several opportunities to provide new or leveraged tools to the market to provide better education that is more actionable. Currently three specific tools are being considered: DOE Home Energy Score (HEScore) and Zero Ready Energy Home (ZREH), and working with the Local Multiple Listing Services (MLS) to establish a Green MLS for realtors and homeowners.

Initially, the 3C-REN will partner with the DOE to provide the HEScore and work to better align the HEScore with California's temperate climate zones so that the customer gets an accurate picture of their energy consumption and reduction potential. To drive projects, baseline operational (not asset)[54] scores will be delivered to program participants electronically after the initial Energy Coach consultation. Homeowners who complete an upgrade project will receive an updated score based on the scope of the completed project. Home project scores (pre- and post- energy efficiency retrofit) will be utilized by homeowners and real estate agents, when desired, reinforcing the value of energy efficient homes and driving change in the market. 3C-REN will partner with real estate groups to populate a directory with enough scores to help launch a functional directory of housing stock efficiency scores.

In the mid-term, 3C-REN will partner and work with BayREN on the development of a Green MLS, integrate appropriate real estate training into the 3C-REN program and participate in the Green Real Estate Working Group, as appropriate. Recommendations from the working group include addressing the lack of real estate industry knowledge; lack of transparency and standardization of data; and the disconnect between low-energy costs and high real estate values.[55]

Finally, there is an opportunity for the 3C-REN to partner again with the DOE to pilot the ZREH program within the REN. As ZNE becomes code in 2020, there will be an increased need to provide clarity and veracity in claims for "zero". Working with the DOE ZREH program, which is currently being aligned with California ZNE Code, will offer another opportunity to provide good information on the value of high performing homes.

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[54] It is the intent that the HEScore effort provide information about resident's homes as it is operated, not necessarily a deeper asset score, to encourage upgrades. Equally it is the intention that the effort complements anticipated asset rating efforts by the CEC that are designed for property valuation needs. The details of this will be coordinated with the CEC to ensure alignment.

[55] Green Real Estate Working Group White Paper, "Greening California's Real Estate Sector, Recognizing the Value of Green and Energy Efficiency Improvements in Single family Homes," Version 1.0, August 18, 2015.

OUTCOMES

Successful implementation of this strategy will lead to the following outcomes:

- The decision-making process will be simplified for property owners.
- Multi-measure project bundles will be created based upon the climate zone and regional construction conditions to provide forecasted savings results and high value to the customers.
- Energy Coaches will guide and support customers in accessing all related residential programs (ESA, MIDI, HUP & Advance HUP, and A/C Quality Care) and a variety of financing product offerings to optimize energy outcomes.
- Customers will better understand energy efficiency including behavior and energy management aspects.
- 3C-REN will work with others to better establish energy related housing valuations in the marketplace.

STRATEGY 2. EMPLOY NEIGHBORHOOD APPROACHES TO ACHIEVE SCALE IN REACH AND SAVINGS.

Objective: Create efficiencies and streamlined delivery of energy efficiency residential upgrades at scale.

> *"Energy savings potential and participation in utility-led programs are unevenly distributed across cities or utility service territories because of differences in building stock as well as the characteristics of decision makers. Community-based approaches to delivering energy efficiency services can target specific neighborhoods or market segments such as multifamily buildings or senior-living facilities. This allows for more direct outreach through canvassing and partnerships with neighborhood and business associations, community groups, and employers."*[56]

The 3C-REN market segmentation identifies approximately 170,000 to 200,000 potential households in the Tri-County Region that may be appropriate for its programs. To market to each household individually would require a costly level of staffing and resources. Research indicates benefits from peer pressure/influence that traditional marketing focuses cannot capture.[57] For these reasons, the 3C-REN will first pilot and then launch neighborhood retrofit efforts in the three counties. There are a number of programs that have launched community-based and neighborhood approaches that will be used as references and best practices to inform the ultimate design of the 3C-REN programs. This includes the successful Community Home Energy Retrofit Project (CHERP) program that initially began in Claremont, California under ARRA as well as many on the west coast and throughout the country.[58]

TABLE 17. INTERVENTION STRATEGY 2. NEIGHBORHOOD APPROACHES

Intervention Strategy	Tactics	Anticipated Programs
S2. Employ neighborhood approaches to achieve scale in reach and savings.	2.1 Establish residential single family neighborhood upgrade program targeting natural cohorts.	Single Family Neighborhood Program (New/Mid-term) Rural Neighborhood Program (New/Mid-term) Multifamily Neighborhood Program (New/Long-term)
	2.2 Work with rural jurisdictions to implement neighborhood approaches.	
	2.3 Develop tailored approaches for dense multifamily areas, especially for student housing.	

[56] ACEEE, "Increasing Participation in Utility Energy Efficiency Programs," August 2015.
[57] Alex Ramel and Emily Reisman, "The Community Energy Challenge: A Place-Based Approach to Changing the Market for Energy Efficiency", ACEEE, 2010.
[58] Department of Energy, Case Study on CHERP, https://energy.gov/sites/prod/files/2015/12/f27/bbrn_cherp_casestudy_12-17-15.pdf

Intervention Strategy	Tactics	Anticipated Programs
	2.4 Integrate workforce development into neighborhood programs to build skills and community buy in.	

TACTIC 2.1 ESTABLISH RESIDENTIAL SINGLE FAMILY NEIGHBORHOOD COMMUNITY-BASED UPGRADE PROGRAM.

The 3C-REN will pilot and deliver neighborhood approaches to energy efficiency services to single family neighborhoods throughout the Tri-County Region beginning in Phase 1 and expanding in Phase 2. This approach will focus on achieving better penetration of moderate income homeowners and will encompass a number of critical elements:

1. Identify and establish meaningful "neighborhoods" based on community cohorts, building age and type, and geography.
2. Utilize community-based outreach and marketing tactics using community leaders, community institutions, schools and individual community members as "champions".
3. Determine affordable bundles of DI measures that can effectively and easily be applied to the neighborhood.
4. Use the community champions to help spread the concept, maintain interest over time in the effort, and assist with behavior programs and follow-on services.
5. Developing a vetted group of contractors that can service the neighborhood, building relationships and trust, and establishing a strong base of work for the firms.

TACTIC 2.2 WORK WITH RURAL JURISDICTIONS TO IMPLEMENT COMMUNITY MARKETING APPROACHES.

Similar to the single family neighborhood approach, the 3C-REN will identify and target rural areas for a community marketing approach. In rural communities, the service areas will be smaller and maximizing participation during a limited number of visits will be key to containing costs. Working in a defined neighborhood or community, the initial services will include an Energy Coach and installation of DI elements. Follow-on services may include an "Upgrade" event, where contractors can visit the community for a set period of time and upgrade as many homes as possible. This approach will be piloted and evaluated to determine the best way to reach as many people as possible, while making it profitable and valuable for the contractors.

TACTIC 2.3 DEVELOP TAILORED APPROACHES FOR STUDENT HOUSING.

Though a limited percentage of properties, there is an opportunity to focus on larger-scale multifamily housing, especially in relation to the student housing at CalPoly, and UCSB, and Cal Lutheran. Studies of the innovative West Village at UC Davis have identified how different student housing is relative to

standard multifamily housing. Student needs and energy usage are distinctive from the standard population and are characterized by high-load uses such as mini fridges, electric heaters, high plug loads, and lack of interest in paying attention to their use. This is particularly true when utilities are included in housing costs or when parents are paying the bill.

Neighborhood efforts for this cohort will focus on behavior, education and DI measures to help manage energy usage. The use of peer pressure, contests, and student advocates will be a part of the effort.[59] Educational materials will be specifically designed for the target market. Efforts will be coordinated with university buildings staff to cost share some efficiency options and provide additional long-term support for savings.

TACTIC 2.4 INTEGRATE WORKFORCE DEVELOPMENT INTO NEIGHBORHOOD PROGRAMS TO BUILD SKILLS AND COMMUNITY BUY IN.

> *"Chief Building Officers believe that when the local workforce is involved in the installation and maintenance of technologies (such as rooftop solar or energy-efficient appliances), they are more likely to take good care of the installed systems."*[60]

Neighborhood approaches offer another opportunity to expand and build the workforce while establishing strong community ties that will encourage participation in programs. It is important that the workforce reflect the community that is served, both to add credibility and relationships that can assist participation and to support longer-term education and savings. In larger communities, 3C-REN plans to pilot neighborhood workforce engagement and training to establish a stable and long-term group of advocates in the community as well as sustained jobs via the program.

OUTCOMES

- Pilot approaches for single family, rural and student housing neighborhood energy efficiency efforts that can be replicated.
- Engage local-based workforce to install measures and to become long-term neighborhood stewards/advocates.

[59] Hammer, Christine, "EMPOWER Resident Engagement at West Village in Davis, California", for PG&E, July 2016.
[60] Scavo, Korosec, Guerrero, et al, 2016. "Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-income customers and Small Business Contracting Opportunities in Disadvantaged Communities." CEC. Publication Number: CEC-300-2016-009-SD2, page 79.

STRATEGY 3. ESTABLISH LOCAL, TARGETED TRAINING FOR RESIDENTIAL BUILDING PROFESSIONALS.

Objective: Facilitate and deliver education and training that is designed specifically for the needs of the central coast contractor and residential construction market.

