

2016

# *CA Central Coast REN*

## Residential Energy Efficiency Business Plan



**COUNTIES OF SAN LUIS OBISPO, SANTA BARBARA & VENTURA**

3C-REN | California Central Coast Regional Energy Network

## GLOSSARY

3C-REN: California Central Coast Regional Energy Network

AB: Assembly Bill

ARRA: American Recovery and Reinvestment Act

BPI: Building Performance Institute

CCA: Community Choice Aggregation

CCE: Community Choice Energy

CEC: California Energy Commission

CHEEF: California Hub for Energy Efficiency Financing

CPUC: California Public Utilities Commission

CRM: Customer Relationship Management

DCPP: Diablo Canyon Power Plant

DOE: Department of Energy

DG: Distributed Generation

DR: Demand Response

DSM: Demand Side Management

EE: Energy Efficiency

EMT: Energy Management Technology

EM&V: Evaluation, Measurement and Verification

EUC: Energy Upgrade California

GHG: Greenhouse Gas(es)

HEMS: Home Energy Management System

HEScore: Home Energy Score

HERS: Home Energy Rating System

HUP: Home Upgrade Program

HOA: Homeowner Association

HUD: Housing and Urban Development

HVAC: Heating, Ventilation and Air Conditioning

IDSM: Integrated Demand Side Management

IOU: Investor Owned Utilities

kW: kilowatt

kWh: kilowatt-hour

LED: Light Emitting Diode

LGP: Local Government Partnership

NATE: North American Technician Excellence

P4P: Pay for Performance

PA: Program Administrator

PACE: Property Assessed Clean Energy

PG&E: Pacific Gas and Electric Company

QC: Quality Control

REN: Regional Energy Network

REEL: Residential Energy Efficiency Loan

SCE: Southern California Edison

SCG or SoCalGas: Southern California Gas

SB: Senate Bill

TRC: Total Resource Cost

WIB: Workforce Investment Board

ZNE: Zero Net Energy

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## EXECUTIVE SUMMARY

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

The California Central Coast Region, comprised of San Luis Obispo, Santa Barbara, and Ventura Counties and 25 incorporated cities, are at the end of the utilities' service territories. Because existing programs are not able to meet the residential energy efficiency (EE) retrofit needs of the region, the three counties believe a solution can be found by developing and seeking funding for a California Central Coast Regional Energy Network (3C-REN). Each county has experienced unique challenges reaching the residential sector which will require a robust, personalized, and local approach to whole-home retrofits, workforce development, and market transformation strategies.

Through the 3C-REN, the residential sector in the region will be able to realize cost-effective energy savings potential and meet greenhouse gas (GHG) reduction requirements. Program administrators (PA) will be poised to build public trust and show the market impacts and value of a holistic approach to home energy retrofits. Leveraging existing resources and relationships, 3C-REN will be able to overcome market barriers to provide services and offer multiple financing options to hard-to-reach communities, as well as single-family and multifamily property owners while yielding effective energy savings toward zero net energy (ZNE).

3C-REN will meet goals and objectives by offering end-to-end concierge services for residents and contractors. The Central Coast Region will benefit from 3C-REN's Energy Coach Services, simplification of the decision-making process with regionally tailored project bundles, along with information sharing and reported key savings metrics. 3C-REN will utilize an integrated approach to inspections, and building codes and compliance offerings across the three counties through technical "learn-by-doing" training for the workforce and by providing real estate agents with resources and whole-home EE education designed around Home Energy Score (HEScore) ratings. Residential EE program participation and cost-effectiveness will increase with the fulfillment of the market potential tapped by 3C-REN, and the economic potential is directly linked with the program cost, program size, and market penetration. The Central Coast Region is primed to employ the mechanisms of a phased 3C-REN service model where there is initial investment in implementation and a goal towards becoming a self-sustaining entity.

This proposal demonstrates why the 3C-REN is the optimal party to implement residential EE programs in the Central Coast Region. Because the three counties have similar constituencies and climatic concerns, 3C-REN will be able to advance existing successful programs that demonstrate proficiency and organizational resources sufficient to the task. The following 3C-REN Residential Energy Business Plan proposal outlines core design elements, the crucial component of a phased implementation approach to overcome potential barriers, forecasted budget requirements balanced by existing and resource utilization, and shows how measuring success with a comprehensive set of metrics and tools will lead to the anticipated program improvement outcomes and market transformation goals.

## 1.0 INTRODUCTION

The Counties of San Luis Obispo, Santa Barbara, and Ventura, referred to in this proposal as the Central Coast Region, serve more than 1.5 million residents with more than 560, 000 housing units. The Central Coast Region envisions a future where a Regional Energy Network (REN) is formed to stimulate lasting change for the residential EE market in the three counties. The Central Coast Region has distinct unincorporated areas with multiple planning regions and a total of 25 incorporated cities. The Counties in the Central Coast Region are forming a REN in order to better serve and meet the needs of the diverse and hard-to-reach residents within the Central Coast Region who are not being reached by existing residential EE programs.

San Luis Obispo County, served by Pacific Gas and Electric (PG&E) and Southern California Gas (SCG), is comprised of topographical diversity, with mountains, rich agricultural valleys, distinct urban areas, near coastal areas and inland rural lands with distinct communities and villages. Santa Barbara County, 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. Ventura County, 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 has both coastal and inland agricultural communities. Each County houses the termination point of a major utility service territory.

The California Central Coast REN (hereafter referred to as 3C-REN) will create conditions where residents' needs are met with clean and sustainable energy sources at a fraction of current energy consumption, savings are augmented through engaging an active and educated workforce, whole-home retrofit projects are customary and provide substantial savings, and residents are educated and engaged with behavioral programs that bolster electrical savings that complement natural gas savings.

This proposal describes how the formation of 3C-REN leads to this desired future with a holistic approach to home building performance by 1) defining the current residential EE program responsibilities, 2) describing the needs of the Central Coast Region residents to be served and how to meet their needs, 3) how 3C-REN is informed and can improve the performance of programs from this market, and 4) how 3C-REN can incorporate innovative and successful design elements from around the country to engage and serve residents, engage and educate the workforce, and report successful stories of residential EE market improvement.

## 1.1 PROBLEM DEFINITION

Whole-home EE programs across the country have suffered widely from low participation. 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 residential EE participation. Whole-home retrofits are currently not the norm when looking at the residential EE retrofit market, especially in diverse regions and for hard-to-reach populations.

In light of the ambitious goals set forth from the State (AB 32, AB 758, AB 350, SB 32) and considering the fact that one-third of GHGs originate from single family homes, PAs must be more creative with how to demonstrate whole-home EE value to homeowners and contractors. The Central Coast Region is aware of many barriers that still exist, such as high project cost and conflicting messaging. Though these barriers are contributing factors to program challenges, they are not prohibitive when the perceived value of the project outweighs the perceived value of the cost.

