Exhibit A

3C-REN RES DI Program Scope of Work (“SOW”) and Implementation Plan (IP)

Exhibit A

3C-REN

Residential Direct Install Implementation Plan

October 3, 2018

COUNTIES OF SAN LUIS OBISPO, SANTA BARBARA & VENTURA

3C-REN | TRI-COUNTY REGIONAL ENERGY NETWORK

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PROGRAM BUDGET AND SAVINGS INFORMATION

1. Program and/or Sub-Program Name

3C-REN Residential Direct Install (RES DI)

2. Sub-Program ID Number

TCR-RES-001

3. Sub-Program Budget Table

2019 RES DI budget: $2,896,876

Residential Direct Install	2019
Admin	157,129
Marketing & Outreach	94,278
Direct Implementation	1,627,019
Direct Install	744,850
Incentives	273,600
Residential Total:	**2,896,876**

4. Sub-Program Gross Impacts Table

Forecast kWh	525,645
Forecast kW	320
Forecast therms	64,818

5. Sub-Program Cost Effectiveness (TRC)

Projected Total Resource Cost (TRC): 0.36

6. Sub-Program Cost Effectiveness (PAC)

Program Administrator Cost (PAC): 0.43

7. Type of Sub-Program Implementer

Implementer	Yes	No
Core	x	
Third Party		x
Partnership		x

8. Market Sector (including multi-family, low income, etc.)

Primary Sector: Residential

Program Category: Hard-to-Reach

9. Sub-Program Type

Primary Program Type	Yes	No
Non-resource		x
Resource acquisition	x	
Market transformation		x

10. Intervention Strategies

Primary Intervention Strategies	Yes	No
Upstream		x
Midstream		x
Downstream	x	
Direct Install	x	
Non-resource		x
Finance		x

IMPLEMENTATION PLAN NARRATIVE

1. PROGRAM DESCRIPTION

The 3C-REN Residential Direct Install (RES DI) program fills a regional gap in current Investor Owned Utility (IOU) offerings and delivers direct install (DI) measures that target hard-to-reach (HTR) residential customers. The RES DI program targets renters and owners of single family and multifamily properties, and Disadvantaged Communities (DACs) in Ventura, Santa Barbara, and San Luis Obispo Counties, offering a single, unified program to regional residents. 3C-REN will partner with local non-profit, "energy service providers" (e.g. Community Action Partnerships, or CAPs), who currently deliver income-based programs such as the Energy Savings Assistance (ESA), Middle Income Direct Install (MIDI), and Low-Income Home Energy Assistance Programs (LIHEAP) to leverage their experience and infrastructure to provide 3C-REN program services to a broader audience than they currently serve. The RES DI program seeks to achieve the following objectives:

- Increase the number of HTR residents that have access to affordable energy upgrades and the benefits associated with making those upgrades, including reduced energy use, bill savings, and increased health, comfort, and safety.

- Provide a pathway for HTR residents to achieve deeper energy savings by providing the opportunity to bundle no cost DI measures with Co-Pay upgrade measures that will provide increased energy savings.
- Provide energy and behavior change education that will result in increased energy savings and reduce the likelihood of the "rebound effect".
- Increase the number of HTR residents that take advantage of water saving or renewable energy programs (e.g. MASH, SASH) through cross promotion efforts.
- Establish a long-term relationship with property owners through knowledgeable Energy Advisors who can help owners achieve deeper energy savings over time as they are able to implement them.
- Advance the skills of existing energy service providers by providing hands-on, in the field training opportunities for their staff and contractors resulting in increased quality assurance and the development of career pathways for disadvantaged and HTR workers.

2. PROGRAM DELIVERY AND CUSTOMER SERVICES

3C-REN's territory includes more than 1.5 million residents and approximately 512,000 occupied housing units presenting significant energy saving opportunities even when primarily targeting HTR customers. The RES DI program is designed to deliver energy savings for the tri-county region via direct install by partnering with local energy service providers to identify eligible customers and install energy efficiency measures that will result in energy savings and increased health, comfort, and safety. The RES DI program will build on existing resources to streamline and strengthen delivery channels resulting in higher levels of service and access for residents.

2.a RES DI Targeted Customer

The RES DI program will cover both single family and multifamily property owners and tenants. The tri-county residential sector is 37 percent rental housing, with 45 percent of single family residences being non-owner occupied. This high level of rental housing means that the RES DI program must be flexible and address the needs of both owners and renters. 3C-REN's program design includes the ability to iterate and incorporate lessons learned into property owner engagement and build renter participation. Both audiences will be served by the direct install program, behavioral initiatives, emerging technologies, and educational programs resulting in energy savings. Owners will be able to benefit from the deeper energy savings that result from co-pay measures and options for bundling those measures (renters may as well if they can get cooperation/agreement with the property owner). For multifamily buildings, 3C-REN will focus on unit measures initially, but may expand to common area measures in the future.

At the direction of the CPUC, 3C-REN intends to offer services to HTR populations across its territory, using the CPUC direction for "hard-to-reach" as defined in Resolution G-3497, with the clarification as indicated in D.18-05-041 Section 2.5.3 to include disadvantaged communities (DACs) as defined by CalEPA's CalEnviroScreen. HTR eligibility is determined by meeting a certain eligibility threshold across the following characteristics: geography, language, income, and housing type. Notably, all of San Luis Obispo County and Santa Barbara County meet the threshold criteria for geography as they are located in areas other than the United States Office of Management and Budget Combined Statistical Areas of the San Francisco Bay Area, the Greater Los Angeles Area and the Greater Sacramento Area, or the Office of Management and Budget

metropolitan statistical areas of San Diego County. Therefore, 3C-REN's program eligibility criteria will appear consistent in San Luis Obispo and Santa Barbara counties, but will have additional complexity in Ventura County, as represented in the following table of customer eligibility.

Customer eligibility will be:

County	Single Family	Multifamily/Mobile Home
San Luis Obispo County **Santa Barbara County**	At least one of the following: • Primary language spoken is other than English • Income – Those customers who qualify for the California Alternative Rates for Energy (CARE) or the Family Electric Rate Assistance Program (FERA)	At least one of the following: • Housing Type - Multifamily and Mobile Home Tenants (rent and lease) • Language - Primary language spoken is other than English • Income – Those customers who qualify for CARE or FERA
Ventura County	Located in a DAC and at least one of the following criteria: • Language - Primary language spoken is other than English • Income – Those customers who qualify for CARE or FERA	Two ways to determine eligibility. Either: 1. Located in a DAC and at least one of the following criteria: ○ Housing Type - Multifamily and Mobile Home Tenants (rent and lease) ○ Language - Primary language spoken is other than English ○ Income – Those customers who qualify for CARE or FERA 2. Located outside of DAC and meeting all three criteria: ○ Housing Type - Multifamily and Mobile Home Tenants (rent and lease) ○ Language - Primary language spoken is other than English ○ Income – Those customers who qualify for CARE or FERA

2.b Marketing and Outreach

The RES DI program will reach customers using a hierarchy of targeted outreach and marketing approaches, relying heavily on the utilization of existing local government and community networks, and the Counties' position as trusted messengers, to drive program participation. While the delivery channels may be similar, the focus, messages, and location of efforts will be unique for each HTR group. For example, 33 percent of the tri-county population has a primary language that is not English. As a result, marketing strategies will be customized to particular subsets (e.g. Spanish speakers, renters).

3C-REN intends to employ the following targeted marketing and outreach strategies, presented in a general order of priority:

Leverage Income Based Energy Service Providers Marketing and Outreach Efforts
Approximately 33 percent of the tri-county's population have 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. Energy service providers implementing income qualified assistance programs are conducting marketing and outreach activities that regularly draw in customers who cannot qualify for income-based programs, but still meet the HTR definition and would benefit from 3C-REN energy services. With the deployment of the RES DI program, these income-based energy service providers can provide an option for these customers with minimal additional marketing costs.

Utilize Existing Communication Channels
Targeted outreach will include utilizing the existing resources (e.g. newsletters, websites, outreach events) already being used by local community and environmental groups, property management associations, and rental housing associations. Additionally, the RES DI program will work with public agencies and programs with housing-related missions, including local government departments, housing authorities, and community/economic development agencies to promote the program.

Employ Neighborhood Approaches
Using data available from the US Census, County Assessor Offices, and cities, the RES DI program will identify specific neighborhoods with the highest likely need and target them for comprehensive outreach. The goal of this approach is to achieve a level of scale and affordability by focusing on a group or neighborhood of probable customers. The 3C-REN will utilize relationships with local stakeholders and leaders and provide comprehensive education around the importance of energy efficiency and the benefits associated with participating in the RES DI program. Possible activities include working with volunteers, neighborhood associations, and community groups to conduct door-to-door outreach and to coordinate joint events, direct mailings to specific zips codes, as well as attending and presenting at community events hosted by partner organizations such as cities and Housing Authorities. This approach will be particularly useful when targeting more rural areas that make up approximately 8 percent of the tri-county region's population and are traditionally underserved by utility programs.

General Marketing Methods
To support and complement the targeted activities above, the RES DI program will develop a suite of collateral for the program targeted at key audiences including all materials in Spanish. Additionally, the program will participate and exhibit at events such as Earth Day festivals and home buying fairs. Social media outlets, such as Facebook and NextDoor, will be used to promote the program and support educational campaigns around energy efficiency, public health, and other relevant topics. Earned media, public relations and Public Service Announcements will also help generate awareness through media impressions targeted at key audiences. When appropriate, and with careful consideration of cost effectiveness, the RES DI program may also choose to place targeted radio and print ads.

2.c Program Delivery

The RES DI Program is designed to maximize energy savings while limiting the number of visits and overall cost to the customer. At a high level, the customer will move through the following steps:

- Marketing & Outreach: Customers will contact the program based on marketing and outreach efforts. Customers will proceed through customer eligibility qualification and intake.
- Direct Install: Once qualified, customers will schedule an appointment for DI measures. At the DI appointment, customers will receive energy education, measures will be installed at no cost to the customer, and the Energy Advisor will gather site information for potential co-pay and bundled measures.
- Consultation with Energy Advisor: The Energy Advisor will follow up with customers to discuss options for co-pay and bundled measures that can maximize customer energy savings, offering incentives to encourage participation.
- Install Co-Pay & Bundled Measures: For customers who decide to move forward, the program will install co-pay and bundled measures, enabling the customer access to deeper energy savings.
- Satisfaction: Customers will enjoy the benefits of the installed measures. As relevant, the program may continue to follow up with customers to encourage repeated participation through installation of co-pay and bundled measures.

These tools and services provided to HTR customers are described in greater detail below:

Customer Qualification and Intake

Once a lead has been identified, a 3C-REN Energy Advisor will help the customer determine if the RES DI program is the best choice for them or if they are better suited to an IOU or other state/federal program. The 3C-REN Energy Advisor service will be supported by energy efficiency experts, and customer service specialists that 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. Several critical pieces of information will be clarified including: HTR qualification including participation in the CARE and/or FERA program; if they are a renter or owner; and the kind of unit they live in - SF or MF. As part of the eligibility process, the program will coordinate with the relevant IOU to determine if the customer has already received similar services at this location in the last five years, limiting any potential for double-dipping. Once the customer is confirmed as a good candidate for RES DI, the agent will schedule an in-person visit. Ineligible customers will be referred to the relevant IOU or other program.

Initial Site Visit, Direct Installation, and Education

Qualifying customers will receive an in-home visit from a trained Energy Advisor, employed by one of the energy service providers, who will collect information on the home, install DI measures, and provide customer education on the new measures and the possibilities for additional improvements.

Ultimately, customers will have the ability to choose from a list of DI measures, co-pay measures, or different bundles of measures designed to the needs of their home. The DI measures are low-cost, high-return measures that deliver instant energy savings. These measures are cost effective, easy to install and are installed at no charge to customers. Some co-pay measures and bundled measures will require a follow-up visit and payment from the customer. At a minimum, the installation of simple energy saving measures will build customer trust and interest for future engagement.

Measures installed will depend on what is appropriate for each site but could include:

Potential Direct Install Measures
LED Lighting (screw in)
HVAC Tune Up
Faucet Aerators
Low Flow Showerhead
Thermostatic Valve
Plug Load Feedback Devices
Advanced Power Strips
Smart Thermostat

Measure installation will be prioritized in line with energy savings potential, existing measures already installed on site, and with a maximum budget cap in place for total measure installation cost.

Education will focus on behavioral changes and easy actions the customer can take to reduce energy use. The program will employ digital education tools such as energy education videos that customers can watch while DI measures are being installed to reduce time spent in the home. Energy Advisors will also cross promote utility and third-party energy management tools (e.g. through Green Button) and demand response programs (e.g. SCE Summer Rate Program). Energy Advisors will also provide initial information on the opportunity for bundling no-cost DI measures with more substantial upgrade measures that will require a co-pay but deliver deeper energy savings.

Energy Advisor Consultation, Co-Pay and Bundled Measure Installation

After the initial site visit, the expert Energy Advisor will follow up with the customer by phone or email to provide more detailed information on the site-specific opportunities for more substantial upgrade measures. Using the information obtained during the initial site visit, the Energy Advisor will provide technical advice, pricing information, cost benefit analysis, information on financing options (e.g. REEL) and help customers identify a scope of work. The cost of adding these additional measures will range depending on the measures selected and square footage of the home. Upgrade options will include:

- Co-Pay Measures: Single-measure upgrades will be offered to the customer at cost, with an instant discount (incentive) available up to an incentive cap. Customers will provide payment at the time

of installation and will receive the discount (incentive) at the time of payment. The program will cover the incentive costs up to a fixed cost per customer.

- Bundled Measures: Bundled measures include a fixed set of measures that are more comprehensive, have a higher cost, and offer more energy savings. Customers who are interested in going further than single-measure upgrades will be offered additional incentives to install bundled measures that achieve even greater energy savings.

The design of the program recognizes that many people cannot or will not complete all upgrades at one time. With that in mind, the Energy Advisor service can also help set a plan to install measures over time, helping the customer prioritize projects over the coming years, offering insights about what should be done first and what will have the greatest impact for their needs. This approach ensures the customer can participate in a journey to improve their home in a way that aligns with their capacity.

Potential Co-Pay Measures
LED Lighting (hardwired)
HVAC Tune Up
Room Air Cleaner
ENERGY STAR appliances
Attic Insulation
Gas Storage Water Heater
Tankless Water Heater
Water Heat Pump

Although measure options are still being defined, potential options for bundling measures include:

The Smart Bundle	The Even Smarter Bundle	The Even Smarter Smarter Bundle
Lighting	Lighting	Lighting
Air Sealing	Air Sealing	Air Sealing
Insulation	Insulation	Insulation
Water Flow Controls	Water Flow Controls	Water Flow Controls
	Smart Thermostat	Smart Thermostat
	Power Strip	Power Strip
	Plug Load Feedback Device	Plug Load Feedback Device
		Duct System Service to <6% Leakage & R8 Insulation
		Water Heater/Heat Pump

2.d Workforce Education and Training (WE&T) and Codes and Standards (C&S) Overlay

Some projects will be used for hands-on, in the field training opportunities led by the expert Energy Advisor that will result in increased quality assurance. This will also help the low-income providers build their staffing capacity and provide training, as well as code coaching for permitted projects. Partnering with local, non-profit energy service providers also provides an opportunity to create career pathways for disadvantaged workers as many of the crewmembers and contractors live in the disadvantaged communities that they serve.

Separately, the RES DI program will support the C&S and WE&T program goals of driving applied Emerging Technology implementation. Because the RES DI program provides opportunities for applied C&S and WE&T efforts, it will support increased workforce knowledge and confidence in emerging technologies.

2.e Continued Customer Engagement

Program staff will continue to engage with customers who chose not to participate in the program building trust and encouraging future participation. Additionally, customers who did participate will also continue to be engaged to monitor energy savings achieved and to encourage further energy conservation actions. Some projects will be used to develop case studies and earned media opportunities to promote the program.

3. PROGRAM DESIGN AND BEST PRACTICES

The Tri-Counties have been working together since 2014 to provide residential energy efficiency financing and outreach services in support of programs offered by the IOUs, in particular the Energy Upgrade California Home Upgrade Program (HUP). Insights and lessons learned from that work have been used to inform the RES DI program's overall design. Further, 3C-REN has conducted a broad level of research to learn and integrate best practices from other state and national programs. 3C-REN has also been coordinating and working with the other two RENs in California to learn from their experiences to create a more effective program from the start.

The tri-county region's service area is geographically isolated with diverse communities, which requires a more locally-focused, on-the-ground approach towards program implementation that cannot be offered by program implementers outside of the region. The 3C-REN's approach to reaching customers through utilization of existing local government and community networks, with customized message for each HTR group is a best practice that will be critical to program uptake.