> *"...Contractors could build and manage personal, trusted relationships over often lengthy time periods to support homeowners through periodic, successive, or ongoing renovations. Energy efficient renovations are rarely one-off, but the renovation industry still manages customer relationships on the basis of one-off sales and installations. Persistence and consistency are valuable, both by contractors towards homeowners, and by policymakers towards contractors."*[61]

3C-REN will facilitate engaging the workforce in the Tri-County Region, enrolling them into the 3C-REN programs, and either delivering training directly or partnering/coordinating with other training and education partners in the area. It is important to note that hard-to-reach communities in San Luis Obispo, Santa Barbara, and Ventura Counties are serviced by building firms that tend to be smaller, have fewer resources, and struggle to keep pace with California's Energy Code.

Contractors will be drawn to the program by demand generated in the market through 3C-REN activities. Contractors will have the opportunity to participate in local training events that are otherwise prohibitive by the cost associated with extended travel, lodging, and lost revenue. The 3C-REN Energy Coach Service will consist of mentors in the field, and staff will assist with developing tools to raise the education level of the Tri-County Region's workforce.

As defined in the COE Study, the Workforce in the 3C-REN Region has two primary needs for training and education:

- **Technical Training** on code compliance, home performance and ZNE; and
- **"Soft Skills" Training** for better communications, sales and marketing training and business management.

3C-REN will address these needs with its training and education efforts, as well as providing program specific training for engaged contractors and HERS raters to help ensure quality work and compliance with codes and standards. The 3C-REN emphasis will be on retrofitting residential buildings, including the vast majority built before 1974 and the current energy standards,[62] it will also serve to educate builders in modern code and compliance verification concerns.

The primary audiences in the short-term will be local contractors and HERS raters, expanding thereafter to building departments, architects and other key market actors.

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[61] C. Wilson, L. Crane, G. Chryssochoidis, "Why do homeowners renovate energy efficiently? Contrasting perspectives and implications for policy". Energy Research & Social Science, Volume 7, May 2015, Pages 12–22.

[62] 1980, 1982, 1984, 1986, 1987, 1988, 1992, 1995, 1998, 2001, 2005, 2008, and 2013 Building Energy Efficiency Standards.

TABLE 18. INTERVENTION STRATEGY 3. ESTABLISH LOCAL TRAINING AND EDUCATION

Intervention Strategy	Tactics	Anticipated Programs
S3. Establish local, targeted training and education for Residential building professionals.	3.1 Offer education and training focused on technical and soft skills.	Ongoing Training Courses (Modified/Short-term) In-the-field Training (New/Mid-term) Program Training and Orientation (New/Short-term)
	3.2 Utilize "Energy Coach" for in-the-field training to build capabilities and on-the-job skills.	
	3.3 Conduct outreach and marketing to Tri-County contractors and firms to increase program and training participation.	

TACTIC 3.1 OFFER EDUCATION AND TRAINING FOCUSED ON TECHNICAL AND SOFT SKILLS.

3C-REN training efforts will initially focus on creating a qualified and effective workforce to deliver the 3C-REN programs. This will mean focusing on existing contractors already participating via emPower and HUP. Over time, the training topics will expand and become stackable to offer deeper and high value training for the workforce, as recommended by the Don Vial Center Needs Assessment.[63] An essential characteristic of this training is that it will be offered locally, either through partner facilities or through a facility operated for the 3C-REN. This is essential as the Market Analysis indicated that there are limited IOU offerings.

The 3C-REN does not anticipate developing new curriculums, but instead leveraging the robust and extensive resources available via community colleges, the IOUs and other providers, when possible.

Past efforts have shown that in order to draw contractors to training, the value to their businesses must be strong enough to interrupt ongoing business production schedules. In light of this, 3C-REN will focus training to provide this value in the following ways:

1. Provide a certification through training events (i.e. BPI, HERS, or NATE).
2. Co-sponsor with distributors and/or materials manufactures.
3. Collaborate with known and respected trade groups.
4. Provide trainings focused on local needs assessed through surveys and regular check-in calls.

In addition, the 3C-REN plans to develop (or adopt) online and/or hybrid delivery models for training. Due to travel and time considerations, training and education classes may have an in-person component, as well as an online component to offer deeper material and learning. The Energy Trust of Oregon provides a comprehensive suite of online training for residential contractors that may be a good model.[64] Other best

[63] Donald Vial Center. On Employment In The Green Economy, "California Workforce Education and Training Needs Assessment", 2011, page 205.
[64] https://energytrust.org/trade-ally/training/residential/online.aspx

practices will be evaluated and inform the development of these tools in the mid-term phase of the Business Plan.

TACTIC 3.2 UTILIZE "ENERGY COACH" FOR IN-THE-FIELD TRAINING TO BUILD CAPABILITIES AND ON-THE-JOB SKILLS.

In the first phase of the Business Plan, the 3C-REN will employ a "learn-by-doing" approach for contractors who are already vetted through the emPower program and the HUP. These contractors will be engaged in the improved business model of the 3C-REN in which they carry out energy improvement projects in conjunction with the 3C-REN's experienced staff. This will allow the 3C-REN to create apprenticeship style training that tends to be rare, but valuable, for the residential builder market.[65] In the mid-term, additional contractors will be enrolled in the on-the-job training, in particular for the anticipated neighborhood approaches in Strategy 2.

The DI service (Tactic 1.2) will provide an opportunity for Energy Coaches to train apprentices in energy efficiency concepts and practices, thus affording a steady supply of educated workers to populate local contracting firms and spur economic activity. Being experience BPI professionals, Energy Coaches can convert DI activities and consultations into baseline assessment testing required implementing Advanced HUP projects while training workforce development trainees. The 3C-REN will offer mentoring in the field, assistance with processing incentive claims, assistance with reporting savings as needed, and facilitate contractors in assessing which financing is most advantageous for the homeowner.

TACTIC 3.3 CONDUCT OUTREACH AND MARKETING TO TRI-COUNTY CONTRACTORS AND FIRMS TO INCREASE PROGRAM AND TRAINING PARTICIPATION.

The 3C-REN will target outreach for training and education opportunities to a broad range of building professionals, including architects and engineers, building department plans examiners and field inspectors, consultants, and raters. At the same time, the focus of the training, particularly in the first phase of the Business Plan will be on contractors and HERS raters. When beneficial, outreach efforts will include contractors from multiple specialties to create relationships and enhance understanding across specialties. 3C-REN will collaborate with groups, including, but not limited to: the CEC, the Center for Sustainable Energy, existing REN's, CPUC, Build It Green, IOUs, and the DOE.

[65] Donald Vial Center On Employment In The Green Economy, "California Workforce Education and Training Needs Assessment", 2011, page 216.

TABLE 19. MARKET ACTORS MARKETING, EDUCATION AND OUTREACH ACTIVITIES

	Home Performance Contractors	Specialty Contractors	HERS Raters	Architects & Engineers	English as Second Language Contractors	Community Workforce
Presentations/Lunch and Learns	■	■	■	■	■	■
Exhibit/Home Showcases/Events	■	■		■	■	■
Community Group Engagement					■	■
Contractor Associations/Builder Exchanges Engagement	■	■				
Leverage Local Government Resources	■	■	■	■	■	■
Leverage Partner Marketing Resources	■	■	■	■	■	■
Social Media						■
Earned Media/Public Relations/PSAs	■	■	■	■	■	■
Trade Magazines	■	■	■	■		
Collateral (print, video, online)	■	■			■	
Targeted Ads	■	■			■	

OUTCOMES

- A technically trained and qualified workforce will serve the whole-home retrofit market, capable of delivering buildings at or above efficiency levels mandated through building codes and legislation in new and existing construction.[66]
- Training and certification will develop trade standards that will enhance business operations as well as a new technical norm that reaches beyond current codes and standards.
- The building industry will be able to competently navigate the evolving landscape of incentive programs and code compliance concerns.
- Contractor associations, builder exchanges, regional colleges, trade schools, and workforce development authorities will be engaged to educate and assist with program recruitment.

[66] State of California Legislation includes AB 758 and SB 350.

STRATEGY 4. PROVIDE REGIONAL ASSISTANCE TO BUILDING DEPARTMENTS AND JURISDICTIONS TO HELP COMPLY AND ADJUST TO CODES AND FUTURE UPDATES.

Objective: Facilitate compliance with current energy efficiency code and transition to zero-net energy (ZNE) code by creating a host of easily utilized services specific to architects and engineers, plan checkers, field inspectors, builders, raters, and emerging technology developers.

This strategy aligns with the BayREN's Codes and Standard's (C&S) vision, "C&S Community effectively delivers the fundamental and contributory co-benefits of proper permitting and compliance at a scale needed to achieve the State's energy goals for new and existing construction," and anticipated SoCalREN C&S programs. In doing so, the 3C-REN will support local Building Departments to streamline and improve the compliance process for "over the counter" permits for energy efficiency retrofits to existing structures, as well as the permit process for new or significantly remodeled construction. The 3C-REN will continue to work with the other state RENs and participate in their Statewide C&S working group. This engagement will be important to refine and hone regional efforts and help inform the larger statewide conversation about how to more effectively improve code compliance and enforcement.