To unlock the potential energy savings and GHG reductions within the residential sector, PAs must strengthen the value proposition as it is perceived in the public eye. If PAs are not more successful in the residential sector, it is highly unlikely that California will be able to achieve its goals for 2030 and 2050..

The Counties of Santa Barbara, San Luis Obispo, and Ventura have been able to make strong progress towards instituting lasting changes in the market. The American Recovery and Reinvestment Act (ARRA) financing 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 existence of the emPower program allowed the counties to develop a well-rounded team of staff members from different and complementary backgrounds including firsthand knowledge from the trades.

The efforts of this team can be seen by the effects it has had in the Home Upgrade Program (HUP) energy savings results. The Central Coast Region showed the highest energy savings results in the State. The emPower program was never viewed through the lens of energy savings or customer satisfaction. The counties intend to leverage the prior investments made by the ratepayers, successes in demand side and workforce development, and also the valuable lessons learned to implement a REN specific to the residential sector. 3C-REN will be better suited to leverage existing relationships with the community and workforce, coordinate local government and agency efforts, and better fulfill the needs of this hard-to-reach region.

## 1.2 BARRIER AND INTERVENTIONS

The following table reveals the different market impacts from the known barriers of home EE program participation. Each market actor has its own barriers, and 3C-REN will meet these barriers with applicable interventions based on performance indicators. The table shows the expected effect in overcoming these barriers toward an improved program and increased residential EE participation.

TABLE 1: RESIDENTIAL HOME EE MARKET BARRIERS AND INTERVENTIONS

Market Actor	Barrier	Intervention	Expected Effect	Performance Indicators
Homeowners and Investment Property Owner Barriers	Fragmented program delivery due to "Siloed" administration creates overlap and confusion for owners and renters.	Consolidate income qualified programs with non-income qualified programs. Energy Coach is well educated in building science, program protocols, and financing options.	Capturing stranded savings through better guidance and support, reduced confusion for occupants, greater and more durable savings.	Consultations Performed Energy Savings Completed Projects EMT Program Participants
	Lack of understanding of how multiple measures interact toward the desired result.	Simplify estimates to "bundles," which have known effects for the climate zone and local construction conditions.	Cost to benefit proposition more clearly defined, results more reliable, easier to forecast cost-effectiveness.	Energy Savings Completed Projects EMT Program Participants Cost-Effective Projects
	High cost, high profitability measures more widely advertised creates misconception and ineffective investments.	Educate and inform property owners prior to investment.	Projects will be more cost-effective, deliver higher savings, and the public will learn how to make better decisions after program sunset.	Energy Savings Cost-Effective Projects
	Non-energy benefits not clearly communicated.	Utilize energy coach level understanding to communicate value to customers tangible value assessment while in home at time of consultation rather than weeks later.	Greater participation levels, higher savings results, high customer satisfaction, peer to peer referrals proliferate lowering outreach costs.	Completed Projects
	Difficulty qualifying level of need.	Deliver an easily understandable "Home Energy Score."	Properties with higher savings potential will score lower reinforcing need to act. Uptake will advance in properties, which yield greater savings and higher cost-effectiveness.	Consultations Performed Energy Savings Completed Projects EMT Program Participants Cost-Effective Projects

Market Actor	Barrier	Intervention	Expected Effect	Performance Indicators
	Property owners do not see value in "Test-In" results.	Conduct baseline testing immediately after consultation if a project is initiated. Owners will see how the information is used by consultant to fit work scope to needs in the home.	Value of diagnosing the needs prior to intervention will be exemplified.	Completed Projects
	Lack of trust in the construction industry paired with poorly communicated technical information creates doubt of real and tangible value.	Objective presentation of value proposition dispels fear of being taken advantage of and more clearly communicates outcomes and results due to enhanced trust.	Higher volume of owners making improvements in all facets, health and safety, whole-home, single measure, and Home Energy Management Systems.	Consultations Performed Energy Savings Completed Projects EMT Program Participants Cost-Effective Projects
Homeowners and Workforce Barriers	Lack of understanding of Whole-Home Energy concepts and interconnectedness of measures installed.	Provide a tangible example. Subcontract at profitable rates. Sunset the program once property owners and contractors no longer need to "conceptualize" value of finished projects. Reinforce via DOE HEScore.	Property owners will value effective systems enough to ensure their investments are sound and systems are properly installed.	Energy Savings Completed Projects EMT Program Participants
	Lack of knowledge of all financing options and which best fit the need of the home owner.	Support all financing options and ensure that consultants are able to communicate values and differences.	Wider scale uptake of EE projects due to better access to financing options and stronger public opinions.	Completed Projects EMT Program Participants

Market Actor	Barrier	Intervention	Expected Effect	Performance Indicators
	Inadequate knowledge of Home Energy Management Systems (HEMS).	Consultant to exemplify implementation of a HEMS as well as features and limitations of various types and hardware. Home automation contractors engaged in program at same level and value as insulators and HVAC contractors.	Greater uptake in behavioral and Demand Response programs. Higher savings in "plug load" than existing to whole-home programs. (May require "double dipping" variance.)	EMT Program Participants Energy Savings
	Lack of high quality insulation installers.	Clearly define quality standards in participation agreement and subcontracts. Hold quality installation as conditional to payment.	Greater attention to quality in program administered jobs will bleed through into work performed outside of the program.	Completed QC Audits
Workforce Specific Barriers	Inconsistent delivery of HUP due to multiple service territories throughout the region.	Incorporate Home Upgrade and Advanced Home Upgrade into services offered through the REN.	Seamless integration experience for homeowners who are deciding on multiple factors such as scope, financing, construction schedule, etc. Exemplifies value to reluctant contractors.	Energy Savings Completed Projects Cost-Effective Projects
	Work more difficult and less profitable than other opportunities.	Send contractors jobs rather than leads.	Negates "cost to acquire a customer" for contractors allowing for lower cost factors. Contractors learn how to communicate value through mentorship.	Participating Contractors Completed Projects