Based on the Tri-Counties' experience, local customers want simplicity and accessibility when considering making energy upgrades and often abandon the idea of making improvements when confronted with the complexity and cost of programs such as HUP. Customers also want to experience some of the benefits associated with making energy improvements before investing larger amounts of capital. The RES DI program's approach of coupling education, technical support, no-cost and co-pay upgrade options strikes the right balance between addressing customers' needs and meeting energy savings goals.

The RES DI program strives to address the following common market barriers that may prevent HTR customers from implementing energy efficiency measures:

High upfront cost of energy efficiency improvements
Most customers are not willing to spend the amount required to participate in programs like Home Upgrade, especially HTR. Res DI integrates assessment and DI measure installation with potential for expanded measures quickly at an affordable cost.

Lack of program information and support for non-English speakers
More customized marketing and outreach that are sensitive to language and cultural differences. Leverage word-of-mouth information sharing about programs and resources that are already common in these communities.

Lack of understanding and value of energy efficiency and non-energy benefits.
Energy Advisor to illustrate issues with homes and provide clear approaches to improve the home while also outlining customer benefits. DI provides customers with tangible benefits and leads to more interest in the benefits provided by deeper energy measures.

Difficult to engage and achieve energy savings with renters and landlords (split incentives).
No cost options designed specifically for renters allow for short-term energy savings. Long-term relationship with renters and ultimately property owners provides opportunity for deeper retrofits. Free DI measures for renters.

Dispersed population over wide geographic area.
Employ neighborhood approaches to achieve scale in reach and savings. Consistent and ongoing engagement with customers allow for long-term savings throughout tri-county region. This can only be achieved through a local implementer. Flexible incentive structures, paired with neighborhood approaches provide affordable upgrade options, and deeper reach and engagement with rural communities.

Confusion and lack of engagement due to silos, fragmented program delivery and multiple messages, in large part due to multiple IOUs.
Deliver one unified program for the region. Simplified and streamlined program approaches, use of CAC and CAP and Energy Advisor allow for ease of engagement and allow cost to benefit proposition to be more clearly defined, resulting in higher uptake and long-term involvement with energy upgrades.

4. EM&V

As a new Program Administrator, the 3C-REN evaluation, measurement, & verification (EM&V) plan is still in an early formative stage and has not yet benefited from the coordination and planning of roadmap development with Energy Division (ED) and other Program Administrators (PAs). As 3C-REN further identifies its EM&V needs and develops and robust plan, they will join the existing EM&V framework to support ongoing efforts by ED and other PAs.

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, working groups, Peer Coordination Groups, and stakeholder meetings. This evaluation work will be supplemented through 3C-REN use of its own EM&V budget to conduct evaluations and market studies. The table 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 PA activities to ensure the greatest impact and value from any new studies. 3C-REN led EM&V efforts are tentatively proposed to verify the non-resource benefits of programs such as the WE&T and C&S programs' efforts to promote best practices through market characterization and process evaluation.

3C-REN will coordinate and collaborate with staff at the CPUC during all phases of the studies in accordance with guidance in the most recent Energy Division & Program Administrator Energy Efficiency EM&V Plan, following the process for Commission Oversight of Program Administrator EM&V projects. Below is a preliminary topic focus 3C-REN plans to explore:

Study Title/Topic Focus	Objective	Timeframe
Energy Advisor	*Evaluate the process and delivery of the Energy Advisor offering*	*Short-term, and subsequently as needed*

5. PILOTS

There are no pilots planned for this program.

6. ADDITIONAL INFORMATION

6.a Design of Incentives to Customers or Implementers

In alignment with the guidance offered in D.18.05.041 Section 2.2.1, 3C-REN has considered the CPUC direction. Although not all guidance is relevant for implementation in a program at this scale, the RES-DI program adheres closely to the following guidance:

Guidance in D.18.05.041 Section 2.2.1	RES DI Implementation
Incentives should generally be tiered to promote increasing degrees of efficiency above code, particularly when an existing conditions baseline is used and when the direct install delivery channel is used.	The RES DI incentive structure is designed to offer tiers of efficiency upgrades that meet customers where they are, while promoting customer investment in energy efficient measures. The first tier provides upgrades at no customer cost, the second tier provides an incentive for single-measure upgrades, and the third tier provides greater incentives for comprehensive upgrades. See table below.
Incentives should generally be strategically targeted at commercially available products that offer higher and highest degrees of efficiency and quality, not at all above-code high efficiency products.	The RES DI program will offer incentives for a set list of measures, not all above-code high efficiency products. That said, to ensure measures are available at a price point that works for the HTR segment, the program will not limit its measure list to only the "highest" degrees of efficiency and quality, as that would increase cost and reduce participation.
Incentive structure should take into consideration the variation in barriers to efficiency upgrades faced by different customer segments, instead of being set uniformly for a measure class.	The HTR segment faces significant barriers in energy efficiency upgrades. The tiered approach of the RES DI program design enables customers at all points in the energy efficiency program to participate.

Incentives will be available in the following structure:

Incentive Type	Cost to Customer	Incentive provided by program
Direct Install	No cost to customer	Direct Install - Program pays 100% of measure and installation costs up to $650
Co-Pay & Bundled Measures	Customer pays full cost of item, with an instant discount (incentive) of up to 20% off the measure cost (total incentive not to exceed $1200)	Incentive - Program pays up to 20% of measure cost, not to exceed $1200 per customer

6.b Lighting Technologies

In alignment with D.18.05.041 Section 2.2.2, RES DI does not offer incentives for CFL lighting. However, LED lighting is available through this program. In general, 3C-REN will aim to offer LED lighting through the RES DI program that exceeds the LED standards currently available. That said, in order to maintain cost efficiency while serving the HTR market, LEDs provided at no cost to the customer may not always exceed the standards of LED technology available on the marketplace.

- Direct Install measures provided at no cost: LED lighting (screw-in)
- Co-Pay measures: LED lighting (hard-wired)

6.c Workforce Issues and Quality Standards

Although not all guidance in D.18.05.041 Section 2.2.3 applies directly to the RES DI program, the RES DI program generally supports workforce goals supported in the guidance, particularly in the sections noted below.

Guidance from D.18.05.041 Section 2.2.3	RES DI Implementation
Expand/initiate partnerships with entities that do job placement	The RES DI program design involves working with local energy service providers, including CACs and CAPs, that support trainees with job placement opportunities.
Require "first source" hiring from a pool of qualified candidates, before looking more broadly, beginning with self-certification at the beginning	The RES DI program will encourage its local energy service provider partners to pursue "first source" hiring.
Facilitate job connections, by working with implementers and contractor partners, and utilizing energy centers	The RES DI program partners with local, non-profit energy service providers also provides an opportunity to create career pathways for disadvantaged workers as many of the crewmembers and contractors live in the disadvantaged communities that they serve.

6.d Metrics Referenced in D.15-10-028

The RES DI program aims to track the below metrics for 2019:

Intervention Strategy	Market Effect Metrics	Indicators

Build trust and interest in deeper energy savings over time.	Increase participation in 3C-REN programs
	
	Project conversion to bundled measures
		• Number of customers receiving outreach attempts
		• Number of program inquiries
		• Number of participants/year
		• Number of HTR households served
		• Number of sites receiving Direct Install measures
		  ○ Energy savings from Direct Install measure sites
		• Number of sites installing Co-Pay measures
		  ○ Energy savings from Co-Pay measure sites
		• Number of sites installed bundled measures
		  ○ Energy savings from bundled measure sites
		• Number of conversions from DI to Bundled projects

3C-REN

Residential Direct Install Supporting Documents

October 3, 2018

COUNTIES OF SAN LUIS OBISPO, SANTA BARBARA & VENTURA

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PROGRAM MANUALS AND PROGRAM RULES

1. Eligible Measures or Measure Eligibility

For 2019, the RES DI program will include the below measures. Measures will be offered as either Direct Install measures, or as incentivized measures via the co-pay or bundled measure options.

#	Measure
1	Smart Power Strips
2	Smart Thermostats
3	Low Flow Faucet Aerators (Bathroom and/or Kitchen)
4	Low Flow Showerheads
5	Smart Plugs
6	LED Lamps
7	LED Fixtures
8	Thermostatic Valves
9	ENERGY STAR Refrigerators
10	HVAC Maintenance
11	Attic Insulation
12	Water Heaters

2. Customer Eligibility Requirements

The program targets Hard-to-Reach (HTR) customers in the tri-county region. Customer eligibility to meet the HTR criteria will align with CPUC direction in D.18.05.041 Section 2.5.3. Customer eligibility will be:

County	Single Family	Multifamily/Mobile Home
San Luis Obispo County **Santa Barbara County**	At least one of the following: • Primary language spoken is other than English • Income – Those customers who qualify for the California Alternative Rates for Energy (CARE) or the Family Electric Rate Assistance Program (FERA)	At least one of the following: • Housing Type - Multifamily and Mobile Home Tenants (rent and lease) • Language - Primary language spoken is other than English • Income – Those customers who qualify for CARE or FERA
Ventura County	Located in a DAC and at least one of the following criteria: • Language - Primary language spoken is other than English • Income – Those customers who qualify for CARE or FERA	Two ways to determine eligibility. Either: 1. Located in a DAC and at least one of the following criteria: ○ Housing Type - Multifamily and Mobile Home Tenants (rent and lease) ○ Language - Primary language spoken is other than English ○ Income – Those customers who qualify for CARE or FERA 2. Located outside of DAC and meeting all three criteria: ○ Housing Type - Multifamily and Mobile Home Tenants (rent and lease) ○ Language - Primary language spoken is other than English ○ Income – Those customers who qualify for CARE or FERA

3. Contractor Eligibility Requirements

The program anticipates working with two main types of subcontractors including Community Action Commissions (CACs) or Community Action Partners (CAPs) and Energy Advisors. To be eligible, CACs and CAPs must have experience delivering income-based energy efficiency programs and have existing program implementation contracts for ratepayer and Federal funded low-income energy efficiency programs. They must also have on staff, or on contract, building contractors who are currently licensed by the California Contractors State License Board (CSLB). At a minimum, Energy Advisors must have construction experience and be certified, or have someone on staff that is certified, as a Building Analyst, through the Building Performance Institute (BPI) to be eligible.

All subcontractors must meet and agree to all the terms and conditions set by the County of Ventura for entities identified as vendors. This includes meeting County standard indemnification and insurance provisions.

4. Participating Contractors, Manufacturers, Retailers, Distributors

The program does not have an open contractor model. Instead, the program will work with CAPs and CACs to offer installation services. CAPs and CACs must meet appropriate state and local license and insurance requirements for the work being performed.

5. Additional Services

The RES DI Program is designed to maximize energy savings while limiting the number of visits and overall cost to the customer. At a high level, the customer will move through the following steps:

- Marketing & Outreach: Customers will contact the program based on marketing & outreach efforts, which will include leveraging income-based Energy Service Providers marketing and outreach efforts, using existing communication channels such as community newsletters, employing neighborhood approaches to outreach, and traditional marketing efforts such as Earth Day promotional events. Customers will contact the program and proceed through customer eligibility qualification and intake.
- Direct Install: Once qualified, customers will schedule an appointment for Direct Install measures. At the Direct Install appointment, customers will receive energy education, measures will be installed at no cost to the customer, and the Energy Advisor will gather site information for potential co-pay and bundled measures.
- Consultation with Energy Advisor: The Energy Advisor will follow up with customers to discuss options for co-pay and bundled measures that can maximize customer energy savings, offering incentives to encourage participation.
- Install Co-Pay & Bundled Measures: For customers who decide to move forward, the program will install co-pay and bundled measures, enabling the customer access to deeper energy savings.
- Satisfaction: Customers will enjoy the benefits of the installed measures. As relevant, the Program may continue to follow up with customers to encourage repeated participation through installation of co-pay and bundled measures.

6. Audits

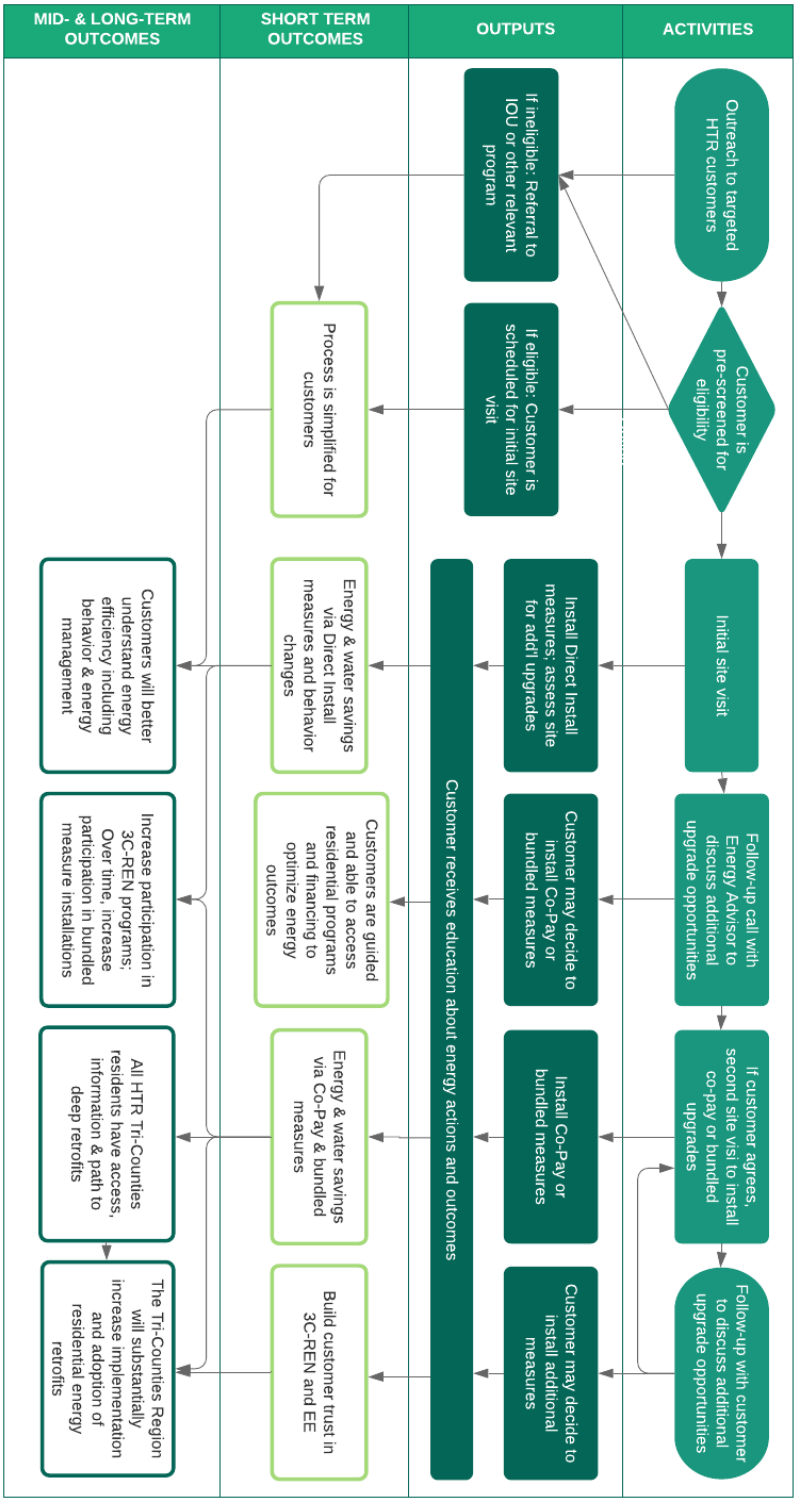
The program does not include a formal audit process. That said, during the initial Direct Install visit, the Energy Advisor will gather basic information about the home and its existing measures to support proposals for co-pay and bundled measures.