The following sections describe methods, programs, and platforms for enhancing Building Department and contractor communication and capacity as it relates to "over the counter" permits for energy efficiency retrofits and to permits for new construction and significant remodels. The EBEE Action Plan's Strategy 1.5. Realize the Full Benefits of the Building Efficiency Standards for Existing Buildings, details a series of potential tactics for improving code compliance and effectiveness of standards.[67] This includes improved communications and training for local government, online permitting pilots, and improving the clarity and ease of standards. The following tactics are designed to support these key elements of the EBEE Action Plan.

3C-REN will engage building departments and facilitate permit processing to establish agency collaboration in simplifying energy efficiency program participation. An integrated website will provide on-line permit processing and compliance tools in collaboration with CalCERTS and organizations such as EnergyCodeAce and The Energy Network. These resources will serve the purpose of lowering operational costs while capturing the savings that occur in the market outside of programs. 3C-REN will eliminate field compliance redundancies by utilizing HERS raters as special inspectors, reducing inefficiencies and lowering costs ultimately borne by property owners.

[67] CEC, "Existing Buildings Energy Efficiency Action Plan", September 2015, page 51.

TABLE 20. INTERVENTION STRATEGY 4 – BUILDING DEPARTMENT ASSISTANCE

Intervention Strategy	Tactics	Anticipated Programs
S4. Provide Regional assistance to Building Departments and Jurisdictions to help comply and adjust to Codes and future updates	4.1 Establish an "Energy Code Coach" to provide ongoing technical assistance for building departments.	Code Coach (New/Mid-Term)
	4.2 Create streamlined processes and code compliance tools, including offering support for an online permitting program.	

TACTIC 4.1 ESTABLISH AN "ENERGY CODE COACH" TO PROVIDE ONGOING TECHNICAL ASSISTANCE FOR BUILDING DEPARTMENTS.

3C-REN will create an Energy Code Coach service to assist Building Departments with understanding, reviewing and enforcing energy codes. The service will utilize a small group of energy specialists that can assist plan checkers over the phone, via webinar review, and in *ad hoc* meetings. Interviews conducted via the emPower program with engineers has indicated that there is a lack of conformity across the Region's plan check staff indicating a clear need for both targeted classroom-style training and one-on-one style mentorship with consistent messaging. It is anticipated that Code Coaches will also be able to assist builders and developers in the field in the future to help comply with codes and to improve installation quality.

The Code Coach program could be supplemented by utilizing code-checking software solutions for builders and Building Department staff, which will allow 3C-REN to lower the hurdle of complexity associated with revisions that routinely occur during plan check and field inspections. Sourcing such technologies will bolster the demand for new solutions in the market and provide developers with more opportunity to improve the quality of their products.

To facilitate Code Coach Program success, 3C-REN will collaborate with the CEC. This will provide the CEC with a local ambassador to the building departments and provide the added benefit of engagement strategies based upon conditions at the city and county level and foster valuable relationships between Building Department staff, Title 24 compliance specialists, builders, real estate developers, and producers of Emerging Technologies.

Providing human and technological strategies to support the transition to ZNE residential codes will be essential and provide a number of benefits. Plan checking staff will have a greater understanding of how to interpret energy reports resulting in consistency for the workforce and better preforming structures. Field inspectors having training that is consistent with that of plan checkers will help to ensure that installation quality performs at the level forecasted by designers. As builders are included in these classroom trainings, it is expected that they will be supported in their progress along the learning curve resulting in reduced costs associated with providing compliant structures and enhancing the value proposition for these builder to comply effectively.

The 3C-REN expects that applying in-field mentorship with targeted training events and cost saving technologies will be a successful tactic to facilitate the transition to ZNE buildings in the Tri-County Region. The impact of having buildings perform as designed is substantial, as these forecasts will be utilized in energy procurement policy and achieving GHG reduction targets established in SB 350 and AB 32.

In order to reduce implementation costs, the 3C-REN will employ remote technologies to the greatest extent possible. Sourcing Information Technology solutions will represent higher administrative costs during the start-up phase, but will lead to cost savings and efficiencies during operation.

TACTIC 4.2 CREATE STREAMLINED PROCESSES AND CODE COMPLIANCE TOOLS, INCLUDING OFFERING SUPPORT FOR AN ONLINE PERMITTING PROGRAM.

3C-REN proposes designing and implementing an online energy efficiency permit processing platform that building departments can choose to opt-in to. This will provide for greater profitability in the retrofit market by significantly reducing the time investment required to be compliant. 3C-REN's goal is to engage the majority of building departments so that the program will provide a more continuous service territory, avoiding confusion about conflicting permit processes across the 28 jurisdictions, lower the cost to execute, provide an opportunity to capture clandestine data, and stimulate demand for HERS raters in the Region.

The improved process would require a one-time upfront ratepayer investment to launch the platform. Upon operation, the improved process would be revenue neutral from a programmatic perspective, and would reduce time and administrative costs for the workforce and increase bandwidth for building inspectors, allowing for more thorough inspections in new construction and significant remodels. Utilizing HERS raters as special inspectors in conjunction with the on-line processing platform will be crucial in realizing these values.

The user interface will be designed to alleviate "form anxiety" by walking users through the compliance conditions in a way that is user friendly. Through a series of questions regarding location and work scope, compliance confirming forms will be populated by technology based solutions on the back side of the platform.

Contractors that avoid permitting their work in order to gain competitive advantage will lose any validity to the argument that the existing systems are too costly, cumbersome, and time intensive. Randomized quality control inspections will be incorporated through Energy Coach activities, described in Strategy 1.

Potential obstacles to the improved and streamlined permitting process include the need to coordinate with the 28 building departments in the 3C-REN service area, issues related to website development and hosting, financing start-up costs, and user training. Feedback from Building Departments has been favorable due to the benefits of relieving existing bandwidth concerns and generating needed resources while reducing costs.

Table 21 illustrates a contractor's typical process for obtaining an "over the counter" permit as currently applies, as well as a description of the proposed improved process. Key differences of the proposed improved process over the current system include the ability to initiate a permit without traveling to a specific jurisdiction's offices, the ability to process the entire transaction via a remote device (contractor's computer, smart phone, etc.), the ability to schedule specific inspection times with HERS raters, and the ability for the HERS rater to efficiently finalize the permit.

TABLE 21. COMPARISON OF "OVER THE COUNTER" PERMIT PROCESSES

Current "Over the Counter" Energy Efficiency Permit Process		Improved Process	
1.	Secure contract	1.	Secure contract
2.	Look up parcel jurisdiction	2.	Go to permit processing site
3.	Contact Building Department	3.	Define SOW through iterative interface
4.	Verify if services exist to secure permit remotely	4.	Pay online or charge to account
	A. Fax in permit application	5.	Install Upgrades
	B. Process application on-line	6.	Schedule HERS Inspection
	C. Drive to building department and apply in person	7.	Conduct HERS Inspection
5.	Install upgrades	8.	Execute corrections as needed
6.	Schedule HERS Inspection	9.	Re-perform HERS Testing as needed
7.	Conduct HERS Inspection	10.	In-put SOW and supporting documents on CalCERTS Site
8.	Execute corrections as needed	11.	Verify HERS rater has in-put verifications on CalCerts
9.	Re-perform HERS Testing as needed	12.	Follow-up as need to verify T24 compliance
10.	Input Statement of Work (SOW) and supporting documents on CalCERTS Site	13.	HERS inspector verifies compliance for building departments
11.	Verify HERS rater has input verifications on CalCerts Site		
12.	Follow up as need to verify T24 compliance		
13.	Schedule building department inspection		
14.	Travel to job-site and wait through four hour appointment window		
15.	Secure BD official approval or receive correction information		
16.	Execute corrections as needed		
17.	Reschedule four hour inspection window		

OUTCOMES

- The culmination of 3C-REN's services in code compliance is designed to achieve an escalation of completed permits in the replacement and retrofit market, as well as more effective and durable savings in the new construction market.
- HVAC contractors will encounter fewer barriers, both legitimate and perceived, in executing their work legally, and routine program activities will provide randomized quality control inspections through the Energy Coach site visits and HERS rater activities.
- A cooperative relationship with the Contractors State License Board will provide for reliable reporting to the Board through the REN's routine in field operations and provide the 3C-REN with

disciplinary repercussions for contractors who are consistently non-compliant.

- HERS Raters routinely engaging in the REN's programs will be able to provide feedback in areas that indicate a need for workforce training.
- Building Departments will have greater efficacy in new construction services through implementation of the Code Coach program and the elimination of redundant field inspections.
- 3C-REN's online platform will reduce costs for building departments and by doing so, will allow for greater capacity to address the transition to ZNE compliance.

5.4 KEY PARTNERS

3C-REN will partner with state and local agencies as well as non-profit organizations to complement and supplement 3C-REN activities. In addition to the following partners, the 3C-REN will continue to foster and expand its relationships and best practices sharing with the other RENs in the State. Following is a list of anticipated partners and potential areas of coordination.

COUNTY & CITY BUILDING DEPARTMENTS

Communication between Building Department staff and 3C-REN's pool of Code Coaches will facilitate increasing compliance with current code and facilitate ZNE efforts in design as well as implementation. The State will benefit from retrofit projects having higher savings levels and augmented data reporting capabilities pursuant to State legislation (SB 350)[68]. IOUs will benefit from reduced demand for energy distribution from the marriage of structural and behavioral programs that consistently engage consumers.