Market Actor	Barrier	Intervention	Expected Effect	Performance Indicators
	Perception that compliance to rebate program requirements is too difficult.	Complete program required documentation while on site to exemplify real world connection.	A better informed workforce will have a positive perception when ease of compliance documentation is performed proactively.	Participating Contractors Completed Projects
	Smaller and less sophisticated companies find following up on a large number of leads to be costly.	Send contractors jobs rather than leads.	Program can engage customers who take time to plan before acting or must execute projects in stages.	Energy Savings Completed Projects EMT Program Participants Cost-Effective Projects
Workforce and Building Department Barriers	HVAC Systems not installed to adequate quality level	Provide access to earning opportunity paired with effective use of quality standards. Clearly define quality standards in participation agreement and subcontracts.	Greater attention to quality in program administered jobs will carry forward into work performed outside of the program.	Energy Savings Higher Quality HVAC Installations Cost-Effective Projects Code Compliant Systems
	HVAC Systems oversized due to lack of understanding in building science.	Provide guidance, mentorship, and Quality Assurance Inspections through the use of clearly defined Trade Standards.	Collaboration throughout the execution of jobs will exemplify the value of right sized systems. Greater attention to quality in program administered jobs will bleed through into work performed outside of the program.	Energy Savings Higher Quality HVAC Installations Cost-Effective Projects Code Compliant Systems

Market Actor	Barrier	Intervention	Expected Effect	Performance Indicators
	Duct Systems are undersized or sized to obsolete original installation.	Provide guidance, mentorship, and Quality Assurance Inspections through the use of clearly defined Trade Standards.	Collaboration throughout the execution of jobs will exemplify the value of right sized systems.	Energy Savings Higher Quality HVAC Installations Code Compliant Systems
Building Departments and State Barriers	Lack of enforcement in existing codes.	Implement an online streamlined and more cost-effective method for contractors to acquire permits and comply. System shall incorporate a "Special Inspector" type program for building departments to collaborate with HERS Raters. Program shall encompass all work scopes applicable to energy goals established by the State.	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.	Energy Savings Higher Quality HVAC Installations Code Compliant Systems Code Compliant Structures Bridge to ZNE Compliance

### 1.3 PROJECT AREA

3C-REN service area is located between Los Angeles County and Monterey County and includes San Luis Obispo County, Santa Barbara County, and Ventura County. There are ten incorporated cities in Ventura County; 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. Santa Barbara County has eight incorporated cities; Vandenberg Air Force Base and the University of California Santa Barbara. Major utility providers include PG&E, SCE, SCG. There are seven incorporated cities in San Luis Obispo County; California Polytechnic State University and the major utility providers are PG&E and SCG. In total, the service area includes more than 1.5 million residents.

TABLE 2: PROJECT AREA POPULATION AND HOUSING UNITS<sup>1</sup>

Area	Population	Housing Units		
		Total	Single Family (Detached)	Other
San Luis Obispo County	277,977	120,308	81,695	38,613
Santa Barbara County	446,717	156,520	91,471	65,049
Ventura County	856,508	287,080	184,141	102,939
Total	1,581,202	563,908	357,307	206,601

3C-REN’s service area is geographically diverse with broadly varying microclimates. Ventura County is 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 Ventura County. Santa Barbara County is 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. San Luis Obispo County, with over 50 miles of coastline miles and approximately 3,300 square miles, is topographically diverse, with mountains, rich agricultural valleys, and distinct urban areas, all within close proximity of the Pacific Ocean. The inland areas of San Luis Obispo County 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.

Common across all three counties are pockets of urban jurisdictions surrounded by rural agricultural communities. 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 EE capacity. The urban areas, particularly in Ventura County, face their own challenges, including more multi-family structures and contractors from the greater Los Angeles region providing conflicting messaging to residents regarding programs and savings options. The Central Coast Region has coastal weather typical of Mediterranean climates, coastal and inland mountain ranges, and inland areas with desert-like climate conditions.

<sup>1</sup>California Department of Finance. 2016. "Report E5 - Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2016, with 2010 Benchmark"

## 1.4 DESIRED STATE AND EXPECTED OUTCOMES

The Central Coast Region seeks the autonomy to implement a high-performing residential energy program that addresses the needs of a diverse and hard-to-reach populous, serviced by a workforce comprised of smaller and less sophisticated contracting companies and three separate utilities. The establishment of a REN, with one of its main objectives serving hard-to-reach customers, makes the creation of 3C-REN the obvious next step to the Central Coast Region<sup>2</sup>. 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.

Program delivery will help increase uptake due to lower-cost projects offering stronger value, which will hasten the economy of scale needed for the private market to offer a stronger value proposition. Recent legislation and State goals have placed a larger burden on local governments to achieve goals and are expected to track progress towards success. 3C-REN will help to achieve the renewable energy and GHG reduction goals set forth by the State of California<sup>3</sup> as well as serving to offset demand in response to the decommissioning of the Diablo Canyon Nuclear Power Plant (DCPP)<sup>4</sup>. Adopting and implementing the Department of Energy's (DOE) "Home Energy Score" (HEScore)<sup>5</sup> as a cost-effective and easily comprehensible assessment of a home's efficiency, 3C-REN will engage the real estate market by serving to populate a registry with EE home ratings that are actionable during ownership transfers and improves the existing residential building stock in the Central Coast Region.

3C-REN deems the adoption of DOE HEScore as a successful path toward more cost-effective projects. For example, homes built in the 1950s will score lower, yet they also represent greater savings opportunity. If a home scores a two or three by the DOE's assessment strategy, it will emphasize the need to make an improvement. Implementing HEScore as a standard practice achieves many goals simultaneously: a call to act, self-selecting more effective projects, and ushering the real estate industry into the EE market change effort.

Successful implementation of 3C-REN will lead to the following outcomes:

- 3C-REN will simplify the decision-making process for property owners. Multi-measure project bundles will be created based upon conditions known to the climate zone and regional construction conditions to provide forecasted savings results and cost-effectiveness levels.

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<sup>2</sup> Supports California Public Utilities Commission Decisions 12-11-15 and 16-08-19.

<sup>3</sup> State of California Renewable energy and GHG reduction goals include legislation and objectives such as: AB 758, SB 350, SB 375, SB 32, AB 197, AB 32, SB 535, California's Long-term Energy Efficiency Strategic Plan, ZNE Legislation, and Executive Order S-3-05.

<sup>4</sup> 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.

<sup>5</sup> <https://betterbuildingssolutioncenter.energy.gov/home-energy-score>.

- 3C-REN will capture and report key savings metrics resulting from all efficiency and renewable work being performed for hard-to-reach customers and account for the concerns of ratepayers and stakeholders.
- 3C-REN will cultivate the building industry to have the knowledge to competently navigate the evolving landscape of incentive programs and code compliance concerns.
- 3C-REN will develop for the whole-home retrofit market a technically trained and qualified workforce capable of delivering buildings at or above efficiency levels mandated through building codes and legislation in new and existing construction<sup>6</sup>.