7. Sub-Program Quality Assurance (QA) Provisions

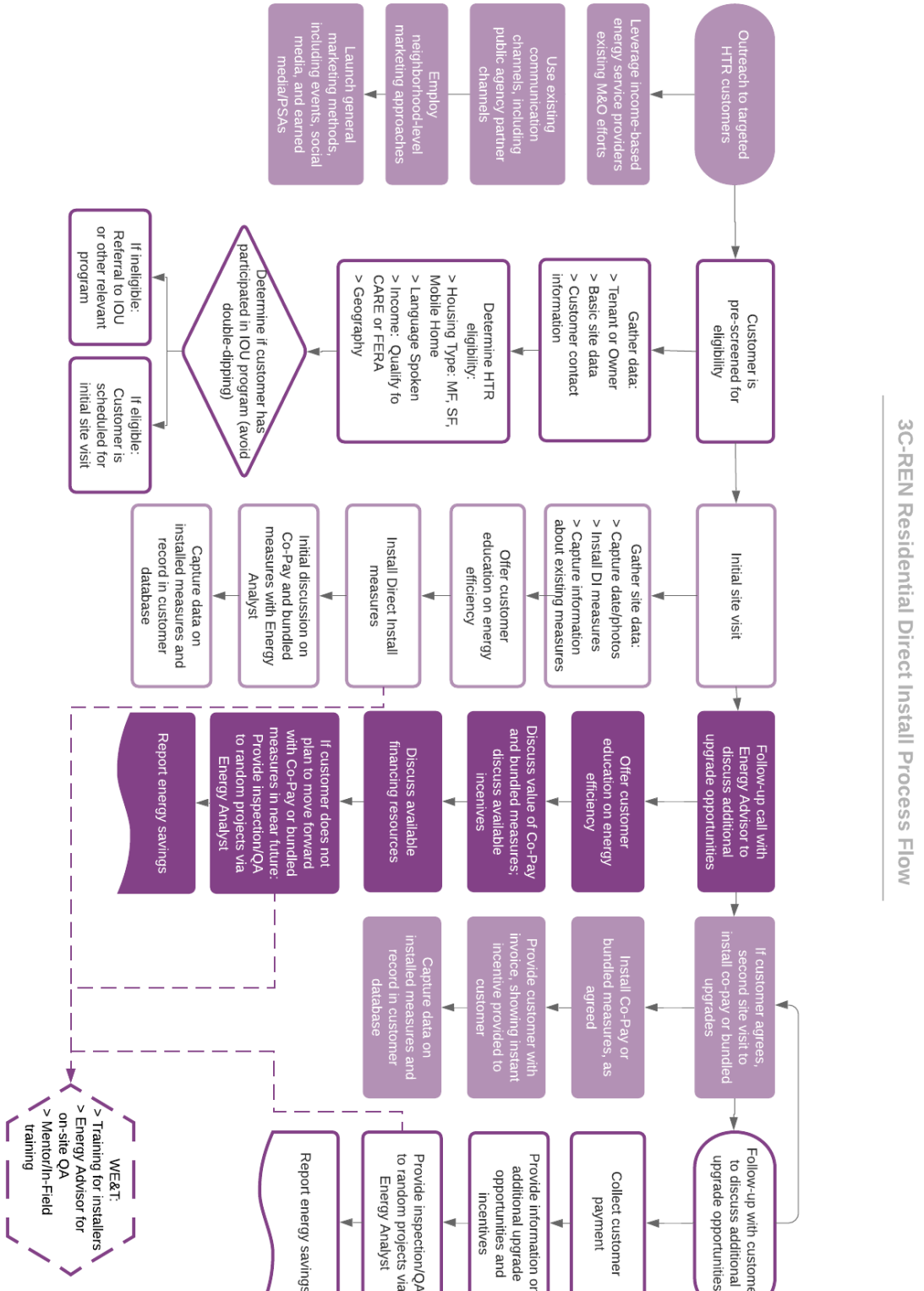
Although program QA provisions will be finalized with final vendor selection, Energy Advisors will be trained in energy efficiency principles, must have construction experience, and must either be certified, or have someone on staff that is certified, as a Building Analyst, through the Building Performance Institute (BPI).

Energy Advisors will provide desktop quality assurance and random on-site quality inspections.

PROGRAM LOGIC MODEL



PROCESS FLOW CHART



INCENTIVE TABLES, WORKPAPERS, SOFTWARE TOOLS

The RES DI program will use deemed savings from the Database for Energy Efficiency Resources (DEER), Commission depositions, and workpapers to determine ex-ante savings. Eligible measures and services to reduce energy usage may include, but are not limited to, the following:

#	Measure
1	Smart Power Strips
2	Smart Thermostats
3	Low Flow Faucet Aerators (Bathroom and/or Kitchen)
4	Low Flow Showerheads
5	Smart Plugs
6	LED Lamps
7	LED Fixtures
8	Thermostatic Valves
9	ENERGY STAR Refrigerators
10	HVAC Maintenance
11	Attic Insulation
12	Water Heaters

All workpapers can be accessed at the following link: http://deeresources.net/workpapers

#	Workpaper ID	Workpaper Title
1	SCE13CS002-3	Smart Power Strips
2	PGECOHVC167-1	Smart Thermostat
3	SCE17HC054-0	Residential Smart Communicating Thermostat
4	PGECODHW125-6	Low Flow Showerheads and Aerators
5	SWWH001-0	Auto-Diverting Tub Spout with Thermostatic Shut-off Valve
6	PGECOAPP124-3	Energy Efficient Refrigerators
7	PGECOHVC139-6	Residential HVAC Quality Maintenance
8	PGECODHW103-7	Gas Storage Water Heater
9	PGECODHW106-7	Electric Heat Pump Water Heater
10	PGECOLTG140-7	LED MR-16

11	PGECOLTG141-9	LED PAR20, PAR30 and PAR38 Lamps
12	PGECOLTG163-7	LED Candelabra
13	PGECOLTG164-7	LED Globe Lamps
14	PGECOLTG177-6	LED BR/R Lamps
15	SCE17LG097-1	LED Street Lighting
16	SCE17LG119-0	Residential LED Interior Fixtures
17	PGECOLTG139-10	LED Surface, Pendant, Track, Accent, and Recessed Downlight
18	SCGWP100303A-1	Low-Flow Showerheads
19	SCGWP100315A-1	Multifamily Domestic Hot Water Temperature Reset Controller
20	WPSCGCCWH180504A-0	Commercial/Residential Flow Control Valves for Faucets and Showerheads
21	WPSCGREWH120919A-3	Tankless Water Heaters for Single Family and Multifamily Applications
22	WPSCGREWH130613A-1	Central Storage Water Heaters for Multifamily Residential Applications
23	SCE13LG109-1	Exterior LED Lamp Replacement
24	SCE17LG127-2	LED PAR lamps
25	SCE17LG129-1	LED Candelabra Lamps
26	SCE17LG131-2	LED BR-R Lamps
27	SCE17LG133-2	LED A-Lamps
28	SCE17LG130-1	LED Globe Lamps

QUANTITATIVE PROGRAM TARGETS

3C-REN identified the following quantitative program targets during the Compliance Filing of Attachment A Metrics.

	2019	2020	2021-2025
Total Budget	$2,896,876	$3,169,197	$23,540,506
Net Energy Savings - kWh	525,645	661,784	7,794,082
Net Energy Savings – kW	320	412	5,314
Net Energy Savings – therms	64,818	81,572	1,013,473
Participating Sites	1,557	2,087	24,259

DIAGRAM OF PROGRAM

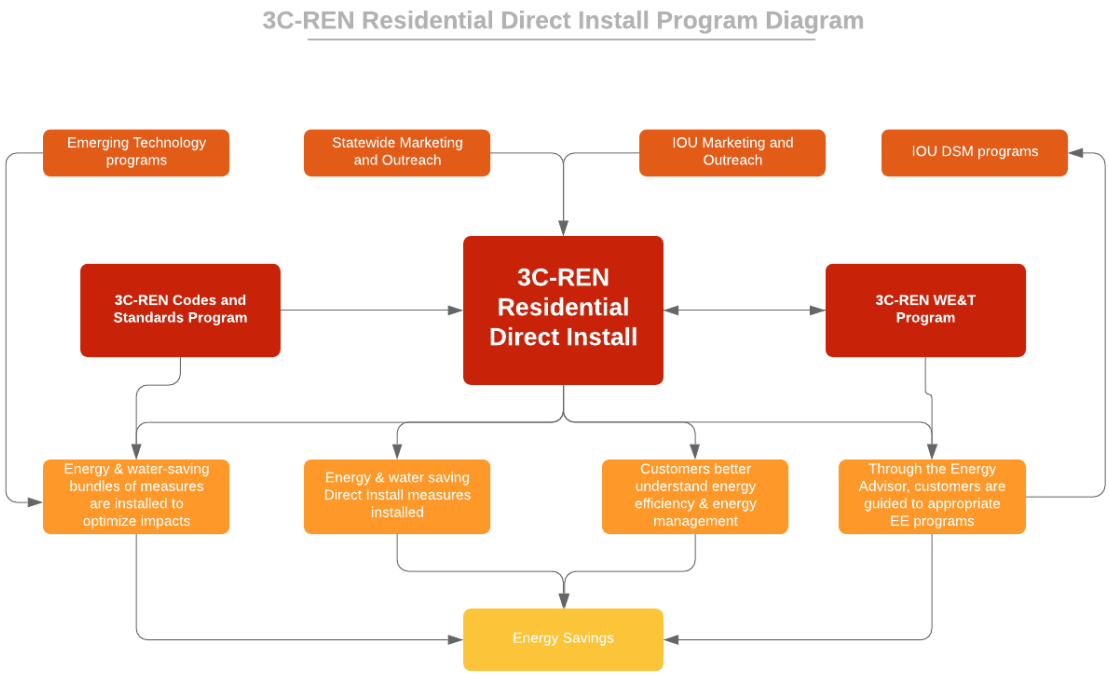


Exhibit B

3C-REN C&S Program Scope of Work (“SOW”) and Implementation Plan (IP)

Exhibit B

3C-REN

Codes & Standards Implementation Plan

October 3, 2018

COUNTIES OF SAN LUIS OBISPO, SANTA BARBARA & VENTURA

3C-REN | TRI-COUNTY REGIONAL ENERGY NETWORK

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PROGRAM BUDGET AND SAVINGS INFORMATION

1. Program and/or Sub-Program Name

3C-REN Codes and Standard (C&S)

2. Sub-Program ID Number

TCR-CS-001

3. Sub-Program Budget Table

2019 C&S budget: $1,796,748

Codes & Standards	2019
Admin	265,911
Marketing & Outreach	159,546
Direct Implementation	1,371,291
Direct Install	0
Incentives	0
C&S Total:	**1,796,748**

4. Sub-Program Gross Impacts Table

The C&S program will help deliver savings through a Code Coach service, trainings, regional forums, Zero Net Energy (ZNE) and ZNE-Ready resources, as well as accessing and utilizing statewide resources to enforce California Energy Code compliance. It is a non-resource program and will not claim any savings.

5. Sub-Program Cost Effectiveness (TRC)

The C&S program is a non-resource program and TRC will not be calculated.

6. Sub-Program Cost Effectiveness (PAC)

The C&S program is a non-resource program and PAC will not be calculated.

7. Type of Sub-Program Implementer

Implementer	Yes	No
Core	x	
Third Party		x
Partnership		x

8. Market Sector (including multi-family, low income, etc.)

Primary Sector: Cross-Cutting

Program Category: Codes & Standards

9. Sub-Program Type

Primary Program Type	Yes	No
Non-resource	x	
Resource acquisition		x
Market transformation		x

10. Intervention Strategies

Primary Intervention Strategies	Yes	No
Upstream		x
Midstream		x
Downstream		x
Direct Install		x
Non-resource	x	
Finance		x

IMPLEMENTATION PLAN NARRATIVE

1. PROGRAM DESCRIPTION

The Tri-County Regional Energy Network (3C-REN) cross-cutting Codes & Standards (C&S) program is designed to fill gaps in current Investor Owned Utility (IOU) offerings for the 3C-REN territory. The program serves the counties of Ventura, Santa Barbara, and San Luis Obispo (Tri-Counties) and helps the counties reduce energy usage through improved building design and construction. The regional program offers local governments and local building professionals access to the resources needed for enforcing and complying with the California Building Energy Efficiency Code (Title 24), including best practice guides, checklists, policy support, targeted training, and on-site support, as well as improving systems for tracking and reporting on energy- and sustainability-related permitted projects. The 3C-REN C&S program will offer local, person-to-person trainings, mentorship and in-the-field opportunities, as well as over-the-counter and on-call expert assistance for C&S education. In addition to coordinating with the IOUs to leverage existing Statewide C&S resources for classroom and online trainings, the 3C-REN will establish a Code Coach service to run concurrent to and alongside other training efforts providing on the project, in-field, and technical support.

Building Departments lack the capacity and resources to effectively enforce energy codes and the resources to support jurisdictions in the tri-county region are minimal or non-existent. Building departments in the tri-county region will receive building performance support and mentoring for plan review and field compliance. All design-side stakeholders, from the architect to field inspector and from the mechanical engineer to the plan checker, will be targeted to attend trainings. The Code Coach approach, having local counter-to-counter and on-call experts for the region, will foster an environment where stakeholders have a deeper understanding of building performance and interrelated concerns. The goal is to ensure consistency throughout the tri-county region, providing the workforce with a more stable business climate and known code compliance resources.

Informed by a Codes and Standards survey of building department needs and regional knowledge of local contractor's needs, the C&S program objectives include:

- Provide building professionals with access to trainings, tools, and resources that will result in increased awareness and application of California building codes & standards.
- Provide building departments with local access to tools and resources that will result in increased energy code compliance and ease adjustment to code updates.
- Facilitate agency collaboration and improve regional cooperation that will result in more consistency among jurisdictions and avoid confusion for building professionals.
- Support an increase in the number of completed permits in the replacement and retrofit market, as well as more effective and durable savings in the construction market.
- Track successful permit completion within local jurisdictions and specifically track compliance with Title 24 Part 6 and Part 11 to measure the impact of C&S in the tri-county region.
- Support and facilitate transition to new codes, in particular ZNE-Ready 2020 codes, by creating easily utilized services for building professionals that will result in on-going understanding of industry direction and rapid adoption of updated code.

2. PROGRAM DELIVERY AND CUSTOMER SERVICES

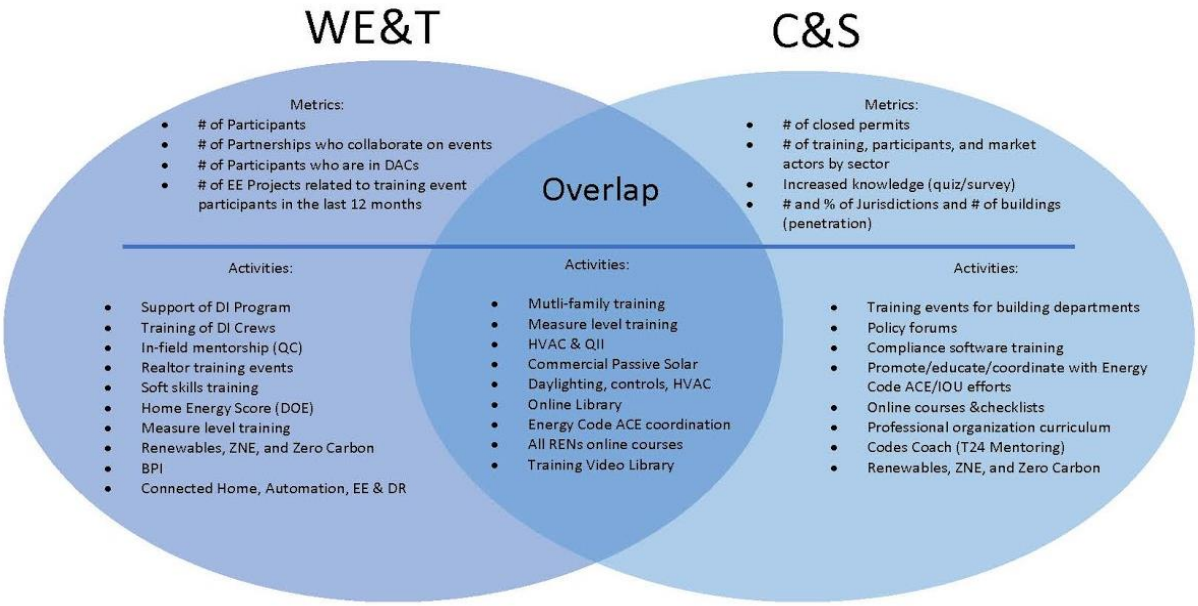
3C-REN will support local Building Departments and building professionals to streamline and improve the compliance process for over-the-counter permits for energy efficiency retrofits to existing structures, as well as the permit process for new or significantly remodeled construction. The 3C-REN will continue to work with the other RENs statewide and participate in their Statewide Codes & Standards 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 3C-REN C&S program will focus on three areas: 1. Behind the Counter Support; 2. In-front of the Counter Support; and 3. In-the-field Jurisdiction Support. Approximately 60% of the effort is anticipated in "Behind the Counter" and "In-front of the Counter", building capacity and awareness in local building departments, offering customized trainings, connecting them to statewide resources, and offering them the Code Coach technical services as described below. For "In-front of the Counter" support, 3C-REN will provide contractors, architects and other professionals services, trainings, and technical assistance to streamline permit submissions and increase code compliance. This will be in coordination with 3C-REN's WE&T program services. The third area of "In-the-field" assistance will focus on ensuring that contractors have the technical information to comply with energy codes, while avoiding hurdles such as permit failures and project delays with assistance from the Code Coach services.