- Will provide resources and special instruction regarding Title 24 compliance in plan check and field verification and will pave the way for transition to ZNE.
- Will eliminate redundancies in executing field compliance through the implementation of HERS raters as special inspectors.
- Will provide Title 24 compliance tools via collaboration with efforts like EnergyCodeAce, a permit processing platform with implementable tools for contractors and building department staff.

COUNTY & LOCAL GOVERNMENT AGENCIES

The 3C-REN will build upon existing relationships and expand the relationships with key county and local agencies to enhance and leverage resources, activities and programs. Following is a preliminary list:

- Air Pollution Control Districts
- Building and Safety
- Community Development
- Community Services
- Environmental Health
- Health and Human Services
- Housing and Housing Authorities
- Planning and Development
- Social Services
- Water Agencies
- Workforce Investment Boards

[68]SB 350 Clean Energy and Pollution Reduction Act: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350.

COMMUNITY PARTNERS

3C-REN will utilize community partners to for outreach to consumers and market actors, as well as work with them to align efforts and increase effectiveness. Following is a sample list of potential partners.

- American Institute of Architects (local chapters)
- Builder Exchanges
- Chambers of Commerce
- Community Action Commissions
- Community Colleges and Universities
- Contractor Associations
- Environmental Organizations
- Economic Development Agencies
- Faith Based Groups
- Hispanic Community Groups
- Homeowner Associations
- Neighborhood Associations
- Property Management Companies
- Realtor Associations
- Rotaries

REAL ESTATE AGENT ENGAGEMENT

Real estate agents will be engaged through educational outreach events and training, which will exemplify the value added when a home is more efficient. The program will interact with the National Association of Realtors, California Association of Realtors, local realtor associations and brokerage firms, appraisers, and MLSs to bolster demand for efficient homes by real estate agents being able to take advantage of a monetizable premium.[69]

IOUS

- Coordinate and align program offerings to reduce duplications and customer confusion; refer customers to IOU incentive programs and leverage workforce education and training (WE&T) efforts.
- Will coordinate with LGP partnerships and programs throughout the territory while leveraging existing relationships and resources.
- Will provide effective demand reductions in the residential sector.
- Will provide reliable reporting and forecasts from market activities outside of incentive program participation.

[69] https://betterbuildingssolutioncenter.energy.gov/home-energy-score.

- Will assist in uptake in DR programs.
- Will assists in uptake in emergent technology applications and other IOU initiatives.

CEC

- Will provide valuable resources for code compliance and transition to ZNE both in plan check as well as site compliance concerns.
- Will collaborate on initiatives designed to increase code compliance in the residential market, including HVAC system and water heating replacement activities.
- Will implement a web-based permit processing platform that can be used to corroborate information submitted to CalCERTS.

PG&E WITH REFERENCE TO DIABLO CANYON POWER PLANT (DCPP)

- While phasing out PG&E's production at Diablo Canyon, which is set to shut down when the operating licenses expire on November 2, 2024 for Unit 1, and August 26, 2025 for Unit 2, residents will need to transition their dependency on this power source. Intensive residential energy efficiency uptake will allow reduced energy demand for the DCPP supplied communities (PG&E Press Release, June 21, 2016).[70]
- Will provide expanded services to offset demand and provide a public-facing outreach initiative for the residential sector that can be co-branded with the utility.

CCE ADMINISTRATORS

- Could provide a vehicle to collaborate directly with residential efficiency program implementation, ramp up and other efficiencies (San Luis Obispo, Santa Barbara, and Ventura Counties are currently assessing the feasibility of implementing a CCE program).

[70] PG&E. *In Step With California's Evolving Energy Policy, PG&E, Labor And Environmental Groups Announce Proposal To Increase Energy Efficiency, Renewables And Storage While Phasing Out Nuclear Power Over The Next* Decade. 2016. Web. 12 Oct. 2016.

6.0 CROSS CUTTING ACTIVITIES

6.1 FINANCING

3C-REN has extensive knowledge of the residential financing market and have gleaned valuable lessons from the emPower program. The most significant lesson learned is that customers want flexibility and choice when implementing energy efficiency. To that end, the new 3C-REN financing offerings and consultations will be expanded to leverage multiple program opportunities in the Region rather than just HUP. 3C-REN will collaborate with other existing finance programs including third-party PACE providers, statewide financing initiatives such as CHEEF, Residential Energy Efficiency Loan, other credit unions and local banks to provide a lending platform that facilitates multiple financing options to suit the varied needs of property owners and contractors. 3C-REN will make information on financing options available through its website and during Energy Coach site visits. The Energy Coaches will serve as a resource that property owners can consult for objective information regarding rates, fees, and underwriting criteria in a way that is clearly communicated. Similar to referring contractors, Energy Coaches will provide enough information for the customers to decide for themselves which financing they would like to pursue.

EXISTING EMPOWER PROGRAM AND ONGOING ARRA LOAN LOSS RESERVE

Existing long-term relationships with two local lender partners, Coast Hills Credit Union and Ventura County Credit Union, will be continued. Both credit unions have established an unsecured, low interest HUP loan product with rates starting at 3.9 percent, and loan loss reserves that leverage private capital 20:1. 3C-REN will continue to offer the HUP loan product, if the program is still offered in the Region, as it is one of the most competitive financing options available.

3C-REN has existing loan loss reserve funds that will continue to flow through an existing agreement between SCG and County of Santa Barbara. 3C-REN can leverage additional loan loss reserve funding provided by the DOE and the CEC, which allow for the financing of solar water heating and solar photovoltaic projects when combined with energy efficiency upgrades. The ability to finance renewable energy projects through this funding further helps 3C-REN'S efforts towards ZNE.

6.2 WORKFORCE ENGAGEMENT AND TRAINING

The construction industry faces unique workforce challenges within the Tri-Counties' dispersed communities. The Central Coast Region and its contractors have historically struggled with key positions in energy efficiency, including the retrofit market and energy code compliant new construction. These challenges will persist for the region through the 2020 transition to ZNE building standards. The 3C-REN Business Plan addresses these challenges through collaboration with existing providers, programs, apprenticeship-style learning, targeted management, technical trainings for builders, and integrated resources for design and compliance professionals.

To build out a capable and efficient workforce in the Central Coast Region, 3C-REN will bridge the gap between workforce development, adequate training and active firms in the energy efficiency market. It will engage and coordinate efforts to ensure workforce curriculum is valuable and delivered in a way that enables energy efficiency as an industry standard.

In addition to workforce development process and business model consulting, technical and sales training in home performance will help contractors become successful and profitable. The 3C-REN will leverage established contractor and program partnerships to provide specific technical trainings, in-field job and installation mentoring, construction firm specific trainings and provide certification opportunities. The 3C-REN's Energy Coach Service, and partnerships will seek to leverage and improve the residential labor force and provide apprenticeship style trainings with real time experience that business owners value most. This will set up a network of contractors and subcontractors and connect to workforce seeking training and career development.

The 3C-REN will establish a Code Coach program to run concurrent to and alongside other training efforts. Building Departments in the Central Coast Region will receive building performance support and mentoring for plan review and field compliance. All design-side stakeholders, from the architect to field inspector or from the mechanical engineer to the plan checker, will be encouraged to attend trainings. The Code Coach approach will foster an environment where these stakeholders have a deeper understanding of building performance and interrelated concerns. The goal is to ensure consistency throughout the Central Coast Region, providing the workforce with a more stable business climate.

The 3C-REN will apply a holistic approach to the entire market with highly targeted training events, apprenticeship and mentoring style models. Workforce training will be real world reinforced while simultaneously providing direct energy savings. Building Department's will increase efficiency and efficacy with existing resources.

6.3 MARKETING, EDUCATION & OUTREACH

As local governments, the counties of 3C-REN are known and trusted by the local communities and have a long track record of delivering successful programs and services. The 3C-REN will also work with local jurisdictions to leverage marketing and outreach strategies with other local programs, including water agencies and organizations, providing a full offering to consumers and contractors. 3C-REN's position as a local government organization has the capability to improve program participation through our role as trusted messengers, particularly with Building Departments and local contractors. Each city and government agency can serve as program partners and further customize the message of energy efficiency and the whole home concept. Furthermore, local governments may leverage partnerships with community-based organizations and other resiliency and energy related local initiatives. 3C-REN also will coordinate with the Statewide Marketing, Outreach and Education (ME&O) Energy Upgrade California program to align marketing efforts, where feasible. Following are some initial examples of potential marketing and outreach activities that are anticipated. A more detailed ME&O plan will be developed for each Phase of the Business Plan, informed by program goals and target audiences.