### 1.5 GOALS AND OBJECTIVES

3C-REN will offer a beginning-to-end concierge service for all property owners and contractors. As a result of this service, property owners and renters will be provided with trusted and objective assistance to navigate the EE process. This is especially important in a complicated region that is served by three separate utilities and has a less sophisticated workforce than major urban areas which presents us with unique technical concerns. The following table shows the objectives that support 3C-REN’s goals:

TABLE 3: 3C-REN GOALS AND OBJECTIVES

Goals	Objectives
The rate of executed residential EE projects will rise to a level sufficient to facilitate objectives defined by State legislation.	Fuse all existing residential programs into a single service that strengthens the value of participation, as well as eliminating redundancies, discordant messaging, and stranded savings.
	Provide an onsite bidding system to ensure property owners receive pertinent cost-to-benefit analysis at the time of consultation, allowing homeowners to budget project costs.
	Stimulate demand for EE that is sustainable in the absence of incentive programs.
Will develop a technically trained and qualified workforce capable of delivering buildings at efficiency levels mandated by the State and through building codes.	Conduct training and continuing education for contractor and workforce development programs.
	Increase building professionals’ understanding of how the work they conduct affects health and human safety and the EE of a building.
	Provide executable resource collateral to contractors and inspectors including trade standards, best practices, and new technologies.
	Maintain a routine schedule of contractor follow-ups to address job and business model challenges.

<sup>6</sup> State of California Legislation includes AB 758 and SB 350.

Goals	Objectives
Institute customer relationship management (CRM) program, to ensure that property owners are not stranded through journey.	Create or source a data capturing system to track energy savings data that is accurate and accountable and not dependent upon financing choices or incentive program participation.
	Capture and report key savings metrics resulting from all efficiency and renewable work being performed by hard-to-reach customers.
	Develop appropriate metrics of success and associated performance indicators for all stakeholders.
Create an online permit-processing platform for all energy related projects throughout the 3C-REN territories.	Build a competent building industry to complete energy retrofits in existing buildings, Title 24 compliant new construction, and transition to ZNE buildings.
	Lower costs, facilitate projects, support the workforce, and capture deemed savings from non-program installations.
	Increase building industry knowledge to navigate the evolving landscape of incentive programs and code compliance concerns.

## 2.0 PROGRAM DESIGN AND IMPLEMENTATION

The design of the 3C-REN service model has been guided by lessons learned from programs from around the nation both successful and otherwise. In all cases where residential sector interventions show stronger uptake and cost-effectiveness, it is a result of having multiple points of value for the homeowner. 3C-REN seeks to strengthen the value proposition to homeowners by combining many points of value and also strengthen cost-effectiveness by delivering these services in a limited number of visits. Similarly, multiple measures will combine into “bundles” which will have been vetted for profitability and savings results. 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. As new technologies and savings opportunities emerge, 3C-REN will provide valuable understanding regarding homeowner energy use and the significance of program participation.

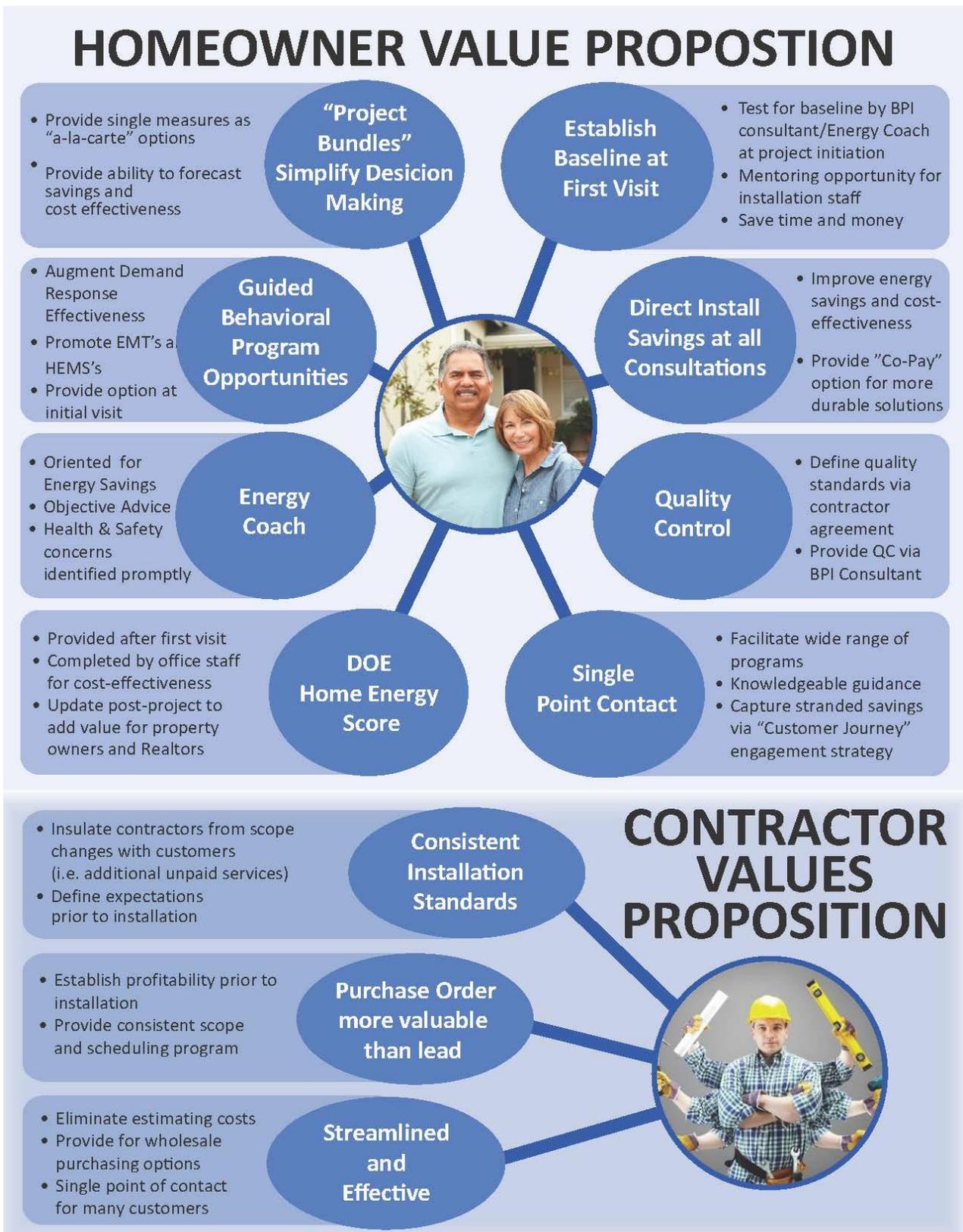
### 2.1 KEY FEATURES

- The 3C-REN Energy Coach Service will be motivated toward high saving projects and cost-effectiveness.
- 3C-REN Energy Coaches will utilize multiple programs, which are currently fragmented, to optimize outcomes and customer service.
- The Energy Coaches will provide many financing product options to homeowners.
- The 3C-REN service model will be objective and drive workforce participation through profitable subcontracting.
- Direct installation of energy saving features will provide immediate energy savings and provide workforce development opportunities.