To support these three areas, 3C-REN will deploy the following services: Code Coach in-person technical assistance; resources and online tools support; trainings and forums; and technology adoption support to building departments.

2.a Workforce, Education, & Training (WE&T) and Residential Direct Install (RES DI) Overlay

There is overlay among the 3C-REN Workforce, Education & Training (WE&T), Codes & Standards (C&S), and Residential Direct Install (RES DI) programs that enables a cross-application of energy efficiency principals throughout the different sectors. RES DI will use some projects for hands-on, in-the -field training opportunities led by the expert Energy Advisor that will result in increased quality assurance. This will also help low-income providers build staffing capacity and provide training, as well as code coaching for permitted projects. Partnering with local, non-profit energy service providers also provides an opportunity to create career pathways for disadvantaged workers as many of the crewmembers and contractors live in the disadvantaged communities that they serve. The WE&T program will offer training and mentorships that will reinforce building codes and improve adherence to energy efficiency principals in the retrofit and new construction markets. Following is a diagram showing the overlay among the 3C-REN C&S and WE&T programs.



2.b Target Audience

The 3C-REN Codes & Standards Program targets local design-side stakeholders and building professionals, including building departments, that have a professional need to understand and enforce or comply with Title 24 Part 6 and Part 11. This includes professionals such as architects, engineers, contractors, field inspectors, and plan checkers.

2.c Continued Customer Engagement: Code Coach Service

3C-REN's Code Coach service assists 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. It is anticipated that Code Coaches will also be able

to assist builders and developers in the field to comply with codes and to improve installation quality. The Code Coach service may 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 service success, 3C-REN will collaborate with the California Energy Commission (CEC). This will provide the CEC a local ambassador to the building departments, deliver the added benefit of shared 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 Zero Net Energy (ZNE) residential codes will be essential and provide several benefits. Plan checking staff will have a greater understanding of how to interpret energy reports which will result in consistency for the workforce and better performing structures. The provision of congruent training for field inspectors and plan checkers will help ensure installation quality is consistent and performs at the level forecasted by designers. As builders are included in the same trainings as field inspector and plan checkers, it is expected that they will be supported in their learning curve progress resulting in reduced costs associated with providing compliant structures and enhancing the value proposition for these builders 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 performance forecasts will be utilized in energy procurement policy and achieving GHG reduction targets established in SB 350 and AB 32.

2.d Code Compliance Processes and Tools Support and Development

3C-REN will rely substantially on existing tools and resources developed by the IOUs, other RENs, CEC and Energy Code ACE, and ensure that local jurisdictions and building professionals have awareness and access to resources. In addition, 3C-REN will complement these with regionally specific tools developed by 3C-REN and shared on an online portal. The portal will have links to all statewide resources and provide locally relevant case studies, information, and details to assist in supporting local building officials, particularly small jurisdictions, improve code compliance and permit processes. This may include, but is not limited to, Spanish language materials, locally relevant courses and checklists, information on ZNE and ZNE Ready buildings, fire recovery updates, and local standards that adhere to Title 24 updates. The portal may also be available to building professionals.

Many of the smaller local jurisdictions continue to rely on paper-based permitting. The 3C-REN will facilitate the transition to electronic systems when feasible. 3C-REN will assist in coordinating with jurisdictions on identifying permit tracking needs and available mechanisms for reporting on Title 24 Part 6 and Part 11 compliance.

2.e Code Compliance Training

Multiple training modalities are to be employed to increase building professional participation (including capture of industry trade school, college, and university students) using local assets, coordination with IOU offerings, and include compliance improvement program and delivered statewide by a team of subject matter experts. 3C-REN will provide access to trainings, tools, and resources through the following means:

- Host regional policy forums
- Compliance software training
- Promote, educate, and coordinate with Energy Code Ace
- Provide Online Courses and Checklists
- Provide regional Title 24 Mentoring through Codes Coach service.
- Provide access to training events for building departments and building professionals. Examples of cross-cutting trainings and resources:
    - Title 24 trainings
    - Multifamily EE trainings
    - Measure level trainings, such as HVAC & QII
    - Commercial passive solar
    - Zero carbon and passive home design
    - Daylighting, controls, and automation
    - ICC and AIA curriculum
    - Online Library (Energy Code Ace coordination)
    - All RENs online courses
- Provide Spanish language access to resources and trainings
- Offer access to training video library
- Offer regional online permit coordination

3. PROGRAM DESIGN AND BEST PRACTICES

The member counties of 3C-REN have and continue to build trust with residents and building professionals in the region. Several market barriers exist in the tri-county region, like other areas throughout the State. These include: a lack of awareness of code changes; lack of awareness of resources; lack of education regarding the value, benefits, and mandates for energy efficiency; unique circumstances of location, language, socio-economics, under staffed or high-volume jurisdictions with compromised capacity and resources to effectively enforce codes; education and training access gaps of the local workforce; and lack of local engagement regarding energy efficiency. The Tri-Counties have conducted interviews with building professionals who perceive that there is a lack of conformity across the 3C-REN territories' plan check staff indicating a clear need for consistent messaging via both targeted classroom-style training and one-on-one style mentorship.

The 3C-REN programs are designed to engage with building professionals of all types to ensure advanced measures, technologies, and compliance strategies are applied correctly to achieve anticipated savings. When the C&S program cross-cuts with the WE&T sector, it enforces and creates a value proposition of applying code concepts that result in uniformly applied knowledge on both sides of the permitting counter. Additionally, 3C-REN's residential marketing, education, and outreach efforts will help drive demand for energy efficiency projects.

A cross-cutting, contractor-driven marketing approach is consistent with the historically proven approaches of equipment manufacturers. By implementing this approach, 3C-REN can reinforce codes and standards integration for long-term and deeper energy efficiency knowledge application by building professionals.

Fostering one-on-one relationships with community members, local jurisdictions, and building professionals via the RES DI program Energy Advisor and C&S Code Coach services facilitates the delivery of education and training, increases awareness, and ensures Codes & Standards needs are addressed. Having established trust among stakeholders will also have a positive impact in addressing local workforce needs and engaging hard-to-reach community members. Optimizing marketing resources in target areas integrates workforce development into the Codes & Standards enforcement framework and removes market barriers of code adoption.

The 3C-REN compliance improvement program needs are informed by local jurisdiction survey results, as well as available IOU data to help identify training, tools, resources, and outreach necessary to encourage compliance and desired target achievements.

The program will allow building professionals opportunity to engage with 3C-REN staff at various regional forums, trainings, and mentorships, and provide feedback in areas that indicate a need for additional trainings. A bi-annual survey of area building professionals will include a needs assessment and provide information on access and use of trainings, tools, and resources. Training quizzes and surveys will test knowledge and request attendee feedback. Mentorships will ensure application of knowledge.

Collaboration with local non-governmental and trade organizations will provide an information exchange on workforce needs, especially in disadvantaged communities and those with large Spanish-speaking populations. This information will be used to guide future program strategy shifts to meet local needs.

In addition to program data and participation tracking, a compilation of regional permitting reports will be provided to regional permitting counters to help inform jurisdictions of local activities and permitting. Program database includes a measure of energy savings and carbon accounting.

Coordination within 3C-REN and among utility programs ensures ratepayer funds deliver resources efficiently and effectively across the shared territories. With that in mind, the IOUs and 3C-REN approach coordination with the goal of offering transparency through regular communication, efficiency through a collaborative approach to any shared resources, and support for the success of programs across the service area.

4. EM&V

As a new Program Administrator (PA), the 3C-REN evaluation, measurement, & verification (EM&V) plan is still in an early formative stage and has not yet benefited from the coordination and planning of roadmap development with Energy Division (ED) and other PAs. As 3C-REN further identifies its EM&V needs and develops and robust plan, the 3C-REN will join the existing EM&V framework to support ongoing efforts by ED and other PAs.

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, working groups, peer coordination groups, and stakeholder meetings. This evaluation work will be supplemented through 3C-REN use of its own EM&V budget to conduct evaluations. The table 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 Program Administrator activities to ensure the greatest impact and value from any new studies. 3C-REN led EM&V efforts are tentatively proposed to verify the

non-resource benefits of programs such as the WE&T and C&S programs' efforts to promote best practices through market characterization and process evaluation. 3C-REN will coordinate and collaborate with staff at the CPUC during all phases of the studies in accordance with guidance in the most recent Energy Division and PA Energy Efficiency EM&V Plan, following the process for Commission Oversight of PA EM&V projects. Below is a preliminary topic focus 3C-REN plans to explore for C&S.

Study Title/Topic Focus	Objective	Timeframe
Code Compliance	*Evaluate the impact of Code Coach and Online Permitting on Code Compliance*	*Mid-term*

Data collection for the C&S program will be embedded into each program activity to support robust evaluation. Metrics for training participation and event attendance will be tracked along with internal performance measures such as no-show rates and qualitative participant feedback. Metrics for software adoption will track the progress of a jurisdiction from commitment to implementation and track the resulting impacts when available from individual jurisdictions. Use of available resources metrics will be tracked as relevant to the individual resource. Examples may include Code Coach requests for support or website download of support tools.

5. PILOTS

This program does not include pilots

6. ADDITIONAL INFORMATION

6.a Design of Incentives to Customers or Implementers

The 3C-REN Codes & Standards program does not offer incentives to customers or implementers and the guidance in D.18.05.041 Section 2.2.1. on design of incentives is not directly applicable. The spirit of the C&S program does align with the intent of such guidance to maximize the value of investment that all code stakeholders make in energy efficiency. By supporting the compliance and enforcement of code, 3C-REN supports maximizing the energy efficiency savings achieved by projects supported by non-ratepayer funds.

6.b Lighting Technologies

The 3C-REN C&S program is a non-resource program that does not offer incentives to customers or implementers for lighting technologies. The guidance in D.18.05.041 Section 2.2.2. on lighting technology is not directly applicable. The C&S program will support the compliance and enforcement of code for all lighting technologies, encouraging above code installations when appropriate.

6.c Workforce Issues and Quality Standards

Workforce quality and standards are foundational to the 3C-REN C&S program. A lack of education and training, lack awareness of available resources, and general lack of awareness of code requirements and updates on either side of the permit counter contribute to low code compliance and enforcement in the tri-county region and statewide. Although the C&S program does not involve installation and/or maintenance by building contractors nor fits within the non-residential HVAC and lighting controls criteria proposed in the July 9, 2018 Ruling seeking comment on workforce quality requirements, the program

design serves a similar goal of raising the level of workforce quality in the energy efficiency industry to achieve deeper, lasting savings.

3C-REN intends for the C&S program to follow the high-level guidance provided in D.18.05.041 Section 2.2.3. as much as is relevant to this type of program and possible within the region. Partnerships with job placement entities will be developed and harnessed to share trainings and resources targeted to over the counter stakeholders such as contractors, architects, and engineers. The coordination between 3C-REN's WE&T and C&S programs, in addition to work with Community Action Commissions for the RES DI program, will facilitate connections between well-trained employees and industry firms. The code expertise necessary to facilitate others' understanding requires advanced experience in the field and does not directly lend itself to first source and placement experienced hiring for the C&S program itself. The barriers that impede the energy efficiency industry in the tri-county region are similarly limiting for the C&S program. The IOUs do not have energy center locations in the region and WE&T opportunities that provide the certifications and industry-specific needs to improve workforce quality standards are scant. The 3C-REN programs on whole are a much needed first step to start such improvements in this region.

6.d Metrics Referenced in D.15-10-028

3C-REN served a Compliance Filing of Attachment A Metrics of the County of Ventura on Behalf of 3C-REN, complying with the guidance in D.18.05.041 Section 2.3. to provide portfolio- and sector-level metrics. Metrics will be updated annually in accordance with CPUC guidance. In addition to the standardized set of metrics provided by all PAs, 3C-REN has identified additional metrics to be tracked in annual reporting. The cross-cutting C&S program has metrics that overlap with the 3C-REN RES DI and WE&T sectors. Overlapping metrics include:

- Number of closed permits
- Number of trainings, participants, and market actors by sector
- Increased knowledge (measured with exit quiz or survey)
- Number and percent of jurisdictions participating
- Number of buildings adhering to Part 6 and Part 11 codes (penetration)
- Number of jurisdictions using centralized tools to enhance code compliance
- Percent increase in home performance/engaged building professionals, including HERS raters, in energy efficiency programs

Exhibit C

3C-REN WE&T Program Scope of Work (“SOW”) and Implementation Plan (IP)

Exhibit C

3C-REN

Workforce Education and Training Implementation Plan

October 3, 2018

COUNTIES OF SAN LUIS OBISPO, SANTA BARBARA & VENTURA

3C-REN | TRI-COUNTY REGIONAL ENERGY NETWORK

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PROGRAM BUDGET AND SAVINGS INFORMATION

1. Program and/or Sub-Program Name

3C-REN Workforce, Education and Training (WE&T)

2. Sub-Program ID number

TCR-WET-001

3. Sub-program Budget Table

2019 WE&T budget: $1,270,776

Workforce, Education and Training	2019
Admin	181,303
Marketing & Outreach	108,782
Direct Implementation	980,691
Direct Install	0
Incentives	0
WE&T Total:	**1,270,776**

4. Sub-program Gross Impacts Table

The Workforce, Education and Training (WE&T) Program will help deliver savings through education, trainings, forums, and mentoring of regional building professionals. It is a non-resource program and will not claim energy savings.

5. Sub-Program Cost Effectiveness (TRC)

The WE&T program is a non-resource program and TRC will not be calculated.

6. Sub-Program Cost Effectiveness (PAC)

The WE&T program is a non-resource program and PAC will not be calculated.

7. Type of Sub-Program Implementer

Implementer	Yes	No
Core	x	
Third Party		x
Partnership		x

8. Market Sector

Primary Sector: Cross-Cutting

Program Category: Workforce Education and Training

9. Sub-program Type

Primary Program Type	Yes	No
Non-resource	x	
Resource acquisition		x
Market transformation		x

10. Intervention strategies

Primary Intervention Strategies	Yes	No
Upstream		x
Midstream		x
Downstream		x
Direct Install		x
Non-resource	x	
Finance		x

IMPLEMENTATION PLAN NARRATIVE

1. PROGRAM DESCRIPTION

The Tri-County Regional Energy Network (3C-REN) cross-cutting WE&T Program is designed to fill gaps in current Investor Owned Utility (IOU) offerings for the 3C-REN territory. To successfully expand and grow energy efficiency services and energy savings in the tri-county area, it is essential to develop a well-trained and knowledgeable workforce, supported by a compelling business case for energy efficiency in the region. To meet the needs of the local building professionals, 3C-REN will leverage existing statewide resources and curriculum, expand and build local partnerships with regional educational providers, and facilitate the connection between a robust regional workforce and state energy efficiency goals. The 3C-REN program will offer career pathways and enrichment by providing access to in-person trainings, mentorship opportunities and cross promotion of IOU workforce trainings, including hard-to-reach (HTR) workers and those identified as living in disadvantaged communities (DACs).

The 3C-REN WE&T program will actively fill gaps in current IOU offerings for the 3C-REN territory, as the region is far removed from IOU training and resource hubs. 3C-REN will address these gaps with its training and education efforts, as well as provide program specific training for engaged local building professionals to help ensure quality work, greater energy savings, and compliance with codes and standards. The program is designed to serve both commercial and residential building professionals. The program is designed with an emphasis on providing WE&T activities that result in retrofitting buildings, including a majority of residential structures built before 1978. The program is designed to provide training that facilitates compliance with energy codes and standards, will serve to educate building professionals in code and compliance verification concerns, and offer a pathway for staying current with Title 24 code cycle updates.

The WE&T program seeks to achieve the following objectives:

- Facilitate and deliver education and training that is designed specifically for the needs of tri-county building professionals, and the residential and commercial construction and renovation markets.
- Provide energy efficiency education that will result in increased energy savings, as well as increasing the benefits associated with making energy upgrades, including reduced energy use, bill savings, and increased health, comfort, and safety.
- Advance the skills of existing energy service providers by providing hands-on, in the field training opportunities for their staff and contractors resulting in increased quality assurance and the development of career pathways for disadvantaged and HTR workers.
- Increase the number of HTR and/or DAC building professionals that have access to education, training, in-the-field mentorship, and business development opportunities. Increase building professionals' preparedness of transition to Zero Net Energy (ZNE).
- Deliver technical and soft-skills trainings and certifications that help building professionals understand and integrate energy efficiency into their business models and work scope and improve the profitability of their businesses.
- Improve understanding and implementation of, and compliance with, energy codes and standards.

Due to the cross-cutting design of 3C-REN's programs, the facilitation and delivery of WE&T trainings will be coordinated closely with the objectives of the Codes & Standards (C&S) program and the needs of its target audience. For example, many trainings – particularly measure level trainings (e.g. HVAC and QII) – are relevant to both installation contractors and design-side professionals.