TABLE 22. SAMPLE MARKETING AND OUTREACH ACTIVITIES

Marketing Need	Approach	Objective	Timeframe
Identify target areas (specifically rural, moderate income)	County members to use local Assessor's data and GIS mapping to identify target areas to deploy marketing tactics.	Optimize marketing resources in target areas.	Short-Term
Hard-to-Reach and Underserved	Leverage Energy Coach and DI elements to drive initial participation. Concentrate efforts to contain costs and build a platform for follow-on services and "upgrade" events.	Engage underserved or hard to reach residents into programs.	Short-Term and ongoing
Community Based Organization (CBOs) and Strategic Partnerships	Utilize partnerships with community leaders, CBO and community partners (ex: institutions, schools and community "champions").	Leverage local resources.	Ongoing
Local Marketing Plans for Neighborhoods	County members to develop marketing plans and identify tactics to tailor to their community under neighborhood approach.	Optimize marketing resources in target areas.	Mid-Term
Energy Efficiency Awareness and Brand Recognition	Leverage Statewide Energy Upgrade California ME&O to develop trust among target market.	Build trust and awareness of program.	Ongoing
Build relationships with Local Government Jurisdictions and Building Departments	Provide one-on-one engagement with cities and other local agencies in the Tri-County, as well as by conducting lunch and learns and other relationship building activities targeted to this audience.	Build trust and awareness of program.	Ongoing

Marketing Need	Approach	Objective	Timeframe
Contractor Engagement and Recognition	Formally recognize and commend high performing contractors that have conducted upgrades through 3C-REN.	Build awareness and show examples of success stories, build relationship with contractors.	Mid-Term
Develop Relationships with Multifamily Portfolio Owners	Engage corporate and non-profit portfolio owners in 3C-REN, beginning with one property and expanding to others or beginning with a portfolio-level analysis. Develop ZNE Readiness investment plans to facilitate ongoing engagement over time.	Achieve large volumes of upgrades by engaging key property ownership entities with multiple large complexes.	Long-Term

7.0 APPENDICES

7.1 CPUC BUSINESS PLAN CHECKLIST

Business Plan Review Checklist		
Map to NRDC Compilation Document	**Business Plan Element**	**3C-REN Section/ Indicate Complete**
Portfolio Summary		
0	**Executive Summary**	Executive Summary, Page 1
	Company description	Page 1
	Definition of market	Page 1
	Mission Statement	N/A
	Purpose of Business Plan	Page 2
I.A.1, II.D.2	**Overview**	1.0 3C-REN Overview, Page 3
	About EE/DSM	Page 4
	CA Energy Needs	Page 4
	Regulatory Requirements	Page 5
	Strategic Plan	Page 6
	Legislation (e.g., AB 758, SB 350, AB 802, AB 793)	Page 6
	IOUs/PAs/CPUC/etc. overall role	2.2 Evolving from Past Cycles and 3C-REN Role, Page 13
I.A.2	*Broad socioeconomic and utility industry trends relevant to PA's EE programs (population, economics and markets, technology, environment/climate)*	Page 7
I.B.1	*Vision (e.g., How PA thinks about and uses EE over next 10 years)*	Page 2.0 Strategic Business Plan Framework Page 12
I.5	*Compare/contrast to past cycles*	2.2 Evolving from Past Cycles and 3C-REN Role, Page 13
I.B.2	**Goals & Budget**	
I.B.2 & I.C.2.a	*Energy Saving Goals*	3.2 Evaluation Benefits Framework, Page 24
I.C.2.a	*Portfolio Budget (sector and portfolio level per xls checklist)*	3.1 3C-REN 2018-2025 Budget, Page 19

Map to NRDC Compilation Document	Business Plan Element	3C-REN Section/ Indicate Complete
I.C.2.a, I.C.2.d	*Cost-effectiveness (sector and portfolio level per xls checklist)*	3.2 Evaluation Benefits Framework, Page 21
I.C.2.b	*Explanation of Admin Budgets (e.g., Direct/Indirect Labor, Professional/Admin personnel)*	3.1 3C-REN 2018-2025 Budget, Page 19
I.C.2.c	*Explanation of accounting practices*	3.1 3C-REN 2018-2025 Budget, Page 20
I.C.3 and I.C.4	**Intervention strategies (high level)**	2.0 Strategic Business Plan Framework Page 12
	Overall issues/challenges/barriers	1.4 Trends and Issues, Page 7
	High level summary of strategies and tools (e.g., AMI data, AB 802, procurement model, up/mid/downstream, etc.)	2.0 Strategic Business Plan Framework Page 12 - 18
I.C.4; I.D	**Solicitation plan**	4.0 Solicitation Plan, Page 25
I.C.4	*Solicitation strategies/areas that could be SW*	N/A
I.D; II.F	*Proposal for transitioning the majority of portfolios to be outsourced by the end of 2020.*	N/A
Sector Chapter (commercial, residential, public, agricultural, industrial, x-cutting)		
II.A	**Summary tables**	
II.A	*Table with CE, TRC, PAC, emissions, savings, budget*	3.2 Evaluation Benefits Framework, Page 24
I.C.7; II.E.1.b	*Metrics for sector*	3.2 Evaluation Benefits Framework, Page 21-24
II.D	**Market characterization (overview and market/gap and other analysis)**	5.1 Market Analysis, Page 26
II.D.1	*Electricity/NG*	Addressed as relevant pages 26-40
II.D.2	*State goals (include acknowledgement of goals set by Strategic Plan, SB 350, AB758, guidance as appropriate)*	
II.D.3	*EE potential and goals*	
II.D.5	*Customer landscape (e.g., segments/subsegments, major end uses, participation rates, etc.)*	

Map to NRDC Compilation Document	Business Plan Element	3C-REN Section/ Indicate Complete
II.D.6	*Major future trends that are key for the PA and its customers*	
II.D.7	*Barriers to EE and other challenges to heightened EE (e.g., regulatory, market, data)*	
II.2.a	**Description of overarching approach to the sector**	5.0 Residential Sector Chapter, Page 26
	Goals/strategies/approaches	5.3 Strategies and Tactics, Page 45
I.C.6; I.D	*How portfolio meets Commission guidance*	N/A
II.C	*Description of how this chapter addresses the performance challenges/barriers*	5.2 Market Barriers, Page 41
I.C.4 a-c	**Intervention strategies (detailed)**	5.3 Strategies and Tactics, Page 45
II.D.2.a; II.E.3	*What specific strategies are being pursued (e.g., near, mid, long AND existing, modified, new)*	5.3 Strategies and Tactics, Page 45
I [cmt with excerpt]	*Why specific strategies were chosen (e.g., ID current weaknesses, best practices, or other rationale to support choice)*	5.0 Residential Sector Chapter Covered throughout chapter.
II.E.1.a; II.E.4	*How approaches advance goals discussed above*	5.0 Residential Sector Chapter Covered throughout chapter.
I.C.4; I.E; II.D.4	*How strategies use lessons learned from past cycles and EM&V*	N/A
I	*How will interventions support/augment current approaches or solve challenges*	5.0 Residential Sector Chapter Covered throughout chapter.
II.D.2	*Explanation for how these strategies address legislative mandates from AB 802, SB350, and AB 793, as well as other Commission directives for this sector, including strategic plan.*	5.0 Residential Sector Chapter Covered throughout chapter.
I.C.4	*Future expectations for intervention strategies*	2.2 Evolving from Past Cycles and 3C-REN Role, Page 13
I.C.1; II.E.6	*Description of pilots*	N/A
II.F	*Key Partners*	5.4 Key Partners, Page 66
I.C.5; I.D; II.B; II.C	**Compare/contrast to past cycles**	2.2 Evolving from Past Cycles and 3C-REN Role, Page 13
	Budget changes as appropriate	N/A
	Modification to sector strategies	N/A

Map to NRDC Compilation Document	Business Plan Element	3C-REN Section/ Indicate Complete
	Cross-cutting (sector chapters and ME&0)	6.0 Cross Cutting Activities
II.E.2; II.H, II.K	*Program Administrator marketing and integration with SW MEO as applicable*	6.3 Marketing, Education & Outreach, Page 71
II.E.5; II.H	*Workforce, education, and training*	6.2 Workforce Education and Training, Page 69
II.H	*Emerging Technologies*	N/A
II.H	*Codes & Standards*	See Strategies
II.G	**Cross PA and Offering Coordination**	
II.G	*How strategies are coordinated among regional PAs*	See Strategies
II.G	*Proposal of statewide program administrator/approaches for this sector*	N/A
II.G	*How the sector strategies are coordinated with statewide program activities*	N/A
II.G	*How are strategies coordinated with other state agencies and initiatives (e.g., AB 758)*	Covered throughout Business Plan
II.I	**EM&V Considerations (statement of needs)**	3.1 3C-REN 2018-2025 Budget, Page 20
II.I	*Data collection needs*	Ditto
II.I	*Anticipated study needs*	Ditto
II.J	**Demand Response**	N/A
ED Guidance (p.8)	*How EE measures use up-to-date DR enabling technologies to be "DR ready"*	
ED Guidance (p.8)	*How duplication of costs for ME&O, site visits, etc. is avoided for dual-purpose technologies*	
ED Guidance (p.9)	*How strategies facilitate customer understanding of peak load, cost, and opportunities to reduce*	
II.K	**Residential Rate Reform**	N/A
ED Guidance (p.9)	*How BPs will help reduce load during TOU periods*	
ED Guidance (p.9)	*How BP will diminish barriers to load reduction during TOU periods*	

Map to NRDC Compilation Document	Business Plan Element	3C-REN Section/ Indicate Complete
ED Guidance (p.9)	*How strategies will provide info to customers and/or provide a tool to show how program may impact customer energy usage during different TOU periods*	
ED Guidance (p.9)	*How strategies will analyze whether a customer may experience greater savings by switching to a different, opt-in TOU rate*	
ED guidance (p.9)	*ME&O re: rate reform*	
II.L	**Integrated Demand Side Resources**	N/A
II.M	**Zero-Emission Vehicles(EVs)**	N/A
II.N	**Energy Savings Assistance (Multi-family Focused)**	N/A
	Appendices	N/A
	Additional Customer Data	N/A
	Cited research	Footnoted
	CAEECC stakeholder input resolution	Appendix, Issue Tracker

7.2 SOLICITATION DETAILS

For details on 3C-REN solicitation process, information is available on County of Ventura's website as the lead agency: bid history http://www.ventura.org/gsa/procurement-services/bid-histories.