- Program participants will be enrolled in “Pay 4 Performance” (P4P) and demand response programs, which address behavioral changes towards long-lasting EE savings.
- Home automation contractors will participate within the program to implement business plans that utilize emerging technologies and behavioral incentives, such as real time Smart Meter usage, remote control of lighting, and individual appliances via “smart” applications.
- Will implement policies to engage building departments to facilitate EE inclusion into permit systems.
- Regional colleges, trade schools, and workforce development authorities will be engaged to educate and assist with program recruitment.
- 3C-REN will coordinate with DOE HEScore to populate real estate listings with efficiency ratings.
- Contactor employers will enjoy targeted co-sponsored outreach and home expo style events to ensure the right audience will be engaged, and contractors will have successful moments of opportunity.
- 3C-REN will provide real estate agents with resources and whole-home efficiency education designed to capture moments of opportunity associated with time of sale.

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

FIGURE 1: VALUE PROPOSITION GRAPH



## 2.2 PROGRAM DESIGN ELEMENTS

Beginning calendar year 2018 through 2022, the program will move through three phases of implementation to allow for progressive development of the program. Each phase is described below.

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### PHASE ONE: 2018 - 2019

Phase One focuses on in-home energy coaching and public engagement to assist with project scoping, program participation, facilitating financial decision-making, and metrics.

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. A Direct Install (DI) component will be included in the Energy Coach Service to provide immediate energy savings that will add to the value proposition for the property owner and help meet legislative goals. The DI service will provide an opportunity for Energy Coaches to train apprentices in EE concepts and practices, thus affording a steady supply of educated workers to populate local contracting firms and spur economic activity. Development of the Energy Coach Service will transition the market from primarily relying on contractors as the sales force for EE projects.

The program will partner with the DOE to provide the HEScore. To drive projects, baseline 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 EE 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.

Utilizing customer relationship management (CRM) platforms, the program will be able to maintain relationships with residents who prefer to execute multiple measures in phases and over time. In phase one, the program will engage new and existing participants (emPower) with materials and consultation regarding behavioral programs such as P4P and will be guided through the steps of how to participate. Variance requests will be employed to address multiple program participation. Previous EE program participants within the Central Coast Region will have opportunities to seek deeper energy savings. 3C-REN will engage contractors and develop market strategies that integrate home automation platforms in the program's service bundles. Public engagement will occur through marketing and a branding campaign that specifically targets desired demographics.

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### PHASE TWO: 2019 - 2020

Developing in 2018 and reaching implementation by 2019, the program will no longer rely on contractors as the sales force. Whole-home programs find that when a customer is transferred from the program to the contractor, a majority of residential customers fall out. There are multiple contributing factors, chiefly

that estimates are complicated and present too many options, confusing the value proposition with homeowners. The 3C-REN service model will utilize standardized bundles with scope combinations recognized to hit specific savings targets at price points perceived as having value in the local market.

Combining residential DI services with a sales tool for participating contractors will provide a central point of contact for homeowners to develop a trusting relationship. Centralizing the point of contact will ensure DI participating homeowners will not regard DI as the only EE retrofit needed for their home. This will further opportunities for capturing stranded savings.

Initial site visits can be effectively converted into home energy audits, establishing baselines for participation in whole-home upgrades. With baseline data collected, an appropriate bundle of measures can be distinguished and agreed upon. This will bolster retention and uptake. A-la-carte services can be added as needed from a vetted list of measures.

3C-REN will engage building departments and facilitate permit processing for projects with an EE work scopes to establish agency collaboration in simplifying EE 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.

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### PHASE THREE: 2019 – 2021

The third phase will focus on the infrastructure required to enhance changes in the market. With consistent demand from homeowners and a workforce that is competent, additional demands will manifest with building departments regarding code compliance, plan check, and field verification. Because the Counties will be uniquely positioned to address emergent needs, 3C-REN will implement policies such as facilitated permit systems, augmented plan check capabilities, and enhanced field level compliance.

Strengthening engagement and collaboration between building departments and HERS raters, 3C-REN will foster conditions friendly to ZNE construction. Prior experience in Title 24 transition periods has shown that there is need for engagement in the contracting community as well as support for building departments. With the relationship established throughout the first two phases of 3C-REN's plan, builders and inspectors will seek guidance from 3C-REN. This will ensure for the CEC and CPUC that information distributed in the 3C-REN territory is both accurate and accountable.

Because counties administer both Housing and Urban Development (HUD) and Department of Agriculture (USDA) housing programs, 3C-REN will be able to interact with these projects at all phases of development and for maintenance of existing structures. Providing a continuous engagement strategy in concert with Federal and other State level housing programs will help to capture underutilized potential in existing programs.

## 2.3 ENGAGEMENT STRATEGIES

Integrating the concerns of local industry, community leaders, and utility partners, 3C-REN will tailor services that fit the needs of ratepayers who are in hard-to-reach communities and often find themselves underrepresented because they lack sufficient earning potential to attract larger and more resourced building companies. It has been shown within the Central Coast Region that it is possible to achieve higher savings projects by utilizing a third-party consultant. Building upon this success, the next step is to simplify decision-making for the homeowner as well as the process flow for the contractor.

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### HOMEOWNER ENGAGEMENT

Homeowners and renters need support in scoping their projects to ensure cost-effectiveness. The Energy Coach will serve as an objective third-party who will be trusted and available for guidance on multiple concerns and at any phase of a project. CRM software platforms will be utilized to keep residents engaged over time with minimized administrative needs. Relationships with homeowners not ready to invest yet will be maintained.

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### CONTRACTOR ENGAGEMENT

Contractors will be drawn to the program by demand generated in the market through 3C-REN activities. The program will provide resources to lower market entry and upgrade project execution costs. This will further market stimulation as lower costs result in lower prices. 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 level of workforce sophistication in the Central Coast Region.

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. While this program will focus on retrofitting the more than 450,000 homes<sup>7</sup> built before current energy standards<sup>8</sup>, it will also serve to educate builders in modern code and compliance verification concerns.

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### 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

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<sup>7</sup> According to 2010 to 2014 American Community Survey 5-year estimates.

<sup>8</sup> 1980, 1982, 1984, 1986, 1987, 1988, 1992, 1995, 1998, 2001, 2005, 2008, and 2013 Building Energy Efficiency Standards.

of Realtors, local brokerage firms, appraisers, and market listing services (MLS) to bolster demand for efficient homes by real estate agents being able to take advantage of a monetizable premium<sup>9</sup> (HES).