The 3C-REN territory has three primary needs for training and education:

- **Technical Training**: Code Compliance, Home Performance, and Zero Net Energy (ZNE)/ZNE-Ready preparedness.
- **"Soft Skills" Training**: To facilitate better communications, sales and marketing, and business management skills.
- **In-Field Training**: Local, in-person and onsite mentorship opportunities that provides building professionals with the hands-on experience need to incorporate energy efficiency practices into their businesses.

The majority of 3C-REN's WE&T curriculum is aimed at leveraging the robust and extensive resources available via the IOUs, local community colleges, and other providers, when possible. If training gaps are identified, 3C-REN will consider developing new curriculum to fill the gap. Past efforts have shown that to draw contractors to trainings, the value to their businesses must be strong enough to interrupt ongoing business production schedules, particularly during a strong housing economy. Considering this, 3C-REN will focus trainings to provide value in the following ways:

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

The 3C-REN is intent on developing (or adopting) on-demand, web-based 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. For example, the Energy Trust of Oregon provides a comprehensive suite of online training for residential contractors that may serve as a model. Other best practices will be evaluated and inform the development of these tools in the mid-term and long-term phases of implementation.

2. PROGRAM DELIVERY AND CUSTOMER SERVICES

The 3C-REN WE&T program is designed to engage the workforce in the tri-county region, enroll the workforce into the 3C-REN programs, and deliver training directly and/or coordinate with other training and education partners in the area. It is important to note that HTR 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.

Building professionals will be drawn to the program by demand generated in the market through 3C-REN activities. Building professionals will have the opportunity to participate in local training events that may otherwise be cost prohibitive due to extended travel, lodging, and lost revenue.

A comprehensive workforce able to successfully deliver high-quality energy efficiency upgrades requires a number of key occupations and skills. A 2009 study by the Centers of 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. 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.

The COE Study found that most 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 in their employees are: 1. The ability to communicate with customers in writing and in person; 2. An understanding of local and state codes and standards as well as incentives; and 3. A general technical understanding of the mechanics and engineering of energy systems such as HVAC, lighting, and renewable energy.[1]

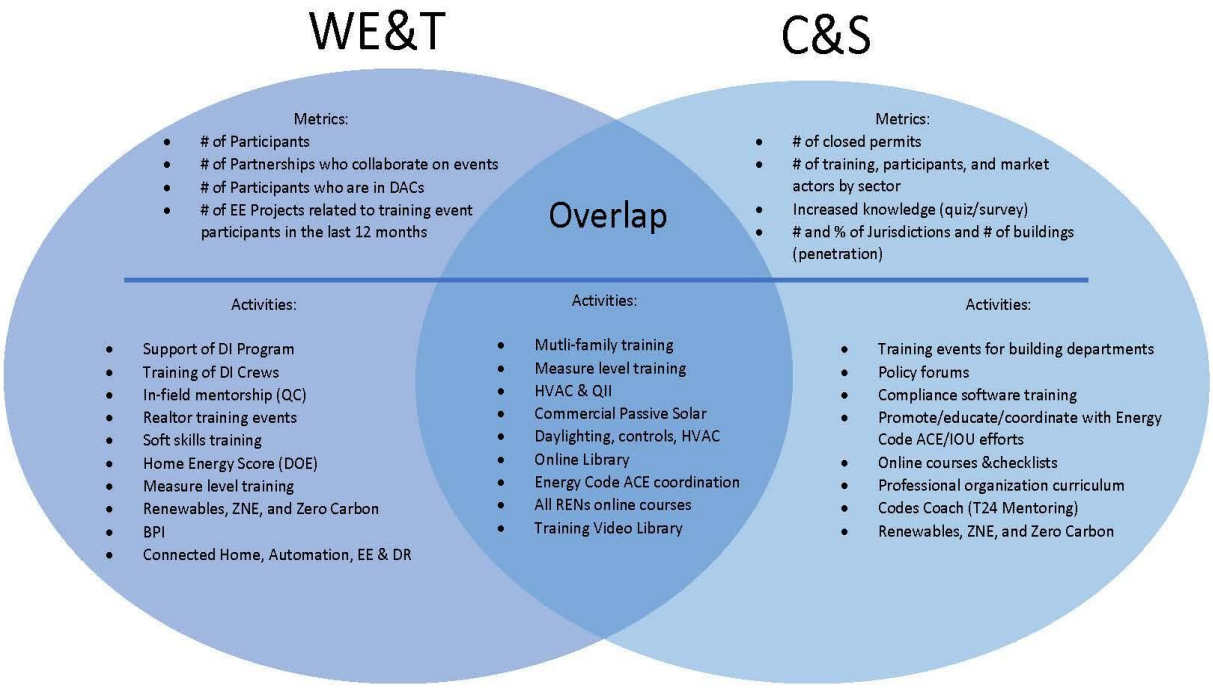
The WE&T program will collaborate with Emerging Technologies (ET) programs to promote and increase knowledge and confidence in emerging technologies. The WE&T program will help with implementation of

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

these new technologies by disseminating information and training to enhance acceptance into the marketplace.

2.a Workforce, Education and Training (WE&T) And Residential Direct Install (Res DI) Overlay

There is overlay among the 3C-REN WE&T, C&S, and RES DI programs that enables a cross-application of energy efficiency principals throughout the different sectors. RES DI will use some projects for hands-on, in-the-field training opportunities led by the expert Energy Advisor that will result in increased quality assurance. This will also help the low-income providers build their staffing capacity and provide training, as well as code coaching for permitted projects. Partnering with local, non-profit energy service providers also provides an opportunity to create career pathways for disadvantaged workers as many of the crewmembers and contractors live in the disadvantaged communities that they serve. The WE&T program will offer training and mentorships that will reinforce California building codes and standards and improve adherence to energy efficiency principals in the retrofit and new construction markets.



2.b Target Audience

The 3C-REN WE&T program targets local building professionals needing more in-depth training, such as contractors, engineers, architects, designers, certified energy managers, local jurisdictions' building and safety department staff, lighting professionals, real estate professionals and raters. Building professionals targeted include those in DACs and HTR areas, as well as other key market actors to help build a complete workforce. Further, the 3C-REN will help these professionals develop both technical skills and the soft skills needed to sustain a long-term and robust energy efficiency business and workforce.

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 California Energy Commission (CEC), the Center for Sustainable Energy, existing RENs, Build It Green, IOUs, and the Department of Energy (DOE). The following table summarizes who and how these audiences will be engaged.

Table 1: Market Actors Engagement, Education and Outreach Activities

	Building Professionals	Specialty Contractors	Architects & Engineers	English as Second Language Contractors	Building Departments
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	●	●	●		

The 3C-REN will focus on several approaches for WE&T technical and soft skills training including:

- Local partner educational providers, especially community colleges and other energy efficiency trainers paired with IOU curriculum delivered via IOUs or through partners.
- In-Field training utilizing 3C-REN Energy Advisors.
- Host in-person trainings, forums and roundtables.
- On-demand trainings, including web-based and online videos.

2.c Local Partner Educational Providers

To provide a fully capable and efficient workforce in the tri-county region, many partners will need to be engaged and efforts will need to be coordinated to ensure that curriculum is valuable and delivered in a way that enables participation in the normal course of business. Workforce Investment Boards, Economic Development Agencies, colleges, and vocational schools seek to provide workers with these skills, however construction firms often struggle to fill vacancies. The IOUs provide valuable technical information, but

with training centers too remote to serve the region effectively. To bridge the gap between the availability of local training, workforce development and construction firms who need properly trained staff, 3C-REN will couple training and workforce development within its programming and leverage partner resources to build a robust energy efficiency workforce.

3C-REN has established relationships and partnerships with educational providers such as local community colleges. For example, Cuesta Community College's Workforce and Economic Development Program has partnered with the County of San Luis Obispo for several years to coordinate a tool lending library and host energy efficiency events. The college recently helped procure grants to launch the San Luis Obispo County Green Business Program with an integrated education component. 3C-REN will expand relationships towards a partnership in providing a reciprocal certificate training program and a series of classes to instruct energy efficiency professionals on soft skills and business development competencies to help shape a well-trained workforce.

3C-REN will expand other existing county and local government relationships with workforce investment boards, trade groups, builders' exchanges, existing contractors, and economic development agencies to refine, expand or build where necessary, trainings for the region. 3C-REN will help establish a dynamic network of trainings and trainers that appeals to key audiences and delivered in a diverse number of ways to increase accessibility, value, and ultimately the number of program participants.

2.d In-Field Training

The 3C-REN will leverage established contractor and program relationships to provide technical trainings, Energy Advisor in-field job and installation mentoring, construction firm trainings, and skills certification opportunities. The 3C-REN's partnerships and residential Energy Advisor service provide a direct connection to the workforce. The WE&T program leverages and improves the existing labor force and provides access to mentoring which provides real-time experience that contractors and business owners value most. The program will set up a network of highly skilled building professionals while providing a connection to the workforce seeking training and career development opportunities.

The 3C-REN RES DI program will provide an opportunity for Energy Advisors to mentor building professionals in energy efficiency concepts and practices, thus affording a steady supply of educated workers to populate local contracting firms and spur economic activity. Being experienced energy efficiency professionals, Energy Advisors can convert program activities and consultations into baseline assessment testing required for implementing comprehensive 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.

At the design level and in preparation for the transition to ZNE, the 3C-REN will establish a Code Coach program to run concurrent to and alongside classroom style training efforts. Building departments in the region will receive behind-the-counter, in-front-of-the-counter, and in-the-field 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 classroom trainings, fostering an environment where they have a deeper understanding of interrelated issues and policies with implications to their businesses. The goal is to foster consistency throughout the region, providing the workforce with a more stable business climate.

2.e 3C-REN Hosted Trainings

With the goal of helping contractors develop successful and profitable businesses, 3C-REN will offer "Soft Skills" trainings including sales, marketing, and business development offerings related to growing a home performance business. This includes leveraging best practices gleaned from implementing previous energy efficiency programs, Energy Advisor support of contractors, offering specific technical trainings to expand the skills of the workforce, and providing certification opportunities. Through forums and roundtables, the program will assess building professional's experience with WE&T services and collect feedback regarding the needs of the regional market to directly inform curriculum.

The 3C-REN WE&T program delivers a holistic approach with highly targeted classroom training events complemented by the relationship building benefits of the mentoring model. Workforce training will be real-world reinforced while simultaneously providing direct energy savings. Company owners and management will benefit from targeted trainings that will reduce costs, increase sales, ensure quality standards are met, and bolster productivity. Building Department's will streamline processes and increase efficiency and efficacy with existing resources.

3. PROGRAM DESIGN AND BEST PRACTICES

As identified in the 3C-REN Business Plan and in the COE Study, several barriers in the region impact the contractor workforce including those in the following table.

Table 2: WE&T Barriers, Interventions and Expected Effects

Market Actor	Barrier	Intervention Strategy	Expected Effect	Target Metrics
General and Specialty Contractors	Contractors do not realize the value of energy efficiency and how it can be incorporated into their work	Establish local, targeted training and education for residential and commercial building professionals	Accessible and stackable trainings 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 upgrade	Increase in permit closures; Energy Savings
Workforce	Inadequately engaged workforce; lack of access to training	Establish local, targeted training and education for residential and commercial building professionals	Use low cost and easy access measures to get energy savings	Number of Contractors Trained; Increase in permit closures; Energy Savings

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 energy efficiency workforce. In the Phase I Gaps and Market Analysis of the California Energy Efficiency Coordinating Committee process, PG&E's WE&T presentation indicated that just 16 percent of its classes are residential in nature 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 energy performance even though 29 percent of its portfolio is for whole building programs. 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 2018 indicated no residential or multifamily classes in the tri-county region, with 55 in other parts of PG&E's territory. Considering the proportion of the housing stock needing to be upgraded to reach State goals of doubling the energy efficiency of buildings, it is clear that the tri-county region will need a much greater quantity of quality, active, and well-trained contracting companies.

Building professionals living and working in the 3C-REN territory face unique challenges given the dispersed nature of communities within the tri-county region. The region, and its building professional workforce, have historically struggled to fill key positions in energy efficiency, including the retrofit market and energy code compliant new construction. The 3C-REN WE&T activities will address these challenges through collaboration with existing providers, programs, apprenticeship-style learning, targeted management, technical trainings for building professionals, and integrated resources for design, installation, and compliance professionals.

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. However, this does not mean 3C-REN needs to remake energy efficiency training. 3C-REN will utilize existing best-in-the class resources and assist to better deliver those tools throughout the region. The 3C-REN will apply a holistic approach that will simultaneously strengthen the building workforce market while providing direct energy savings, streamline processes, and increase efficiency and efficacy with existing resources.

4. EM&V

As a new Program Administrator, the 3C-REN evaluation, measurement, & verification (EM&V) plan is still in an early formative stage and has not yet benefited from the coordination and planning of roadmap development with Energy Division (ED) and other Program Administrators. As 3C-REN further identifies its EM&V needs and develops a robust plan, they will join the existing EM&V framework to support ongoing efforts by ED and other Program Administrators.

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, working groups, Peer Coordination Groups, and stakeholder meetings. This evaluation work will be supplemented through 3C-REN's use of its own EM&V budget to conduct evaluations and market studies. The table 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 Program Administrator activities to ensure the greatest impact and value from any new studies. 3C-REN led EM&V efforts are tentatively proposed to verify the non-resource benefits of programs such as the Workforce Education & Training and Codes & Standards programs' efforts to promote best practices through market characterization and process evaluation.

The 3C-REN WE&T Program needs are informed by workforce survey results, workforce studies, and available information from other Program Administrators to help identify training and education needs, tools, resources, and the outreach necessary to encourage building professionals' increasing the number of energy efficiency projects and energy savings in the region.

Surveys of building professionals will include a needs assessment and provide information on access and use of education, trainings and mentoring. Training quizzes and surveys will test knowledge and request attendee feedback. Mentorships will enhance application of knowledge.

Collaboration with local non-governmental and trade organizations will provide an information exchange on workforce needs, especially in disadvantaged communities and those with large Spanish-speaking populations. This information will be used to guide future program strategy iterations to meet local needs. 3C-REN will coordinate and collaborate with staff at the CPUC during all phases of the studies in accordance with guidance in the most recent Energy Division & Program Administrator Energy Efficiency EM&V Plan, following the process for Commission Oversight of PA EM&V projects.

The following table shows a preliminary topic focus 3C-REN plans to explore:

Study Title/ Topic Focus	Objective	Timeframe
Training method effectiveness	Evaluate effectiveness of various training methods	Short-term
Engagement and training of HTR/DAC building professionals	Study and evaluate best methods for engagement and training of HTR/DAC building professionals	Short-term
Energy Advisor	Evaluate the process and delivery of the Energy Advisor mentoring offering	Mid-term

5. PILOTS

This program does not include pilots.

6. ADDITIONAL INFORMATION

6.a Design of Incentives to Customers or Implementers

The 3C-REN WE&T Program does not offer incentives to customers or implementers and the guidance in D.18.05.041 Section 2.2.1. on design of incentives is not directly applicable. The spirit of the WE&T program does align with the intent of such guidance to maximize the value of investment that all building professional stakeholders make in energy efficiency. By supporting workforce, education and training, 3C-REN aims to maximize the energy efficiency savings achieved by projects in the residential and commercial building sectors.

6.b Lighting Technologies

The 3C-REN WE&T Program is a non-resource program that does not offer incentives to customers or implementers for lighting technologies. The guidance in D.18.05.041 Section 2.2.2. on lighting technology is not directly applicable. The WE&T Program will support the workforce, education and training for all lighting technologies, encouraging above and to-code installations when appropriate.

6.c Workforce Issues and Quality Standards

Workforce quality and standards are foundational to 3C-REN WE&T Program. A lack of access to education and training, lack of awareness of available resources, and a general lack of awareness of code requirements and updates on either side of the permit counter contribute to low code compliance and enforcement in the tri-county region and statewide. Although the WE&T program is not an energy efficiency program involving installation and/or maintenance by building contractors and does not fit within the non-residential HVAC and lighting controls criteria proposed in the July 9, 2018 Ruling seeking comment on workforce quality requirements, the program design serves the similar goal of raising the level of workforce quality in the energy efficiency industry to achieve deeper and more lasting savings.

3C-REN intends for the WE&T program to follow the high-level guidance provided in D.18.05.041 Section 2.2.3. as much as is relevant to this type of program and possible within the region. Partnerships with job placement entities will be developed and harnessed to share trainings and resources targeted to over the counter stakeholders such as contractors, architects, and engineers. The coordination between 3C-REN's WE&T and C&S programs, in addition to work with Community Action groups for the RES DI program, will facilitate connections between well trained employees and industry firms. The code expertise necessary to facilitate others' understanding requires advanced experience in the field and does not directly lend itself to first source and placement experienced hiring for the C&S program itself. The barriers that impede the energy efficiency industry in the tri-county region are similarly limiting for the C&S program. The IOUs do not have energy center locations in the region and WE&T opportunities that provide the certifications and industry-specific needs to improve workforce quality standards are scant. The 3C-REN programs on whole are a much needed first step to start such improvements in this region.