VENDOR PROTEST PROCEDURE

Protests shall be made in writing to the Purchasing Agent within five days after the protestor knows or should have known of the facts giving rise thereto. A protest is considered filed when received by the Purchasing Agent. Protests filed after five days shall not be considered.

Protestors may file a protest on any phase of solicitation or award including, but not limited to: specification preparation, award, or disclosure of information marked confidential in the bid or offer.

When a protest has been filed within five days, and before any award has been made, the Purchasing Agent shall make no award of the contract until the protest has been settled unless the Purchasing Agent makes a determination that the award of the contract without delay is necessary to protect substantial interests of the County.

County of Ventura Purchasing Agent shall make a decision on a protest as expeditiously as possible after receiving all relevant, requested information. The Purchasing Agent, or a designee, shall promptly issue a decision in writing. The decision shall:

- State the reasons for the action taken; and if need be inform the protestant of its right to appeal to the GSA Director.
- A copy of the decision under this section shall be mailed or otherwise furnished immediately to the protestant and any other party intervening.
- A decision under this section shall be final and conclusive, unless fraudulent, or: Any person adversely affected by the decision commences an action in court; or Any person adversely affected by the decision files an appeal with the General Services Agency Director.
- If an action concerning the protest has commenced in court, the Purchasing Agent shall not act on the protest but refer to the protest to County Counsel.
- Appeals: The GSA Director shall have 5 working days to respond to any appeal. The GSA Director's decision shall be final.

7.3 ISSUE TRACKER

ID #		Chapter	Issue	3C-REN Resolution Type	3C-REN Resolution Discussion
0594		Residential	CAR - 7 Observations · You indicate that you intend to partner with the National Association of REALTORS® and "local brokerage firms" to help execute your strategies. · Local REALTOR® Associations in your jurisdiction which will be directly affected by the programs outlined in your business plan have not been identified in your Draft Plan. · C.A.R. has not yet received an invitation from 3-C REN to participate in the development of programs and strategies affecting energy and water use efficiency in existing homes. C.A.R. represents over 190,000 real estate professionals throughout California, including areas covered by your Plan. Recommended Action It will be important, at a minimum, to engage the local REALTOR® associations listed at the end of this document. Additionally, we welcome the opportunity to engage in these discussions with you and all members of CAEECC, as the policies you put forward may affect how other jurisdictions throughout the state approach energy and water use efficiency.	Deferred to Implementation Plan or Program Design Stage	

ID #		Chapter	Issue	3C-REN Resolution Type	3C-REN Resolution Discussion
0595		Multi-family Subprogram	CAR - 8 Observation ▯ You recommend a program for providing Direct Installations for renters ▯ Tenants must obtain permission from property owners before commencing efficiency financing and retrofits. The landlord/tenant relationship in residential properties is very complex. Because tenants do not own the units they rent, they must obtain the permission of the property owner prior to initiating any property improvement. Additionally, allowing a tenant to enter into an agreement to create a financial obligation on the property of others is simply not workable since it will be the owner who is responsible for disclosing the repayment obligation to future tenants. Recommended Action Please be sure that your programs to assist renters do not inadvertently create liability against the renter.	Deferred to Implementation Plan or Program Design Stage	
0596		Residential	CAR - 9 Please note that "REALTOR®" is a collective membership mark owned by the National Association of REALTORS® and is used by C.A.R. with permission. Guidelines for using "REALTOR®" can be found on the National Association of REALTORS®' website: www.realtor.org.	Addressed in Sector Chapter of BP	

ID #		Chapter	Issue	3C-REN Resolution Type	3C-REN Resolution Discussion
0700		Residential	NRDC - 1 It's unclear why a REN is needed for this effort. There is no provided analysis or summary of the explicit challenges to warrant a new entity. · This sounds like an intriguing program that could be accomplished through a local government partnership. · P. 21 - Unclear if the budget is being requested solely from the CPUC or if it includes the other sources noted above. If just from the CPUC, it seems quite high – especially without any information on the savings or cost-effectiveness. · How did the 3C REN coordinate the development of this plan with their respective overlapping utilities to ensure this really is filling a gap vs. being duplicative? · NRDC presume the BP will comply with the business plan checklist and expectations for citations for barriers, trends, etc. as well as and references to evaluation lessons.	Addressed in general section of BP or Testimony in Application	
0825		Residential	SCG -2 (1st) Observation: • Much of the proposed end-to-end concierge services for residents and contractors in the Central Coast fall under the current scope of emPower Tri-County, an ARRA Continuation Program funded by PG&E, SoCalGas and SCE since August 2012. • The Commission has yet to start or complete the EM&V on emPower Tri-County. Recommended Action: • Please explain if consideration was given to the possible outcome EM&V	Addressed in general section of BP or Testimony in Application	Considered and believe a REN is the right approach independent of emPower EM&V, which is designed to work with Home Upgrade Program Only.

ID #		Chapter	Issue	3C-REN Resolution Type	3C-REN Resolution Discussion
			efforts for the emPower Tri-County program. • Consider delaying consideration of this proposal until the EM&V studies have been received and reviewed.		
0826		Residential	SCG - 3 (2nd) Observation: • In its September 1, 2016 Advice Letter for its 2017 EE Program Budget, SCE proposed to stop funding its share of the current emPower Tri-County program. • SCE's Advice Letter has been suspended and protests were submitted because of the proposed funding. • Understandably, the basic issue is that the Tri-County is attempting to replace or retain existing funding that is currently authorized under the ARRA Continuation Program. • The outcome of SCE's advice letter resolution will impact this proposal. • The resolution also impacts how the EM&V is implemented. Recommended Action: • Please explain what would happen if SCE approved additional funds for the emPower Tri-County program. • Consider delaying consideration of this proposal until after SCE's 2017 EE Program Budget Advice Letter has been addressed.	Addressed in general section of BP or Testimony in Application	Considered and believe a REN is the right approach independent of emPower EM&V, which is designed to work with Home Upgrade Program Only.

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0827		Residential	SCG - 4 (3rd) Observation: • There is concern that the proposed may not qualify as a full-fledged REN Effort Recommended Action: • Please address whether this proposal has to be evaluated in the context of a full-fledged REN effort (how it is complimentary to the IOU plans, and what gaps it poses to fill) or more appropriately done under a third-party bid process to support that movement of the EE Rolling Portfolios.	Addressed in Sector Chapter of BP	
0915		Residential	RHTR - 1 Observations · Successful Residential Energy Efficiency delivery is still fundamentally a market transformation issue and residential programs are not being administered or evaluated consistent with this reality. · Transitioning residential to a Strategic Market Transformation (SMT) program is inherently linked to current challenges with the TRC test. See 3rd observation on the following page specific to TRC. · Cost effectiveness calculation methods incentivize PAs to focus efforts in less challenging sectors. Private industry does not delineate EE work by sector and often works in multiple sectors. Incongruences across programs and program complexity discourage market actors from engaging in EE business model development. Recommended Action · Establish that Residential will be considered an SMT program until such	NA - Out of Scope	The 3C-REN will address rural and other hard-to-reach audiences, however as a small PA, market transformation may not be feasible goal at initial stage.

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			time those markets are transformed. Recommended that an effective EM&V timeline is set in either phase 3 or in the PIP. · The CPUC should incentivize PAs in the Res sector based on program saturation rates that account for usage type (e.g. renters/non-owner occupied, single family, multi-family, etc.). · Design residential programs as SMT programs to build capacity and demand in products and services in a way that increases economic returns for service providers and manufactures beyond current levels to promote localized reductions in price points.		
0916		Residential	RHTR - 2 Observations · Rural Communities face significantly higher obstacles to market transformation than more populated areas. · SCE notes support of third parties and targeting "delivery channels" for "hard-to-reach audiences" but addresses LGP opportunities only in relation to support for codes and standards and in terms of MF barriers. The term "hard-to-reach" is not defined in either usage. Also missing is how LGP's can be leveraged in this space especially in terms of integration of existing programs and addressing concerns related to equity and underserved regions. · All Res BPs are insufficient in recognizing geography based barriers and barriers related to population density. Access to services in these regions is significant enough to warrant specific intervention strategies and alternative key performance indicators	Addressed in Sector Chapter of BP	Addressed as appropriate to scope and breadth of anticipated programs.