## GOVERNMENT ENGAGEMENT

Communication between building department staff and 3C-REN’s pool of raters 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)<sup>10</sup>. Investor owned utilities (IOUs) will benefit from reduced demand for energy distribution from the marriage of structural and behavioral programs that consistently engage consumers.

### 3.0 MULTIFAMILY SUBPROGRAM

3C-REN will engage in a subprogram designed to echo elements of its single-family offerings in order to provide the communities it serves with a homogenous service experience. For owners of single-family homes, condominiums, owners of individual apartment complexes, and multi-property portfolios, the public outreach and messaging efforts will be consistent. This will allow the public to share information, experiences, and outcomes in a way that eliminates confusion in the market. The following table shows the various problems and barriers that exist within the multifamily home EE market and reveals the intervention strategy to meet the 3C-REN’s service model expected outcomes.

TABLE 4: MULTIFAMILY HOME EE BARRIERS AND INTERVENTIONS

Problem	Barrier	Intervention Strategy
Multifamily homes have residential use with commercial motivation.	Responsibility for upfront costs can be confused.	Provide DI + upgradable options for occupants and follow-up options for owners through transparent communications.
	Expenditures must result in increased revenue for owners and investors.	Provide flexible measures and combinations of measures that address operating costs, provide HEScore to verify marketable premium.
	Property improvements and maintenance executed in stages.	Present recommendations in a format that is conducive to executing improvements over time, provide extended baseline utilization (provides both incentive early and deadline later).

<sup>9</sup> <https://betterbuildingsolutioncenter.energy.gov/home-energy-score>.

<sup>10</sup>SB 350 Clean Energy and Pollution Reduction Act:

[https://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=201520160SB350](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350).

Problem	Barrier	Intervention Strategy
	Property owners expect investments to offer results that are quickly monetizable.	Provide third-party verification of efficiency level via HEScore and program literature/collateral.
There are split incentives and diverse motivations.	Renters bear the cost of inefficiency through utility bills, owners are expected to fund improvements.	Provide renters with savings at first visit via DI program, reinforce value to owners through information and HEScore listings, provide multiple and flexible funding options.
	Varied occupant concerns within the same structure.	Provide flexible measures, results based incentives, and technical assistance.
There are a wide array of construction styles and vintages.	A lack of building science expertise exists for primary decision-makers (owners and managers), as well as DI subcontractors.	Provide assessments, interventions, and recommendations delivered by highly qualified professionals, having appropriate energy, health, and safety certification for multifamily properties.
	Work performed in one unit has potential to impact adjoining units; health and safety can impact multiple units.	

Multifamily intervention strategies and processes will differ based upon market barriers specific to the segment as well as motivators specific to property owners and renters through the administration of DI programs and programs that require capital investment such as Energy Upgrade California Advanced Home Upgrade. This will support the aim to have all activities yield energy savings, provide an inroad for further savings, and ultimately advance efforts towards ZNE.

Through infrastructure and relationships already residing within the purview of the counties (examples include HUD and affordable housing programs), opportunities exist to bolster uptake and outcomes in this hard-to-reach segment. When outreach efforts yield interest from renters, the results and findings will be shared with property owners along with market research and applicable studies that reinforce the value of efficient properties. In similar fashion to the single-family subprogram, 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.

3C-REN will leverage single-family outreach efforts and administrative process standardizations in order to maximize cost-effectiveness, in addition to utilizing property maintenance companies and collaborative efforts with water districts to reach receptive parties. Realtor-facing engagement strategies will be employed in tandem with single-family outreach efforts to minimize costs while maximizing opportunities.

## 4.0 FINANCE ELEMENT PLATFORM

The 3C-REN will provide a platform that facilitates multiple financing options to suit the varied needs of homeowners and contractors. Collaborating with third-party PACE providers, CHEEF, REEL, credit unions and local banks, mortgage brokers, and statewide financing initiatives, 3C-REN will provide a valuable resource of understanding and expertise that will benefit all stakeholders. Rather, 3C-REN will serve as consumer advocates to inform homeowners of cost-effective options for their project bundle.

The Energy Coach will serve as an educated resource that homeowners can consult for objective information. They will be provide the homeowner with material I that has information regarding rates, fees, and underwriting criteria in a way that is clearly communicated. Homeowners will have the opportunity to ask questions and have features described to them. Similar to referring contractors in many regions around the nation, the 3C-REN Energy Coach will provide enough information for the customers to decide for themselves which financing they would like to pursue.

Remaining a neutral third-party to all financing options will facilitate new financing models that may develop in the coming years as well as provide a source of information for utilization rates and best practices.

## 5.0 WORKFORCE ENGAGEMENT AND EDUCATION

3C-REN will engage contractors to provide training opportunities for the existing workforce. Unemployment departments, workforce development programs, trade schools, and community colleges will gain opportunities through Energy Coach mentorship. Training and certification events will present an opportunity to develop trade standards that will enhance onsite operations as well as encourage a new norm that reaches beyond current codes and standards.

The counties of 3C-REN have experience and understanding in engaging the workforce. The emPower program saw results from its efforts strikingly similar to that of the Home Upgrade Program where there was an influx post-recession when the contracting industry was slow, but ultimately the vast majority of projects began to come from a small number of high-performing contractors. Considering the size and scale of the housing stock that needs to be upgraded for the State to reach its goal of doubling the EE of buildings,<sup>11</sup> it is clear that the Central Coast Region will need a much greater quantity of active contracting companies.

3C-REN will employ a “learn by doing” approach for contractors who are already vetted through the emPower program and the Home Upgrade Program. 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

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<sup>11</sup> SB 350 Clean Energy and Pollution Reduction Act:  
[https://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=201520160SB350](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB350).

the REN's experienced staff. This will allow the REN to line up closely with the existing paradigm, which leans heavily on apprenticeship style training.

## 5.1 PARTICIPATION PROPOSAL

Contractors will find many benefits to working within the program. From a contractor's perspective, this will fill the need of advertising as well as setting them apart from competitors who cannot complete certification requirements or 3C-REN's vetting process. Continuing education opportunities and trade standard development will prove to be of added value as participation persists. Administrators, being familiar with the construction industry, will be able to exemplify and refine best practices and sales methods that aid smaller and less sophisticated companies to scale up operations.

Contractors who wish to participate will need to hold a license appropriate to work scope performed, sign a memorandum of understanding, attend participation orientation, and complete all other requirements applicable to participation in incentive programs applicable to the contractor's scope.

Contractors who wish to perform services in support of upgrade bundles proposed by the program will need to agree to pricing schema determined in collaboration with the program. 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 builders who are both competent to the task and interested in the work. 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 appropriate to field conditions.