6.d Metrics Referenced in D.15-10-028

3C-REN served a Compliance Filing of Attachment A Metrics of the County of Ventura on Behalf of 3C-REN, complying with the guidance in D.18.05.041 Section 2.3. to provide portfolio- and sector-level metrics. Metrics will be updated annually in accordance with CPUC guidance.

In addition to the standardized set of metrics provided by all PAs, 3C-REN has identified additional metrics to be tracked in annual reporting. The cross-cutting WE&T Program has metrics that overlap with the 3C-REN Residential and Codes and Standards Programs. Overlapping metrics include:

- Number of collaborations to jointly develop or share training materials or resources
- Number of participants by sector (residential and commercial)
- Number of partnerships that collaborate on events
- Number of energy efficiency projects related to training event participants in the last 12 months
- Percent of participation relative to eligible target population for curriculum (based on CSLB contractor database)
- Number and percent of total WE&T training program participants that meet the definition of disadvantaged worker

- Percent of applicable incentive contract spend by vendors with a demonstrated commitment to provide career pathways to disadvantaged workers.
- Number Career & Workforce Readiness (CWR) participants who have been employed for 12 months after receiving the training
- Number of closed permits
- Number of trainings by sector
- Increased knowledge (measured with exit quiz or survey)
- Percent increase in home performance/engaged building professionals, including HERS raters, participating in energy efficiency programs

3C-REN

Workforce Education & Training Supporting Documents

October 3, 2018

COUNTIES OF SAN LUIS OBISPO, SANTA BARBARA & VENTURA

3C-REN | TRI-COUNTY REGIONAL ENERGY NETWORK

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PROGRAM MANUALS AND PROGRAM RULES

1. Eligible Measures or Measure Eligibility

Energy efficiency measures are not included in the Workforce, Education and Training (WE&T) Program. Measure eligibility and measure lists are not applicable.

2. Customer Eligibility Requirements

Utility customers will not be a targeted population for this program. Customer eligibility requirements are not applicable.

3. Contractor Eligibility Requirements

The 3C-REN WE&T Program targets local building professionals needing more in-depth training, such as contractors, engineers, architects, designers, certified energy managers, local jurisdictions' building and safety department staff, lighting professionals, real estate professionals and raters. Building professionals targeted include those in DACs and HTR areas, as well as other key market actors to help build a complete workforce.

Licensed contractors performing building improvements impacted by code will be targeted (B, C2, C10, C20, C36, C39, etc.). Design-side stakeholders involved in building projects such as architects and project engineers. Building and specialty contractors throughout the 3C-REN territory will be targeted.

4. Participating Contractors, Manufacturers, Retailers, Distributors

The WE&T Program is not an upstream or midstream incentive program and does not have participating manufacturers, retailers, or distributors.

The program will target the collaboration of Workforce Investment Boards, economic development agencies, community colleges, local educational agencies, and other workforce partnerships. 3C-REN will draw upon existing relationships with the following groups and foster new relationships to support program goals.

List of Current and Potential Partners

- American Institute of Architects (local chapters)
- Builder Exchanges
- Building and Safety
- Chambers of Commerce
- Colleges
    - Cuesta College
    - Allan Hancock College
    - Santa Barbara City College
    - Moorpark College
    - Oxnard College
    - Ventura College
- Community Action Partnerships
- Community Action Commissions
- Community Development
- Community Services
- Contractor Associations
- Financing Programs/Providers
- Economic Development Agencies
- English as a Second Language Community Groups
- Environmental Organizations
- Housing Authorities
- Planning and Development
- Realtor Associations
- Workforce Investment Boards

5. Additional Services

Contractor Engagement

3C-REN will engage 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.

Building professionals will be drawn to the program by demand generated in the market through 3C-REN activities. Building professionals will have the opportunity to participate in local training events that may otherwise be cost prohibitive due to extended travel, lodging, and lost revenue.

Training

The 3C-REN WE&T program will actively fill gaps in current investor-owned utilities (IOU) offerings for the 3C-REN territory, as the region is far removed from IOU training and resource hubs. 3C-REN will address these needs with its training and education efforts, as well as provide program specific training for engaged local building professionals to help ensure quality work, greater energy savings, and compliance with codes and standards. The program is designed with emphasis on retrofitting residential buildings, including the vast majority built before 1978 and the current energy standards. It will also serve to educate builders in modern code and compliance verification concerns.

The 3C-REN territory has three primary needs for training and education:

- **Technical Training-** Code Compliance, Home Performance, and Zero Net Energy (ZNE)/ZNE-Ready preparedness.
- **"Soft Skills" Training**-To facilitate better communications, sales and marketing, and business management skills.
- **In-Field Training-** Local, in-person and onsite mentorship opportunities that provides building professionals with the hands-on experience need to incorporate energy efficiency practices into their businesses.

The majority of 3C-REN's WE&T curriculum will leverage the robust and extensive resources available via the IOUs, local community colleges, and other providers, when possible. If training gaps are identified, 3C-REN will consider developing new curriculum to fill the gap.

6. Audits

No measures will be installed for this program. Pre and post audits are not applicable.

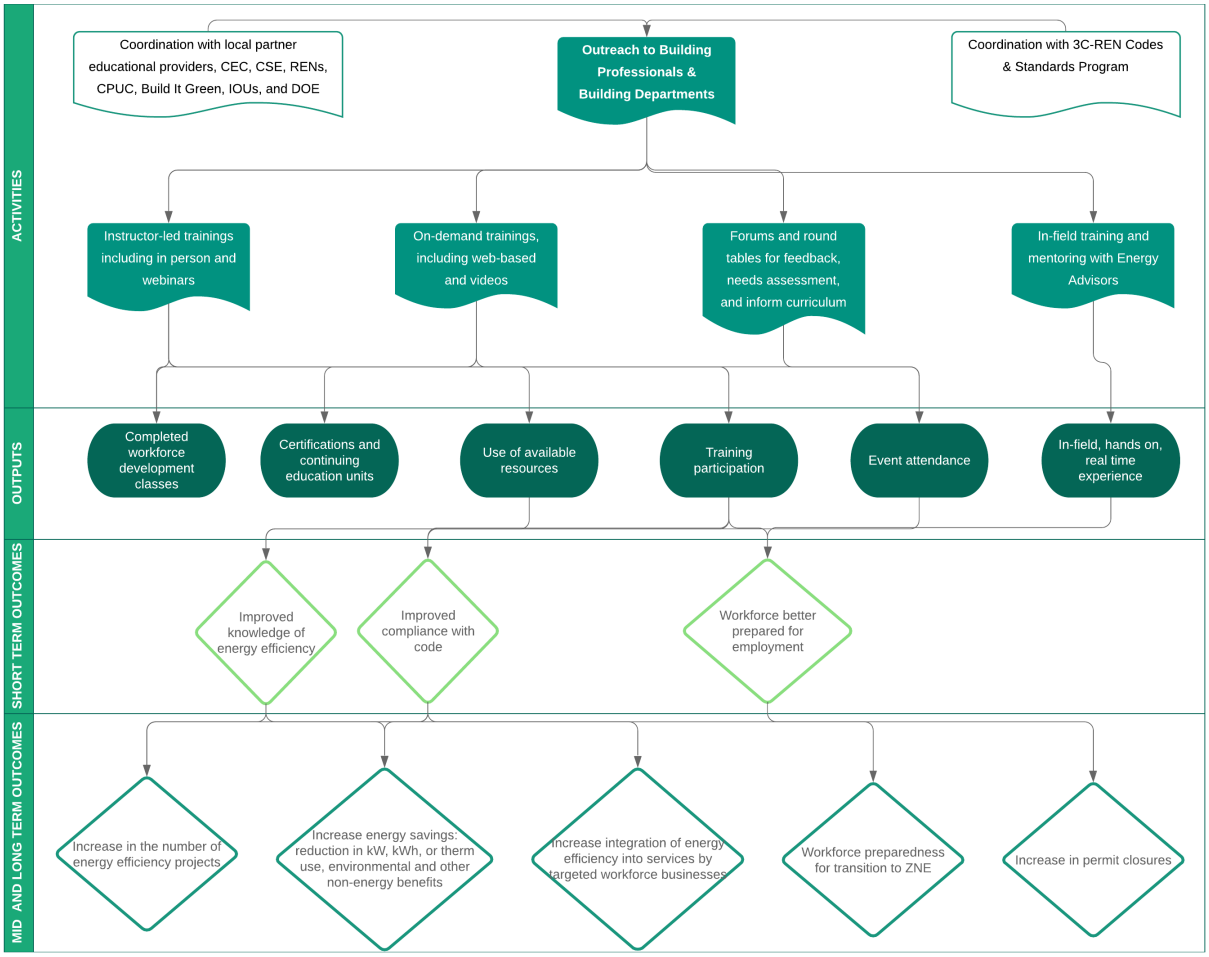
3C-REN will conduct evaluations following trainings and events to tailor future offerings and evaluate the retention of information provided.

7. Sub-Program Quality Assurance Provisions

The 3C-REN WE&T program does not include any measure installation. Quality assurance requirements, sampling rates, and quality assurance personnel certifications are not applicable.

PROGRAM LOGIC MODEL

Workforce, Education and Training Logic Model



PROCESS FLOW CHART

A process flow chart was not included for 3C-REN WE&T Program as there is no direct program process flow for the program. See the logic model and program diagram to see the linkages between program activities and the program theory.

INCENTIVE TABLES, WORKPAPERS, SOFTWARE TOOLS

The 3C-REN WE&T Program does not offer incentives, nor does it claim energy savings. Incentive tables, workpapers, and software tools are not applicable.

QUANTITATIVE PROGRAM TARGETS

As a non-resource program, 3C-REN WE&T relies on alternative metrics to energy savings to evaluate program accomplishments and track progress against goals. 3C-REN identified the following quantitative program targets during the Compliance Filing of Attachment A Metrics.

Targets	2019	2020	2021-2025
Number of collaborations by Business Plan sector to jointly develop or share training materials or resources.	TBD	TBD	TBD
Number of participants by sector[1]	110	120	505
Percent of participation relative to eligible target population for curriculum[2]	2.0%	2.1%	2.1% to 4.1%
Percent of total WE&T training program participants that meet the definition of disadvantaged worker.	TBD	TBD	TBD
Percent of applicable incentive contract spend by vendors with a demonstrated commitment to provide career pathways to disadvantaged workers.	TBD	TBD	TBD
Number of Career & Workforce Readiness (CWR) participants who have been employed for 12 months after receiving the training	TBD	TBD	TBD

[1] Participants by sector is 75% residential and 25% commercial contractors.

[2] To determine the eligible target population the sum of Class B, C-2, C-6, C-10, C-17, C-20, C-36 and C-46 licenses in San Luis Obispo, Santa Barbara and Ventura Counties was multiplied by a factor of 0.67 to account for contractors holding multiple licenses.

DIAGRAM OF PROGRAM

3C-REN Workforce, Education and Training Diagram

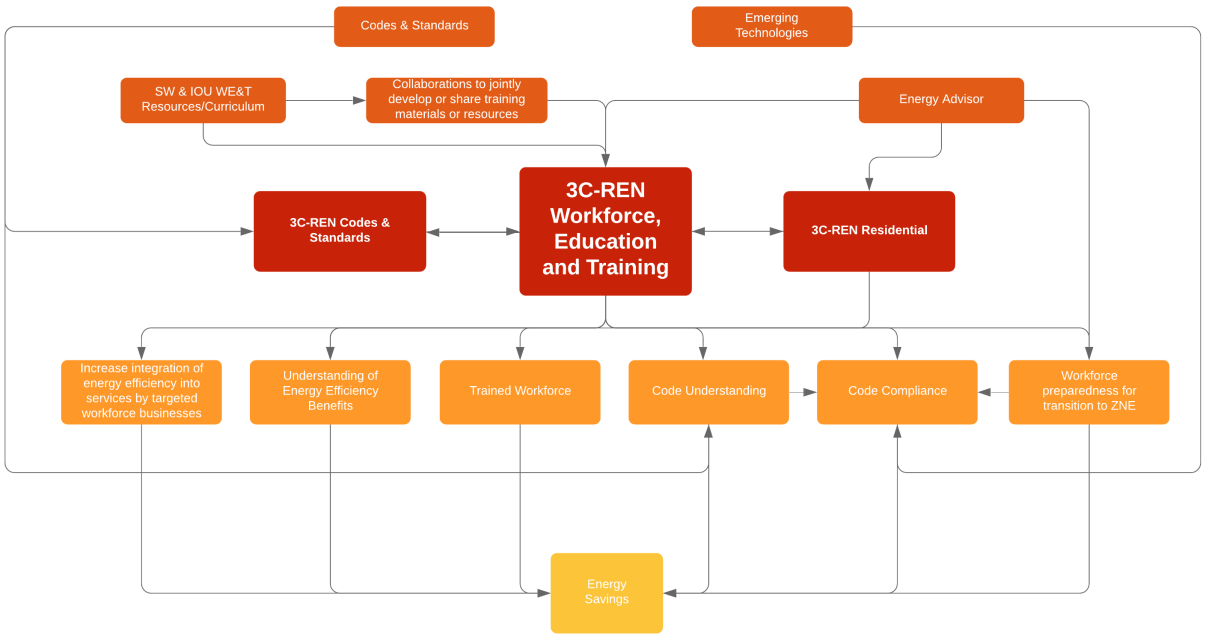


Exhibit D

Approved 2019 JCM of SoCalGas, PG&E, SCE, and 3C-REN Pursuant to D.18-05-41

Ronald van der Leeden
Director
Regulatory Affairs

555 W. Fifth Street, GT14D6
Los Angeles, CA 90013-1011
Tel: 213.244.2009
Fax: 213.244.4957
RvanderLeeden@semprautilities.com

August 1, 2018

Advice No. 5335
(Southern California Gas Company – U 904 G)

Advice 4001-G/5348-E
(Pacific Gas and Electric Company – U 39 M)

Advice 3835-E
(Southern California Edison Company – U 338 E)

Advice 1-E
(Tri-County Regional Energy Network)

Public Utilities Commission of the State of California

Subject: 2019 Joint Cooperation Memorandum (JCM) of SoCalGas, PG&E, SCE, and 3C-REN Pursuant to Decision (D.) 18-05-041

Purpose

Southern California Gas Company (SoCalGas), on behalf of Pacific Gas & Electric Company (PG&E), Southern California Edison Company (SCE), and Tri-County Regional Energy Network (3C-REN) hereby submits to the California Public Utilities Commission (Commission) the 2019 JCM, as shown in Attachment A, pursuant to Ordering Paragraph (OP) 38 of D.18-05-041.

Background

On June 5, 2018, the Commission issued D.18-05-041 which adopted the Energy Efficiency Business Plans of Investor-Owned Utilities (IOUs) and Non-IOU Program Administrators (PAs) for the years between 2018 and 2025. D.18-05-041 acknowledged the potential overlaps between IOU PAs and non-IOU PAs and directed PAs with overlapping service areas to submit annual JCMs that show how the PAs would avoid or minimize duplication for programs that address a common sector in overlapping service territories. Specifically, OP 38 of D.18-05-041 directed the IOU PAs and Non-IOU PAs to submit their first annual JCMs for approval via Tier

2 advice letters no later than August 1, 2018, noting that the IOU PAs and Non-IOU PAs shall:

(1) summarize all the programs they intend to run and indicate which programs may overlap;

(2) describe how each will work with the other so that customers are informed of all options and not steered simply to their own programs; and

(3) describe how each will ensure customers are also aware of the others' programs, where that administrator does not have a similar offering.

2019 Joint Cooperation Memo

Attachment A of this Advice Letter (AL) contains the 2019 JCM between SoCalGas, PG&E, SCE, and 3C-REN. The JCM provides (1) a summary of all the programs 3C-REN intends to run and indicates which programs may overlap with SoCalGas, PG&E, and SCE; (2) provides a summary of the coordination efforts between 3C-REN and SoCalGas, PG&E and SCE; (3) provides a summary of the IOU PAs 2019 comparable program offering, if applicable (Appendix A); and (4) provides details regarding 3C-RENs' program compliance with D.12-11-015.

The Joint PAs make note that the budgets and programs outlined in this memo are the best estimates of 2019 offerings at the time of submittal and are not assumed to be approved. Programs and budgets will be reviewed and approved as part of the Annual Budget Advice Letter (ABAL).