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			to more comprehensively measure program effectiveness. · Many markets have poor EE programming and project penetration due to the lack of or insufficiently trained, mentored, educated, supported, and certified contractor base. This is particularly true in rural and poor areas of CA. · Outcomes observed in REN territories exemplify multiple points of value at the State and community level that are a direct result of local governments' unique ability to leverage and integrate community level resources and understanding. These assets are still unaccounted for in cost effectiveness measurement practices. The CPUC should make efforts to unlock existing potential, and strengthen access in underserved communities, via local government partnerships as the optimum delivery vehicle for this segment. Recommended Action · Successful Residential DI EE delivery should be localized and fully integrated across channels. For example, local governments partners should be able to engage consumers, provide low income, MIDI and HU services through one trusted agency (LGs). SDG&E suggests employing a "one-stop" strategy in relation to MF interventions. We would contend that this strategy should be accepted throughout the Res Sector due to challenges unique to the sector. · Define "hard-to-reach". · Design intervention strategies and alternative key performance indicators to more comprehensively measure program		

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			effectiveness. · Support and enable LGs and local service providers to influence program design and implement programs that leverage their knowledge of and ability to identify local market conditions and identify intervention points.		
0917		Residential	RHTR - 3 Observations · Current cost effectiveness criteria (TRC) should not be applied to Residential programs. · Residential programs may never be competitive with other resource based programs (SMB/Industrial) under the TRC. This creates a situation where PAs and implementers must balance portfolios in a way that minimizes investments into the residential sector proportional to realized savings in more effective sectors. This is not aligned with state EE and GHG reduction goals. Recommended Action · Tie to RHTR # 1 and model programs in such a way where it becomes a SMT (non-resource) program. Explore key performance indicators that more comprehensively capture program performance and objectives that include but are not limited to the following: o GHG reductions o Human health and safety gains o Reduced environmental impacts o Localized economic multipliers o Other standard non-energy benefits · Incentivize PAs in Res sector based upon market saturation.	Addressed in general section of BP or Testimony in Application	Improved evaluation metrics, especially for RENs and residential programs are critical and are discussed in the Business Plan.

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0918		Residential	RHTR - 4 Observations · Regions served by multiple PAs experience a profound lack of coordination and discordant messaging in regards to establishing priorities and implementing programs. Overlapping PA service territories creates additional administration costs and conflicting messaging to participating contractors and trade partners. Moreover, interpretation and implementation of state policy is often not aligned in overlapping territories causing confusion for implementers, contractors, and homeowners. · Localized marketing efforts can be done in a more targeted and cost effective manner, addressing the concerns of specific communities. Utilizing more diversified media outlets benefits small business and neighborhood level messaging is known to be more effective than large campaigns. Recommended Action · In regions or service territories with multiple or overlapping PAs, the Energy Division could direct IOUs to determine and establish a lead/single program administrator - much like the currently identified statewide programs framework. · Establish a localized "program implementer" approach with greater utilization of LGPs, where available, that are able to implement market interventions at the community level.	Addressed in general section of BP or Testimony in Application	
0919		Residential	RHTR - 5 Observations · Program designs and reporting concerns become incrementally more	NA - Out of Scope	This is an issue for the CPUC and not for the PA.

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			complex. This includes but not limited to; initial participation eligibility, assessment testing and establishment of baseline, incentive qualification criteria, work force training and mentoring, reporting vehicles, and schedule. This creates downward pressure on LGPs while inhibiting participant uptake and has significant negative effects on a local governments ability to provide cost effective solutions to the community. Short contract cycles in conjunction with disparity of calendar year versus fiscal year creates avoidable burdens and hinders optimal outcomes for LGPs. · Incentive calculations are difficult for consumers to understand. Recommended Action · Program designs and customer process flow should be evaluated for redundancies and should be assessed based upon the value of the data, not the fact that it's a legacy requirement. The CPUC should express the intent to promote simplified downstream delivery approaches to internal processes as well as incentive calculations. · Simplify incentive calculation methods in order to facilitate residential consumer uptake commensurate to ambitious statewide goals. · LGPs which have a proven track record should be afforded extended contract cycles with options to amend based upon changes in the market place, changes in budget allocation needs, or to amend the scope of the contract.		

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0920		Residential	RTHR - 6 Observations · “Take-Back” (increased usage after incentive participation) has been observed in residential program participants. · Plug-Load is forecasted to increase with technological development and the adoption of electric vehicles. · Complicated processes and difficult incentive structures create barriers to program participation, inhibiting market penetration and transformation, and negatively affect efforts to remain or increase cost effectiveness. Recommended Action · Allow ALL Residential sector program participants (ESA, MIDI, EUC, LIWP) to participate in pay for participation (P4P) style behavioral programs. Simplify pay for performance style incentive calculation. o Example: normalize seasonal consumption levels to establish a household level baseline. Calculate rate reduction based upon usage reduction. I.e. 1 to 1 ratio, such as 5% below baseline constitutes a 5 cent per Kwh bill savings, or similarly intelligible calculation method.	NA - Out of Scope	This is an issue for the CPUC and not for the PA.
0947		Residential	TURN - 19 Observations · Customer sector goals and program savings, budgets, and cost-effectiveness are forward looking. The BPs are intended to be integral to ramping up energy efficiency in California. Providing some high-level quantitative context to the current portfolios and programs would be very helpful in demonstrating the relationship of the future under the BP vision to the present and past.	Addressed in general section of BP or Testimony in Application	Provided phasing of activities in Business Plan.

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			Recommended Action · We recommend that all data on projected customer sector goals and program savings, budgets, and cost-effectiveness be given some context relative to ongoing customer sector activities and accomplishments. There needs to be some demonstration as to how the BP will advance savings and improve cost-effectiveness (or at least prevent an erosion in cost-effectiveness).		
1065		Multiple Sectors	CEE - 10 Observations (re SB 1414 Compliance) The Business Plans fail to incorporate the new SB 1414 requirements and guidance. SB 1414 states that "if a customer or contractor is the recipient of a rebate or incentive offered by a public utility for the purchase or installation of central air-conditioning or a heat pump, and their related fans, the public utility shall provide the rebate or incentive only if the customer or contractor provides proof of permit closure." In order to address HVAC installations that do not receive incentives, SB 1414 also directs the CEC to investigate the feasibility of creating a registry to track HVAC equipment sales to ensure that that they are installed lawfully and in compliance with code and permit requirements. Recommended Actions: · Require HVAC equipment whose sale, purchase or installation has been subsidized by an incentive program to provide proof of code and permit compliance. Stakeholders have been recommending this for years, but it has taken the	Addressed in Sector Chapter of BP	Added as part of tactics and as a metric.

ID #		Chapter	Issue	3C-REN Resolution Type	3C-REN Resolution Discussion
			adoption of SB 1414 to get the PAs to agree to this requirement. · Support development of a registry to track HVAC equipment sales to ensure that that they are installed lawfully and in compliance with code and permit requirements.		
1066		Residential	CEE- 11 Observations Coalition is not clear what is meant by the intervention strategy "Clearly define quality standards in participation agreement and subcontracts. Hold quality installation as conditional to payment." Installation quality standards are already set by Title 24 – what is missing are workforce qualification standards. Unclear on what basis 3C-REN assumes that further defining installation quality standards would effectively address installation issues. The intervention should be revised to clarify that workforce training and qualification standards will be included in participation agreements. It is also not clear what is meant by "hold quality installation as conditional to payment." How does 3C-REN intend to determine quality installation for each incentive project? Coalition would recommend meter-based efficiency verification requirements, consistent with AB 802. Recommended Action: See CEE-2.	Addressed in Sector Chapter of BP	
1067		Residential	CEE - 12 Observations Coalition supports the proposal to implement an online streamlined and more cost-effective	Deferred to Implementation Plan or	

ID #		Chapter	Issue	3C-REN Resolution Type	3C-REN Resolution Discussion
			method for contractors to acquire permits and comply. However, the issue with permit non-compliance is not just cost and time to obtain permits. The issue is also homeowners who want to evade code requirements and unlicensed contractors operating unlawfully. BP cites no evidence that this proposal will have its assumed result. Moreover, its Performance Indicator is conclusive and assumes success without verification. Documentation of compliance with title 24 permit and acceptance test requirements should be part of prerequisite for program participation. Addressing deliberate permit and code avoidance, however, requires more effective enforcement methods. To address this issue, 3C-REN should support SB 1414 efforts to establish a system to track central heating and air cooling equipment sales and installations in the state to verify compliance with permitting, inspection and testing requirements. Recommended Action: Support SB 1414 efforts to establish a system to track central heating and air cooling equipment sales and installations in the state to verify compliance with permitting, inspection and testing requirements. See CEE-5 and CEE-10	Program Design Stage	

ID #		Chapter	Issue	3C-REN Resolution Type	3C-REN Resolution Discussion
1068		Residential	CEE - 13 Observations The proposal to fix a set price schedule for energy efficiency work may have merit, but raises a number of questions that must be addressed to be effective and fair. How is the price going to be set? Will it be high enough to allow contractors who pay their workers prevailing wages to participate? Does it factor in contractor's overhead for ensuring a skilled and trained workforce? Recommended Action: The Business Plans should set forth the process for determining the price schedule and set forth standards to ensure participating contractors are paid enough to invest in a trained and skilled workforce and to maintain area wage standards.	Deferred to Implementation Plan or Program Design Stage	
1081		Residential	CPUC-JST - 11 Generally, the business plan seems to be silent on what 2018 will look like in terms of residential lighting. True, federal code kicks in on 1/1/2018 which some PA's interpret as meaning there will be no residential upstream lighting program, as we currently know it. But is there no plan for what could happen in California for residential lighting? Just because code kicks in on 1/1/2018 does not mean that every home will now have high quality LEDs. It seems that marketing, education and outreach will become important in 2018 and 2019 to focus residential customers to make better decisions with residential lighting. And even though the savings may be small, does that mean there is	NA-Input not applicable to this PA	

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			no room at all for rebates in 2018 and 2019. Especially since D.16-08-019 still identified the primary lighting program as one of the program to be administered statewide (even if moved to a sector in the business plans) this indicates that there is still some work to do and the business plans should reflect at least a two year strategy for residential lighting. For example, for 2018 and 2019 the statewide administrator for lighting will purchase 30 million high quality LEDs to be distributed across all delivery channels across the portfolio the first year, and 25 million high quality LEDs the second year. In addition, the marketing plan will include messaging and labeling efforts to inform residential customers of the high quality LEDs and their benefits. This really isn't getting into implementation as it is the high level strategy. These longer lasting products would also be a benefit to the PA's for net lifecycle savings.		
1082		Residential	**SCE - 1** **Observations** • The EmPower Energy Efficiency Program is a continuation of financing programs originally supported by American Recovery and Reinvestment Act (ARRA) stimulus funding in 2011 and 2012 and implemented by local governments. The Program was created to streamline the process of attaining low-cost unsecured loans, qualifying Third-Party Contractors, and providing utility rebates to help homeowners overcome the high upfront cost and confusion associated with making home	Addressed in Sector Chapter of BP	Disconnecting program efforts from both IOU oversight and Home Upgrade are two critical needs to improve success of 3C-REN programs.