## 5.2 TRAINING AND RESOURCES

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

The program will also 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.

## 6.0 ANTICIPATED FUNDING SOURCE AND BUDGET LIMIT

Building upon a host of existing resources and efficiency professionals in the Central Coast Region, implementation of the 3C-REN service model can be executed in a cost-effective manner. Furthermore, it is the intention of 3C-REN to make effective use of existing utility training resources, programs, and collateral.

Interest in improving EE programs and stimulating EE investments within the residential sector is rooted in the realization that EE can be a cost-effective means to address energy security, pollution reduction, and climate change concerns. A variety of funding mechanisms to support EE programs is an ongoing challenge. While the current residential program operating in San Luis Obispo, Santa Barbara and Ventura counties are based on tariff mechanisms, these charges are not the only funding source used to support EE initiatives available to residents. Major funding sources implemented across the nation include:

- Ratepayer-supported EE funds
- Funds from state treasuries/revolving loan fund initiatives
- State bonding authority
- CCE funding capacity
- Cap and trade funding
- Foundations and trusts
- Non-profit support

Additional opportunities and market influences can include co-funding paid by program partners or federal, regional, local, or non-profit education and promotion initiatives.

## 6.1 BUDGET LIMIT

With the phased implementation approach, 3C-REN will be able to introduce enhanced services with a very minimal ramp-up period. 3C-REN implementation will have a need to increase staff resources over a three- to five-year period.

TABLE 5: 3C-REN IMPLEMENTATION BUDGET

3C-REN BUDGET						
	2018	2019	2020	2021	2022	Total
<b>Total Admin</b>	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	\$ 250,000	<b>\$1,250,000</b>
<b>Total WE&amp;T</b>	\$ 850,000	\$ 950,000	\$ 950,000	\$ 950,000	\$ 950,000	<b>\$4,650,000</b>
<b>Total M&amp;O</b>	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	<b>\$1,500,000</b>
<b>Total DI</b>	\$ 825,000	\$ 925,000	\$ 925,000	\$ 925,000	\$ 925,000	<b>\$4,525,000</b>
<b>TOTAL Program</b>	<b>\$2,225,000</b>	<b>\$ 2,425,000</b>	<b>\$ 2,425,000</b>	<b>\$ 2,425,000</b>	<b>\$ 2,425,000</b>	<b>\$11,925,000</b>

In the initial phase, 3C-REN will utilize its existing resources of full-time staff positions; in later implementation phases, Energy Coach positions will be instrumental in the success of 3C-REN.

## 6.2 DEPARTMENTS AND AGENCIES IMPACTED

3C-REN will represent value to many stakeholders in the market. Following is a list of anticipated benefits for State and local level interests.

### CPUC

- Will provide a continuous service territory for efficiency programs in a region that has split service across three utilities and is rural and hard-to-reach.
- Will provide for greater cost-effectiveness and higher levels of accountability by combining all residential-facing efforts under a single administrator.

### 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 DCPD

- 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 EE uptake will allow reduced energy demand for the DCPD supplied communities (PG&E Press Release, June 21, 2016)<sup>12</sup>.
- 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.

### County & City Building Departments

- 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.

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<sup>12</sup> 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.

#### CCA Administrators

- Will provide a cost-effective solution for the distribution of ratepayer funds collected through CCA activity.
- Will provide a vehicle to collaborate directly with residential efficiency program implementation (San Luis Obispo, Santa Barbara, and Ventura Counties are currently assessing the feasibility of implementing a CCA program).

#### IOUs

- Will maintain and strengthen successful 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.
- Will assist in uptake in demand response programs.
- Will assist in uptake in emergent technology applications and P4P incentive initiatives.

## 7.0 REPORTING, METRICS AND SCHEDULE

Considering all departments and agencies to be impacted by 3C-REN activities, there are many elements included in the 3C-REN data collection methodology. Residential EE incentive programs around the nation have experienced low uptake, making it vital to capture data in order to track progress toward GHG reductions defined in AB 32<sup>13</sup>. 3C-REN will be capable of providing an opportunity to capture data from both program- and non-program-related activity by implementing an unparalleled EE permit facilitating mechanism to capture all permitted EE projects by which savings can be deemed.

The service model will be integrated with reporting and metric data collection that has no equal. Administering property assessments through the assessor's office will provide a method by which to monitor PACE activity. By utilizing strong contractual conditions with PACE implementers, it is possible to mandate the data reporting schedule as well as the depth of data points required to be active in the region. By referencing these reports to those available through the county assessor's office and the building department, it is possible to discern the savings projections data within a reasonable margin. The following are a representation of the intended metrics, targets, and schedule.

### 7.1 METRICS AND TARGETS

3C-REN will indicate progress towards the State's goals of reducing fossil fuel consumption and lowering GHG emissions as well as progress towards long-term goals such as market transformation. 3C-REN will

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<sup>13</sup> AB 32 California Global Warming Solutions Act of 2006: [http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab\\_0001-0050/ab\\_32\\_bill\\_20060927\\_chaptered.pdf](http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab_0001-0050/ab_32_bill_20060927_chaptered.pdf).

also serve to capture valuable demographic information for use in evaluation of program design, effectiveness of interventions during specific high-demand seasons in certain climate zones and under a demographic lens for continuous program improvement. The inclusion of data gathered from smart technology and home automation will contribute to better data capture. In addition, other data-capture methodologies will be administered continually throughout the customer engagement process to eliminate redundancy and ensure consistency.

Data points reported will include but are not be limited to:

- Participation as a percentage of existing housing inventory
- Level of participation (DI, DI+ upgrades, whole-home project)
- kWh and Therms
- Savings per incentive cost
- Measure affordability and life of product (not available with PACE & non-incentive data)
- Private participant investment cost (not available with non-incentive data)
- Participant feedback and satisfaction rates
- A building’s existing conditions (location, vintage, size, affordability, and others)

The following table clearly represents the 3C-REN intervention strategies as they are expected to transform the market and achieve the desired metrics.