Protest

Anyone may protest this AL to the Commission. The protest must state the grounds upon which it is based, including such items as financial and service impact, and should be submitted expeditiously. The protest must be made in writing and must be received within 20 days of the date of this AL, which is August 21, 2018. The address for mailing or delivering a protest to the Commission is given below.

CPUC Energy Division
Attention: Tariff Unit
505 Van Ness Avenue
San Francisco, CA 94102

A copy of the protest should also be sent via e-mail to the attention of the Energy Division Tariff Unit (EDTariffUnit@cpuc.ca.gov). A copy of the protest should also be sent via both e-mail and facsimile to the address shown below on the same date it is mailed or delivered to the Commission.

For SoCalGas: Attn: Ray B. Ortiz
Tariff Manager - GT14D6
555 West Fifth Street
Los Angeles, CA 90013-1011
Facsimile No.: (213) 244-4957
E-mail: ROrtiz@SempraUtilities.com

For PG&E: Erik Jacobson
Director - Regulatory Relations
c/o Megan Lawson
Pacific Gas and Electric Company
77 Beale Street, Mail Code B13U
P.O. Box 770000
San Francisco, CA 94177
Facsimile No.: (415) 973-3582
E-mail: PGETarrifs@pge.com

For SCE: Gary A. Stern, Ph.D.
Managing Director – Statewide Regulatory Operations
Southern California Edison Company
8631 Rush Street
Rosemead, CA 91770
Telephone No.: (626) 302-9645
Facsimile No.: (626) 302-6396
E-mail: AdviceTariffManager@sce.com

And

Laura Genao
Managing Director, State Regulatory Affairs
c/o Karyn Gansecki
Southern California Edison Company
601 Van Ness Avenue, Suite 2030
San Francisco, CA 94102
Facsimile No.: (415) 929-5544
E-mail: Karyn.Gansecki@sce.com

For 3C-REN: Susan Hughes
Senior Deputy Executive Officer
Ventura County
800 S. Victoria Avenue
Ventura, CA 93009
Telephone No.: (805) 654-3836
Facsimile No.: (805) 654-5106
E-mail: susan.hughes@ventura.org

Effective Date

SoCalGas believes that this submittal is subject to Energy Division disposition and should be classified as Tier 2 (effective after staff approval) pursuant to General Order (GO) 96-B. Therefore, SoCalGas respectfully requests that this submittal be approved on August 31, 2018, which is 30 calendar days from the date submitted.

Notice

A copy of this AL is being sent to SoCalGas' GO 96-B service list and the Commission's service list in R.13-11-005 and A.17-01-013. Address change requests to the GO 96-B service list should be directed by e-mail to tariffs@socalgas.com or call 213-244-2837. For changes to all other service lists, please contact the Commission's Process Office at 415-703-2021 or by e-mail at process_office@cpuc.ca.gov.

_____

Ronald van der Leeden[1]
Director - Regulatory Affairs

Attachments

[1] SCE, PG&E and 3C-REN have authorized SoCalGas to sign and submit this advice letter on their behalf.

CALIFORNIA PUBLIC UTILITIES COMMISSION

ADVICE LETTER SUBMITTAL SUMMARY
ENERGY UTILITY

MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No. **SOUTHERN CALIFORNIA GAS COMPANY (U 904G)**

Utility type:
☒ ELC ☒ GAS
☐ PLC ☐ HEAT ☐ WATER

Contact Person: Ray B. Ortiz
Phone #: (213) 244-3837
E-mail: ROrtiz@semprautilities.com

EXPLANATION OF UTILITY TYPE
ELC = Electric GAS = Gas
PLC = Pipeline HEAT = Heat WATER = Water

(Date Submitted/ Received Stamp by CPUC)

Advice Letter (AL) #: 5335, et al.

Subject of AL: 2019 Joint Cooperation Memorandum (JCM) of SoCalGas, PG&E, SCE, and 3C-REN Pursuant to Decision (D.) 18-05-041

Keywords (choose from CPUC listing): Energy Efficiency

AL type: ☐ Monthly ☐ Quarterly ☒ Annual ☐ One-Time ☐ Other

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #:
D.18-05-041

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: No

Summarize differences between the AL and the prior withdrawn or rejected AL[1]: N/A

Does AL request confidential treatment? If so, provide explanation: No

Resolution Required? ☐ Yes ☒ No Tier Designation: ☐ 1 ☒ 2 ☐ 3

Requested effective date: 8/31/18 No. of tariff sheets: 0

Estimated system annual revenue effect: (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed[1]: N/A

Pending advice letters that revise the same tariff sheets: N/A

Protests and all other correspondence regarding this AL are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

CPUC, Energy Division
Attention: Tariff Unit
505 Van Ness Ave.,
San Francisco, CA 94102
EDTariffUnit@cpuc.ca.gov

Southern California Gas Company
Attention: Ray B. Ortiz
555 West 5th Street, GT14D6
Los Angeles, CA 90013-1011
ROrtiz@semprautilities.com
Tariffs@socalgas.com

[1] Discuss in AL if more space is needed.

ATTACHMENT A

Advice No. 5335, et al.

SoCalGas, PG&E, SCE, and 3C-REN
2019 Joint Cooperation Memorandum

(Appendix A - IOU(s) Portfolio Summary of Programs Offered for 2019)
(Appendix B - IOU Workforce Education and Training Class List)

ATTACHMENT A

SoCalGas, PG&E, SCE, AND 3C-REN
2019 JOINT COOPERATION MEMORANDUM

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I. 3C-REN PORTFOLIO SUMMARY OF PROGRAMS OFFERED FOR 2019

Table 1. 3C-REN Summary of programs

3C-REN Program Unique ID	Sector	Estimated Annual Budget[1]	Eligible Measures
3C-REN WE&T (3C-WET-001)	WE&T	$1,270,776	N/A
3C-REN C&S (3C-CC-001)	Codes and Standards	$1,796,749	N/A
3C-REN RES DI (3C-R-001)	Residential	$2,896,875	LED lighting, air sealing, insulation, HVAC measures, water flow controls, smart thermostat, power strip, plug load feedback device, duct system servicing, appliances, pool pumps, and water heating measures.[2]

II. SUMMARY AND COORDINATION OF 3C-REN AND SoCalGas, SCE, AND PG&E PROGRAMS OFFERED FOR 2019 THAT ARE COMPARABLE

A. 3C-REN Workforce, Education, and Training (WE&T) Program (3C-CC-001)

The 3C-REN proposes a cross-cutting WE&T program designed to fill gaps in current investor-owned utilities[3] (IOU) offerings for the 3C-REN territory, as the region is far removed from IOU training & resource hubs. The current IOU training and education programs require substantial travel to energy centers outside of the Tri-County area and are often not designed to meet the needs of local building professionals. The 3C-REN program will offer career pathways and enrichment by providing access to in-person trainings, mentorship opportunities and cross promotion of IOU workforce trainings, including hard-to-reach (HTR) workers and those in identified disadvantaged communities (DACs).

[1] Actual budget information will be provided in 3C-REN's Energy Efficiency Annual Budget Advice Letter filing on September 4, 2018.

[2] Please note that this is a preliminary list of measure types, and that the final measures will be provided in the program Implementation Plan.

[3] For the purposes of this Joint Cooperation Memo, the IOUs consist of SoCalGas, SCE and PG&E.

Building professionals living and working in the 3C-REN territory face unique challenges given the dispersed nature of communities within the Tri-County Central Coast Region. The region, and its building professional workforce, have historically struggled to fill key positions in energy efficiency, including the retrofit market and energy code compliant new construction. The 3C-REN WE&T activities will address these challenges through collaboration with existing providers, programs, apprenticeship-style learning, targeted management, technical trainings for building professionals, and integrated resources for design and compliance professionals.

The 3C-REN territory has two primary needs for training and education in addition to local, in-person mentorship:

- Technical Code Compliance, Home Performance and zero net energy (ZNE);
- "Soft Skills" Training for better communications, sales and marketing training and business management.

The 3C-REN will leverage established contractor and program relationships to provide technical trainings, Energy Advisor in-field job and installation mentoring, construction firm specific trainings and provide certification opportunities. The 3C-REN's partnerships and Residential Energy Advisor service provide a direct connection to the workforce, leverage and improve the existing labor force and provide apprenticeship-style trainings with real-time experience that business owners value most. This will set up a network of building professionals and connection to the workforce seeking training and career development.

The 3C-REN will apply a holistic approach to the market with highly targeted training events, using apprenticeship and mentoring style models to enhance the workforce within the 3C-REN territory. Workforce training will be real world reinforced while simultaneously influencing direct energy savings. As a result of a stronger workforce, building departments will increase efficiency and efficacy with existing resources.

The program budget for 3C-REN WE&T, 3C-WET-001 $1,270,776.

The program targets local building professionals needing more in-depth training, such as contractors, HVAC, engineers, architects, designers, certified energy managers, local jurisdictions' building & safety department staff, lighting professionals, real estate professionals, raters, including professionals in DACs and HTR areas, as well as other key market actors.

The 3C-REN's WE&T program is non-resource and will serve to support 3C-REN and IOU programs in the region by training the workforce that can deliver resource programs.

1. Comparable SoCalGas, SCE and/or PG&E Programs

Table 2: WE&T Program Comparison

WE&T	3C-REN	PG&E	SCE	SoCalGas
Non-Resource Program Name	3C-REN WE&T	PG&E WE&T Integrated Energy Efficiency Training (IEET) [4]	SCE WE&T IEET[5]	SoCalGas WE&T IEET [6]
Eligible Measures	N/A	N/A	N/A	N/A
Estimated 2019 Budget[7]	$1,270,776	$8,564,820	$4,480,729	$2,548,697
Target Audience	Local building professionals needing more in-depth training, such as contractors, HVAC, engineers, architects, designers, certified energy managers, local jurisdictions' building & safety department staff, lighting professionals, real estate professionals, raters, and professionals in DACs and HTR areas, as well as other key market actors.	Any person who designs, builds, maintains, plan checks, inspects, and/or operates buildings including engineers, architects, contractors, lighting designers, HVAC technicians, real estate professionals, building operators, facility managers, energy consultants, plans examiners, building inspectors, and more. Additionally, we support other organizations' instructors who are also training a similar audience.	Workforce needing technical residential, multi-family, and/or small business trainings at Energy Centers or online via simulcast or webinar.	Workforce related education and training to occupations supporting resource program sectors. Training will be conducted at Energy Center, alternative site locations and distribution channels in collaboration as appropriate with non-IOU sources, feasible for reaching target audiences.

[4] The C&S Compliance Improvement subprogram is also a comparable program. More information on this program is listed in Section B.
[5] The C&S Compliance Improvement subprogram is also a comparable program. More information on this program is listed in Section B.
[6] The C&S Compliance Improvement subprogram is also a comparable program. More information on this program is listed in Section B.
[7] Actual budget information will be provided in 3C-REN's 2019 Energy Efficiency Annual Budget Advice Letter filing on September 4, 2018.

Pacific Gas & Electric

The PG&E WE&T IEET subprogram (formerly Centergies) offers hundreds of technical workforce trainings per year with the goal of equipping a California workforce with the tools, resources, and skills to meet the State's climate goals. Appendix A includes a categorized list of the residential, multi-family, and/or small business trainings conducted in 2017 and 2018 to date as an illustration of our potential 2019 offerings in the three areas that appear of greatest interest to the 3C-REN—residential; multi-family, and small/medium business. Appendix A also includes a full list of approximately 250 WE&T training offerings in the same period.

Some of the classes listed in Appendix A are restricted to PG&E's physical Energy Centers in Stockton, San Ramon for food service, or San Francisco, due to the need to use large teaching props or laboratories. However, the majority of classes in Appendix A can be offered at off-site locations and/or via online simulcast or webinar, especially if a local organization will assist with marketing and outreach to ensure good attendance from the appropriate target audience, assuming that the instructor is willing and able to travel. PG&E's WE&T program also has an online learning platform, many of which are focused on residential construction and contractors. See Appendix A for a list of on-demand classes. Section B below also includes more information on additional Codes and Standards training provided by the IOUs.

PG&E also has a tool lending library with thousands of energy diagnostic tools available to borrow at no-cost. This offering addresses an up-front cost barrier faced by many small businesses and energy consultants. Tools are available to borrow at our Stockton and San Francisco Energy Centers. PG&E can ship the tool anywhere in California if the customer or 3C-REN covers shipping costs.

The PG&E WE&T team does not offer soft skills training such as interviewing skills, resume writing, etc. PG&E will coordinate with organizations that offer soft skills training as part of the Statewide Career and Workforce Readiness (CWR) program in 2019 (See Section 3 below).

PG&E WE&T does not offer the certifications listed in the 3C-REN Business Plan – BPI, HERS, or NATE; however, PG&E does support these certifications by providing classes that prepare students to take the tests and complete them successfully. Examples include PG&E's IHACI NATE Series, an 8-part class that prepare technicians to take the test. IHACI is an approved NATE testing proctor. Another example is PG&E's Combustion Safety and Depressurization class that prepares workers to take the BPI examination.

Southern California Edison

SCE WE&T Integrate Energy Education Training Program – [SCE-13-SW-010A]

The SCE Workforce WE&T Integrate Energy Education Training program (formerly Centergies), offer resources to help shape the future energy workforce through occupational, employer and technology focused workshops and seminars, along with workplace-based hands-on technical training. These programs aim to provide pathways and training for certifications and credentials in energy-related industries.

In addition to the trainings offered, the Foodservice Technology Center conducts standards-based equipment testing and evaluation that enhance commercialization of emerging energy efficient technologies and programs. These services are delivered with technical integrity and scientific rigor in order to ensure our partners stay competitive and maintain cost effectiveness.

The Energy Centers provide a host of other value-added customer programs and services such as the Tool Lending Library, tours, and on-site energy audits at no-cost to the customer.

Southern California Gas Company

SCG3729 - SoCalGas WE&T Integrated Energy Efficiency Training (IEET)

The SoCalGas WE&T Integrated Energy Efficiency Training (IEET) subprogram (formerly Centergies) will offer both technical and foodservice workforce trainings that can leverage 3C-REN local contacts to inform and equip workforce talent with skills to assist in meeting the State's energy and climate goals. Appendix A includes a list of trainings completed in 2017

The Workforce Education and Training (WE&T) Program contributes to the investor-owned utilities' (IOUs') energy efficiency goals by empowering customers and market actors with the knowledge to make energy reduction decisions. WE&T's primary target audience includes market actors who design, build, maintain, and operate buildings and building systems—engineers, technicians, building operators, designers, contractors, etc. Additionally, WE&T supports Post-secondary institution who are training future generations of the energy workforce by providing them energy efficiency, sustainability, and green career awareness materials and resources. Because these market actors have the potential to shape a building's energy use, WE&T teaches them how to recognize energy savings and GHG-reduction opportunities, and then provides them skills, tools, and resources to act upon those opportunities.

2. Coordination Protocol between Programs

The goal of coordination between 3C-REN and the IOU WE&T programs, including Local Government Partnerships[8], is to ensure that ratepayer funds deliver resources efficiently and effectively across the shared territories. With that in mind, the IOUs and 3C-REN will approach coordination with the goal of offering transparency through regular communication, efficiency through a collaborative approach to any shared resources, and support for the success of programs across the service area.

3C-REN aims to provide coverage not currently being provided by the IOUs, as well as services targeting hard-to-reach markets that may complement existing IOU resources. To ensure 3C-REN can meet these eligibility categories, the IOUs will provide 3C-REN with their list of available WE&T trainings including those in development stages. Whenever feasible, 3C-REN will leverage existing IOU curriculum and training by communicating training needs via email or in regular coordination meetings with IOU partners. A clear chain of communication and identified contacts will be exchanged for each program and/or sub-program.

IOUs will provide their list of trainings and trainings-in-development to 3C-REN on a quarterly basis and will include the following information:

- Class name(s)
- Description(s)
- Instructor name(s)
- Whether IOUs owns content (as opposed to licensing it)
- Mode of access and location (ex: in-person, training center/city, online)
- Class schedule (if one exists)

Once 3C-REN reviews this list, 3C-REN will determine which existing offerings are to be leveraged and coordinate with the IOUs to deliver these resources. If 3C-REN determines there is a training gap, 3C-REN will develop additional training resources and communicate that to the IOUs, working to avoid duplication by leveraging any existing resources. The IOUs and 3C-REN will administer a post-course evaluation to course participants to assess the quality of the courses.

[8] Local Government Partnership Programs in 3C-REN; Ventura County Regional Energy Alliance, San Luis Obispo County Energy Watch, North Santa Barbara Energy Watch Partnership and with South County Energy Efficiency Partnership in Santa Barbara.