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			energy upgrades. EmPower was also meant to coordinate with and enhance the Participating Utilities Energy Upgrade California program ("EUC Program") by driving customer participation. However, the EmPower program has had a very low conversion rate from turning interested customers into actual EUC projects with few to no closed loans and very limited evidence of direct correlation between its activities and EUC or other program participation. Therefore, SCE proposed to discontinue participation in this program upon the expiration of the Program Agreement on March 31, 2017. • This proposal seems to be an enhanced version of EmPower with greater customer care and increased contractor training. **Recommended Action** • Given past EmPower results, how will the 3C REN ensure that this proposal will provide cost-effective programs? A section that outlines learnings from past program participation would help facilitate this understanding. • How does the 3C REN plan on coordinating with existing IOU programs to ensure that there is not a duplication of efforts on the residential, finance, and WE&T offerings? Add a section that outlines how this will be accomplished.		

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1117		Residential	CSE - 1 Overall, CSE feels the CA Central Coast REN (3C-REN) business plan is very high-level, making it difficult to evaluate. While it specifies strategies that could overcome previous shortfalls of programs in the Central Coast, it does not specify how the program will address overarching performance barriers seen across the country. The plan relies on Home Energy Score as a motivational tool, but CSE has experience that the HES tool does not generate sufficiently low scores for low-performing homes in California due to the temperate climate. Will 3C-REN work with DOE to overcome this deficiency?	Addressed in Sector Chapter of BP	The Strategies and Tactics as well as Market Analysis have been expanded and provide significantly more detail. Additional information will be provided in the IP.
1118		Residential	CSE - 2 The 3C-REN business plan does not address the ZNE future. While the target market of the plan is existing homes, energy efficiency can only do so much. Distributed generation and distributed energy resources must be part of the solution, and CSE would like to see 3C-REN take an integrated approach to that future. Intervention strategies and activities targeting all sectors/target audiences would benefit from a wider view through a ZNE lens.	Addressed in Sector Chapter of BP	3C-REN will assist in achieving a ZNE future through C&S and will evaluate in future filings expanding effort in this regard.

ID #		Chapter	Issue	3C-REN Resolution Type	3C-REN Resolution Discussion
1119		Residential	CSE - 3 the Multifamily Subprogram should reference AB 802 and address multifamily property owner engagement around benchmarking and data access. Engaging only tenants, as this subprogram description implies, is missing a huge opportunity for savings and compliance with pending reporting requirements.	Deferred to Implementation Plan or Program Design Stage	Multifamily Property owner programs will not be pursued until the mid-term at which time a more robust approach will be employed.
1277		Residential	ORA - 1 Housing units are grouped into SF and "other." o Gives the impression that CCC-REN is not targeting the full stock of its housing units and only focusing on SF. Will there be targeting for MF, and other housings stocks? Also, there is no description of housing stock age.	Addressed in Sector Chapter of BP	
1278		Residential	ORA - 2 · Provide sufficient detail to establish a connection between goals and objectives. o For example: Provide additional details regarding how an online permitting system will impact costs, project facilitation, and capture deemed savings.	Addressed in general section of BP or Testimony in Application	A level of detail has been provided in the BP with additional details anticipated in the implementation plan as defined by the CPUC.
1279		Residential	ORA - 4 (no #3) ORA recommends CCC-REN clarify its characterization of the multi-family market. o The Business Plan should clearly identify the populations included within the multi-family sector (in	Addressed in Sector Chapter of BP	

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			addition to the homes, condo owner, and multi-property), and discuss the specific market characteristics of each within the CCC-REN territory.		
1280		Residential	ORA - 5 Metrics should be revised to identify projected energy savings. Current metrics only include participation, which does not have a clear link to coressponding goals. o Participation in Direct Install does not account for energy saved based on the appliance installed. Increased participation in DI may show increased contractor activity but will not account for actual energy saved from the DI itself. CCC-REN should connect its metrics directly to measures and define the intended outcome of measures clearly.	Addressed in Sector Chapter of BP	
1281		Residential	ORA - 7 Lack of specificity as to which program metrics will assess which interventions. o All metrics are lumped together for each intervention strategy. Therefore, it is unclear which metrics will be used to measure success of which strategy.	Addressed in Sector Chapter of BP	
1282		Residential	ORA - 8 The business focuses on increasing contractor participation, rather than increasing energy savings or reducing greenhouse gas emissions. o The BP is heavily focused on DI and contractor activity. Yet, the main purpose of increasing energy savings gets lost. CCC-REN should consider redesigneding the business plan to	Addressed in general section of BP or Testimony in Application	Substantial market barriers exist in the region requiring foundational activities to establish a market and achieve

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			focus on areas where energy savings can be maximized without extensive expenditures on DI, like the multifamily sector.		greater savings. The ultimate goal is savings but 3C-REN recognizes the need to fill these gaps in order to deliver on that need.
1438		Residential	CEC - 1 Basically, the CEC is OK with you and others using HE Score as a preliminary assessment tool, but NOT as an asset rating where you promote the score specifically for a property valuation metric within a real estate listing. The attached explains why this is important for CA and therefore to the CEC. Instead, we hope that you will consider including the CA HERS asset rating approach for your planned real estate engagements in the mid-term (see attached regarding the CEC's current efforts to produce a HERS rating at low cost that is consistent with new home asset ratings). Also see our comments to BayREN that are applicable to your proposed approach, regarding using lists of installed efficiency measures rather than a score or rating until there is a statewide asset rating approach via CA HERS. Here are examples of language in your draft business plan that the CEC finds problematic: 3C-REN will coordinate with DOE HEScore to populate real estate listings with efficiency ratings. Home project scores (pre and post EE	Addressed in Sector Chapter of BP	

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			retrofit) will be utilized by homeowners and real estate agents, reinforcing the value of energy efficient homes and driving change in the market. 3C-REN will partner with real estate groups to populate a directory with enough scores to help launch a functional directory of housing stock efficiency scores. DOE HEScore assessments will be completed and distributed to the real estate industry, furthering efforts toward providing an actionable platform and consistent vocabulary for market actors.		

Attachment B

Certificate of Service

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Application of Southern California Edison Company (U 338 E) for adoption of its Energy Efficiency Rolling Portfolio Business Plan and related relief.	Application 17-01-013 (Filed January 17, 2017)
Application of Pacific Gas and Electric Company (U 39 M) for Approval of 2018-2025 Energy Efficiency Rolling Portfolio Business Plan.	Application 17-01-015 (Filed January 17, 2017)
Application of Southern California Gas (U 904 G) for adoption of its Energy Efficiency Rolling Portfolio Business Plan and related relief.	Application 17-01-016 (Filed January 17, 2017)
	(NOT CONSOLIDATED)

CERTIFICATE OF SERVICE

I hereby certify that I have on this date served a true copy of "**MOTION OF THE 3C-REN, TRI-COUNTY REGIONAL ENERGY NETWORK, FOR APPROVAL OF ITS RESIDENTIAL ENERGY EFFICIENCY BUSINESS PLAN AND BUDGET PROPOSAL**" pursuant to the CPUC's Rules of Practice and Procedure and shall be served on the service list for the application proceedings for Southern California Edison Company, Southern California Gas Company, and Pacific Gas & Electric Company, as well as served on the parties to this rulemaking, **R.13-11-005**, obtained from the CPUC's website and attached hereto, by electronic mail (e-mail) to all known persons with a valid e-mail address on the official service list. I have also sent a hard copy in sealed envelopes by U.S. Mail to the Assigned Administrative Law Judge(s) (ALJ(s)) in this proceeding:

Chief ALJ Karen Clopton
CPUC
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San Francisco, CA 94102

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Executed: **January 23, 2017** in Ventura, California

By: /s/ *Alejandra Tellez*

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CALIFORNIA PUBLIC UTILITIES COMMISSION
Service Lists

PROCEEDING: R1311005 - CPUC - OIR CONCERNIN
FILER: CPUC
LIST NAME: LIST
LAST CHANGED: JANUARY 12, 2017

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