TABLE 6: RESIDENTIAL HOME EE MARKET METRICS

<b>Intervention</b>	<b>Expected Effect</b>	<b>Metric</b>
Consolidate income qualified programs with non-income qualified programs. Energy Coach is well educated in building science, program protocols, and financing options.	Capturing stranded savings through better guidance and support, reduced confusion for occupants, greater and more durable savings.	kWh Savings, Therms Savings, Completed Projects, Upgrades from DI, Single Measures Installed, EMT Program Participants
Simplify estimates to "bundles," which have known effects for the climate zone and local construction conditions.	Cost-to-benefit proposition more clearly defined, results more reliable, easier to forecast cost-effectiveness.	Kwh Savings, Therms Savings, Completed Projects, Cost-Effectiveness, EMT Program Participants
Educate and inform property owners prior to investment.	Projects will be more cost-effective, deliver higher savings, and the public will learn how to make better decisions after program sunset.	Kwh Savings, Therms Savings, Completed Projects, Cost-Effectiveness
Utilize energy advisor level understanding to communicate value to customers, tangible value assessment while in home, at time	Greater participation levels, higher savings results, high customer satisfaction, peer to peer referrals	Kwh Savings, Therms Savings, Completed Projects, High Customer Satisfaction

Intervention	Expected Effect	Metric
of consultation rather than weeks later.	proliferate lowering outreach costs.	
Deliver an easily understandable "Home Energy Score."	Properties with higher savings potential will score lower reinforcing need to act. Uptake will advance in properties, which yield greater savings and higher cost-effectiveness.	Kwh Savings, Therms Savings, Completed Projects, Upgrades from DI, Single Measures Installed, Cost-Effectiveness, EMT Program Participants
Conduct baseline testing immediately after consultation if a project is initiated. Owners will see how the information is used by consultant to fit work scope to needs in the home.	Value of diagnosing needed prior to intervention will be exemplified.	Kwh Savings, Therms Savings, Completed Projects, Cost-Effectiveness
Objective presentation of value proposition dispels fear of being taken advantage of and more clearly communicates outcomes and results due to enhanced trust.	Higher volume of owners making improvements in all facets, health and safety, whole-home, single measure, and Home Energy Management Systems.	Kwh Savings, Therms Savings, Completed Projects, Upgrades from DI, Single Measures Installed, Cost-Effectiveness, EMT Program Participants
Provide a tangible example. Subcontract at profitable rates. Sunset the program once property owners and contractors no longer need to "conceptualize" value of finished projects. Reinforce via DOE HEScore.	Property owners will value effective systems enough to ensure their investments are sound and systems are properly installed.	Kwh Savings, Therms Savings, Completed Projects, Measures Installed, Cost-Effectiveness, EMT Program Participants
Support all financing options and ensure that consultants are able to communicate values and differences.	Wider scale uptake of EE projects due to better access to financing options and stronger public opinions.	Kwh Savings, Therms Savings, Completed Projects, Single Measures Installed, EMT Program Participants
Consultant to exemplify implementation of a HEMS as well as features and limitations of various types and hardware. Home automation contractors engaged in program at same level and value as insulators and HVAC contractors.	Greater uptake in behavioral and Demand Response programs. Higher savings in "plug load" than existing to whole-home programs. (May require "double dipping" variance.)	Kwh Savings, Therms Savings, EMT Program Participants
Clearly define quality standards in participation agreement and subcontracts. Hold quality installation as conditional to payment.	Greater attention to quality in PA jobs will bleed through into work performed outside of the program.	Kwh Savings, Therms Savings, High Customer Satisfaction

<b>Intervention</b>	<b>Expected Effect</b>	<b>Metric</b>
Incorporate Home Upgrade and Advanced Home Upgrade into services offered through the 3C-REN.	Seamless integration experience for homeowners who are deciding on multiple factors such as scope, financing, construction schedule, etc. exemplifies value to reluctant contractors.	Kwh Savings, Therms Savings, Completed Projects, Single Measures Installed, EMT Program Participants, High Customer Satisfaction
Send contractors jobs rather than leads.	Negates "cost to acquire a customer" for contractors allowing for lower cost factors. Contractors learn how to communicate value through mentorship.	Active Contractors, Completed Projects
Complete program required documentation while on site to exemplify real world connection.	A better informed workforce will have a better awareness when ease of compliance documentation is performed proactively.	Active Contractors, Completed Projects
Send contractors jobs rather than leads.	Program can engage customers who take time to plan before acting or must execute projects in stages.	Active Contractors, Completed Projects, Kwh Savings, Therms Savings, Upgrades from DI, Single Measures Installed, EMT Program Participants
Provide access to earning opportunity paired with effective use of quality standards. Clearly define quality standards in participation agreement and subcontracts.	Greater attention to quality in PA jobs will carry forward into work performed outside of the program.	Kwh Savings, Therms Savings, Completed Projects, Single Measures Installed, EMT Program Participants, High Customer Satisfaction, Increased Code Compliance
Provide guidance, mentorship, and Quality Assurance Inspections through the use of clearly defined Trade Standards.	Collaboration throughout the execution of jobs will exemplify the value of right sized systems. Greater attention to quality in program administered jobs will bleed through into work performed outside of the program.	Kwh Savings, Therms Savings, Completed Projects, Single Measures Installed, High Customer Satisfaction, Increased Code Compliance
Provide guidance, mentorship, and Quality Assurance Inspections through the use of clearly defined Trade Standards.	Collaboration throughout the execution of jobs will exemplify the value of right sized systems.	Kwh Savings, Therms Savings, Completed Projects, Single Measures Installed, High Customer Satisfaction, Increased Code Compliance

## 7.2 AGGREGATION OF MARKET ACTIVITY AND OUTCOMES

Aggregating outcomes from the varied sources listed above will provide access to activity in the market that was previously unknown. To meet grid reliability and resiliency objectives, it is vital to include growth in demand response participation to demand-side management along with EE programs. Scaling residential EE programs to bolster customer engagement enables new revenue streams as market penetration expands and technology advances (for example home automation systems, such as smart thermostats like Nest) are leveraged towards detailed savings and seasonal demand analytics. Program impact is directly associated with the cost-effectiveness of installed EE measures. Cost-effectiveness will increase with the fulfillment of market potential as will the realization of economic potential and are directly tied to the resulting program cost, program size, and market penetration.

## 7.3 REPORTING SCHEDULE

A reporting schedule developed by 3C-REN will show the flow of information from data-collection and the parties impacted by this information. The positive relationships lead to seamless information sharing and reporting, as well as more effective measurements, evaluation, and verification processes.

## CONCLUSION

### ADVANCING THE WHOLE-HOME APPROACH INTO THE FUTURE

The 3C-REN will facilitate and administer a cost-effective EE program this is designed to educate and engage residents and the workforce to meet whole-home performance needs. The 3C-REN service model for residential EE program participation will work to reduce energy consumption with clean and sustainable energy sources, expand savings through an engaged and educated workforce while transforming the residential EE market where whole-home retrofit is the favored practice in the Central Coast Region.

This proposal demonstrates why the 3C-REN is the logical solution for implementing a comprehensive residential EE program for the Central Coast Region. Approval of the 3C-REN Business Plan proposal will allow for unprecedented program elements and evaluated program success metrics for effective and continuous program improvement, customized solutions for increased participation and service provision, trusted relationships with residents and the workforce with a goal of providing greater EE in homes and having a lasting, positive impact on the lives in our communities.