3. Coordination between Statewide (SW) program(s)

With the change to a single statewide administrator for the Career and Workforce Readiness (CWR) and Career Connections subprograms in WE&T, and that administrator being PG&E, the 3C-REN proposes to leverage the coordination protocol described above to include any statewide considerations. The 3C-REN program does not include a traditional K-12 student component, so coordination on the Connections sub-program is likely not needed. PG&E will engage the 3C-REN after a vendor is secured for the CWR subprogram (likely late 2019 or early 2020) to discuss a coordination strategy.

B. 3C-REN CODES AND STANDARDS (C&S) PROGRAM 3C-CS-001

The 3C-REN proposes a cross-cutting C&S program designed to fill gaps in current IOU offerings for the 3C-REN territory. The 3C-REN program will offer local, person-to-person trainings and mentorship opportunities, as well as counter and on-call expert assistance for codes and standards. In addition to coordinating with the IOUs to leverage existing Statewide C&S resources, for classroom and online trainings, the 3C-REN will establish a Code Coach offering 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 and from the mechanical engineer to the plan checker, will be encouraged to attend trainings. The Code Coach approach, having local counter-to-counter and on-call experts for the region, will foster an environment where 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 and known code compliance resources.

The program budget for 3C-REN C&S, 3C-CS-001 shall be $1,796,749.

The target audience is all construction design-side stakeholders, including building departments, architects, field inspectors, mechanical engineers, and plan checkers. This is a non-resource program.

1. Comparable SoCalGas, SCE and/or PG&E Programs

The IOU Compliance Improvement subprogram targets actors within the building and appliance energy code supply chains to maintain comprehensive statewide compliance with energy codes and appliance standards, such as: manufacturers, distributors, retailers, architects, energy consultants, contractors, plans examiners, building inspectors, etc. Whereas the Energy Commission is responsible for implementing state policy by establishing new codes and standards, others (architects, energy consultants, mechanical engineers, IOUs, builders, contractors, etc.) are responsible for interpreting the code and completing compliance forms and building officials (CALBO) are responsible for enforcing the code. Building codes and appliance standards can be difficult to understand and time consuming to implement so some industry actors fail to comply with regulatory requirements.

Compliance improvement program needs are determined through a performance-based solutions approach to identify training, tools, resources and outreach necessary to narrow the gap between actual and desired performance, and principals of adult learning theory are employed to improve knowledge swings during training and increase long-term retention. Multiple training modalities are used to maximize student participation. One consistent curriculum is developed by the compliance improvement program and delivered statewide by a team of subject matter experts.

Table 3: C&S Program Comparison

C&S	3C-REN	PG&E	SCE	SoCalGas
Non-Resource Program Name	3C-REN C&S	Statewide C&S Compliance Improvement Subprogram	Statewide C&S Compliance Improvement Subprogram	Statewide C&S Compliance Improvement Subprogram
Eligible Measures	N/A	N/A	N/A	N/A
Estimated 2019 Budget[9]	$1,796,749	$4,044,129	$1,382,984	$251,207
Target Audience	All design-side stakeholders	All stakeholders impacted by the energy code	All stakeholders impacted by the energy code	All stakeholders impacted by the energy code

[9] Actual budget information will be provided in the Program Administrator's 2019 Energy Efficiency Annual Budget Advice Letter filing on September 4, 2018.

2. Coordination Protocol between programs

The same coordination protocol as mentioned above for WE&T applies to Codes and Standards classroom and online trainings. Again, the goal of coordination between 3C-REN and utility programs is to ensure that ratepayer funds deliver resources efficiently and effectively across the shared territories. With that in mind, the IOUs and 3C-REN will approach coordination with the goal of offering transparency through regular communication, efficiency through a collaborative approach to any shared resources, and support for the success of programs across the service area.

3C-REN aims to provide coverage not currently being provided by the IOUs, as well as services targeting hard-to-reach markets that may complement existing IOU resources. The majority of 3C-REN's activities are related to the Energy Code Coach who will conduct outreach to local building departments and market actors by offering on-demand, local, in-person and customized technical support, which will not require regular IOU coordination.

For other programs where 3C-REN is filling in a gap in IOU programs, the utilities will provide 3C-REN with their list of available Codes and Standards trainings including those in development stages. Whenever feasible, 3C-REN will leverage existing IOU curriculum and training by communicating training needs via email or in regular coordination meetings with IOU partners. A clear chain of communication and identified contacts will be exchanged for each program and/or sub-program.

IOUs will provide their list trainings to 3C-REN on a quarterly basis and will include the following information:

- Class name(s)
- Description(s)
- Instructor name(s)
- Whether IOUs owns content (as opposed to licensing it)
- Mode of access and location (ex: in-person, training center/city, online)
- Class schedule (if one exists)

Once 3C-REN reviews this list, 3C-REN will determine which existing offerings are to be leveraged and coordinate with the IOUs to deliver these resources. If 3C-REN determines there is a training gap, 3C-REN will develop additional training resources and communicate that to the IOUs, working to avoid duplication by leveraging any existing resources.

The IOUs will make the 3C-REN aware of resources available as courses are scheduled for delivery and new job aides (Energy Code Ace "resources") are

developed. A portion of the Statewide C&S Team's training schedule is set at the beginning of the year while the rest remains flexible since most courses are offered upon request as a result of the team's outreach efforts. All offerings are posted on the Energy Code Ace website training page as courses are scheduled.

3. Coordination between SW program(s)

The majority of 3C-REN's C&S activities are related to the Energy Code Coach who will conduct outreach to local building departments and market actors by offering on-demand, local, in-person and customized technical support, which will not require regular statewide coordination. However, the Code Coach may provide referrals to customers who will benefit from statewide programs.

There is an extensive list of classes offered by the Statewide Codes and Standards team. The statewide administrator will provide their list of trainings to 3C-REN on a quarterly basis and will include the following information:

- Class name(s)
- Description(s)
- Instructor name(s)
- Whether IOUs owns content (as opposed to licensing it)
- Mode of access and location (ex: in-person, training center/city, online)
- Class schedule (if one exists)

Once 3C-REN reviews this list, 3C-REN will determine which existing offerings are to be leveraged and coordinate with the statewide administrator to deliver these resources. If 3C-REN determines there is a training gap, 3C-REN will develop additional training resources and communicate that to the statewide administrator, working to avoid duplication by leveraging any existing resources.

Should the need to coordinate efforts arise, 3C-REN will follow similar protocols as defined under the coordination protocol between programs. Specifically, 3C-REN will work with the statewide administrator to identify appropriate program contacts, confirm existing resources, and collaboratively determine if resources should be jointly offered or if 3C-REN should build upon statewide resources.

C. 3C-REN RESIDENTIAL DIRECT INSTALL PROGRAM 3C-R-001

The 3C-REN proposed a residential direct install (RES DI) program designed to fill a gap in current IOU offerings for the 3C-REN territory, as the region is far removed from IOU training & resources hubs and experiences significant market confusion. 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 3C-REN program will deliver a direct install (DI) program that targets hard-to-reach (HTR) residential customers, including single family and multifamily, renters and owners, and Disadvantaged Communities (DACs) in Ventura, Santa Barbara and San Luis Obispo Counties, offering a single, unified program to regional residents.

The program will provide energy and behavior change education, installation of simple energy saving measures to build customers trust and interest and deliver a pathway to deeper savings by offering co-pay options for more substantial upgrades. 3C-REN will partner with local non-profits (e.g. Community Action Partnerships, or CAPs), who currently deliver the Energy Savings Assistance (ESA), Middle Income Direct Install (MIDI), and Low-Income Home Energy Assistance Programs (LIHEAP) to leverage their experience and infrastructure to provide 3C-REN program services to a broader audience than they currently serve.

Qualifying customers will receive an in-home visit from a trained assessor who will collect information on the home, provide consumer education. and install DI measures. Education will focus on behavioral changes and easy actions the customer can take to reduce energy use. The program will employ digital education tools such as energy education videos that customers can watch while DI measures are being installed to reduce time spent in the home. Assessors will also cross-promote utility bill management tools (e.g. Green Button) and demand response programs (e.g. SCE Summer Rate Program). Additionally, assessors will provide initial information on co-pay options for more substantial upgrades.

A WE&T and C&S overlay is included in this program as 3C-REN will work with local non-profit low-income providers to help build their staffing capacity and provide training, as well as code coaching for permitted projects. Some projects may also be used as hands-on, in the field training opportunities that will result in increased quality assurance. Partnering with local non-profit and low-income service providers also provides an opportunity to create career pathways for disadvantaged workers as many of the crew members and contractors live in the DACs that they serve.

The program budget for 3C-REN RES DI, (3C-R-001) shall be $2,896,875.

The 3C-REN Residential DI program will target hard-to-reach (HTR) residential customers, including single-family and multifamily, renters and owners, and moderate-income families not currently be served by, nor meet the criteria of current ESA, LIHEAP, or MIDI in Ventura, Santa Barbara and San Luis Obispo Counties.

This resource program will include measure types including lighting, air sealing, insulation, HVAC, water flow controls, smart thermostat, power strip, plug load feedback device, duct system servicing, appliances, pool pumps, and water heating measures.[10] 3C-REN is currently engaging IOUs and organizations that contract DI services to identify additional measures beyond those offered by ESA, MIDI, and LIHEAP that have potential to enhance service and savings, as well as overcome any administrative barriers that may inhibit successful delivery. Single measures will be allowed. Savings will be deemed per measure.

1. Comparable SoCalGas, SCE and/or PG&E Programs

Table 4: RES DI Program Comparison

DI	3C-REN	PG&E	SCE	SoCalGas
Resource Program Name	3C-R-001 Residential Direct Install	PGE210011 – Moderate Income Direct Install (MIDI) Program	SCEG-13-SW-001G - Residential Direct Install (formerly Energy Upgrade California – MIDI)	SCG9705 - SoCalGas MIDI Program
Eligible Measures	LED lighting, air sealing, insulation, HVAC measures, water flow controls, smart thermostat, power strip, plug load feedback device, duct system servicing, appliances, pool pumps,	LED lighting, water savings measures, HVAC tune-ups and efficiency retrofits, advanced power strips, and smart thermostats	• HVAC Measures (Efficient Fan Control, Brushless Fan Motor, Air Flow Adjustment, Condenser Coil Cleaning, Refrigerant Charge Adjustment, Duct Test and Seal, Window Evaporative Cooler) • Variable Speed Pool Pump • Residential Smart (Communicating) Thermostat	• Energy Education • Attic Insulation • Attic Insulation – R13 – Knee Wall • Exhaust Venting (Kitchen/Bath) – cut opening with vent (Done in conjunction with attic insulation) • Vent – Eave (Done in conjunction

[10] Please note that this is a preliminary list of measure types, and that the final measures will be provided in the program Implementation Plan.

DI	3C-REN	PG&E	SCE	SoCalGas
	and water heating measures.[11]			with attic insulation) • Duct Repair – (Done in conjunction with attic insulation) • Duct Testing • Duct Sealing • Duct Board Installation • Low Flow Kitchen Faucet Aerator • Low Flow Bathroom Faucet Aerator • Low Flow Showerhead • Low Flow Handheld Showerhead • Showerhead adaptor • Shower Diverter Valve (in conjunction with Low Flow Showerhead) • Thermostatic Shower Valve • Smart Thermostat • Natural Gas Appliance Testing (NGAT) (done in conjunction with Duct Sealing)
Estimated 2019 Budget[12]	$2,896,875	$3,000,000	$12,635,284	$2,000,000

[11] Please note that this is a preliminary list of measure types, and that the final measures will be provided in the program Implementation Plan.

[12] Actual budget information will be provided in the Program Administrator's 2019 Energy Efficiency Annual Budget Advice Letter filing on September 4, 2018.

DI	3C-REN	PG&E	SCE	SoCalGas
Target Audience	Will target hard-to-reach (HTR) residential customers, including single-family and multifamily, renters and owners, and moderate-income families not currently being served by, nor meet the criteria of current ESA, LIHEAP, or MIDI in Ventura, Santa Barbara and San Luis Obispo Counties.	The MIDI program serves moderate income and disadvantaged and/or hard-to-reach communities across the PG&E service territory. Eligible customers include those with incomes under 400% of the federal poverty level, renters and lessors, customers whose primary language is other than English, and customers residing outside of the San Francisco and Sacramento Metropolitan regions.	Residential single-family home customers within SCE's service territory	Mainstream, market rate homeowners. MIDI program in the Central Valley, incomes (201 to 300% of the federal poverty guidelines) just above the Energy Savings Assistance (ESA) program requirements.

Pacific Gas & Electric

PGE210011 – Moderate Income Direct Install (MIDI) Program

The MIDI program targets hard-to-reach and moderate income residential customers. Program outreach conducted both independently as well as through integration with the ESA Program to serve those customers who do not qualify for ESA because the customer's income level falls above the income guidelines or because the customer cannot produce the appropriate, ESA required documentation.

Through the MIDI program, the ESA Energy Efficiency Services ("EES") Contractors, and other approved contractors will serve these hard-to-reach and moderate income customers in order to avoid a missed opportunity to provide

energy efficiency services. MIDI customers will be offered an energy assessment, energy education, and low or no-cost installation of measures.

Southern California Edison

SCE Residential Direct Install (formerly Energy Upgrade California – Middle Income Direct Install [MIDI]) – [SCE-13-SW-001G]

The Residential Direct Install program targets single-family residential customers. The program allows customers to realize the value of energy efficiency through a variety of no-cost products and services to meet individual customer needs and enable continuous energy management. The services offered through the Residential Direct Install program are leveraged by various Water District agencies that deploy water conservation program offerings to deliver a comprehensive water energy nexus solution.

Target marketing is performed in select areas to create customer awareness and engagement. Customers are provided with education on the measures installed in their homes, other measures that could further improve their energy savings, and a general understanding about the importance of saving energy and the large impact everyday behavior has on conservation.

Southern California Gas Company

SoCalGas Middle Income Direct Install Program – Energy Upgrade California (SCG 3705)

The Middle Income Direct Install (MIDI) program is an extension of SoCalGas Energy Upgrade California (EUC) Program (SCG 3705) is a direct install program for customers whose income falls between 201% and 300% (changes pending) of the federal poverty guidelines. The Program works collaboratively with the ESA Program. The Whole Building Program traditionally requires significant financial contributions by customers who wish to participate. MIDI closes this financial gap by first installing no-cost measures thereby reducing the total amount of money a customer would need to invest in their property in order to participate in the Single Family SF/ Multifamily MF HUP Program. The MIDI Pilot encourages residential owners/property managers of SF and MF properties to install comprehensive EE improvements.

2. Coordination Protocol between Programs

As described for previous programs, the IOUs and 3C-REN will approach coordination with the goal of offering transparency through regular communication, efficiency through a collaborative approach to any shared resources, and support for the success of programs across the service area.

For its residential DI program, 3C-REN and the IOUs will communicate via email or in regular coordination meetings. A clear chain of communication and identified contacts will be exchanged for each program.

During program design and launch 3C-REN will review IOU program materials to identify potential coordination opportunities for Direct Install, including participation criteria, eligibility and measures. The IOUs will make the 3C-REN aware of resources available. 3C-REN will communicate with the program contact for any identified potential overlap or other area of potential coordination.

The IOUs will make the 3C-REN aware of programs and resources available. 3C-REN will determine whether resources, such as for low and moderate-income families, should be jointly offered or if the 3C-REN will build upon IOU resources to offer independently. This will assist with market penetration and afford both the IOU and 3C-REN cross promotion and continuity of services.

There may be instances where a customer may contact 3C-REN for resources, and 3C-REN may identify that the customer would be best served by an IOU program. 3C-REN and the IOUs will establish a protocol for customer handoff should either program identify a referral for another organization's resources. The handoff protocol should minimize the number of customer touchpoints to maximize the potential for program participation. Ideally, 3C-REN will be able to provide a "warm" or immediate handoff to the IOUs while the customer is actively engaged by email/phone, so that the customer experiences a seamless service offering between 3C-REN and the IOUs.

3. Coordination between SW program (s)

The 3C-REN residential DI program offering is not substantially similar to any statewide program and regular coordination to avoid duplication is deemed unnecessary. However, there are some portions of the program that may allow for and require coordination among programs. In particular, 3C-REN will provide referrals to statewide financing programs to program participants when appropriate. 3C-REN will follow similar established coordination protocols for coordination with utility programs to ensure coordination with statewide programs.

III. 3C-REN PROGRAM COMPLIANCE WITH D.12-11-015

A. 3C-REN UNDERTAKING ACTIVITIES THAT UTILITIES CANNOT OR DO NOT INTEND TO UNDERTAKE.

Although the IOUs do offer C&S and WE&T resources, the IOUs are not currently delivering localized, hands-on services in the 3C-REN service area. The majority of the IOU in-person trainings are offered at IOU training facilities, which are not located in 3C-REN service area. As noted in Decision (D.) 18-05-041 "3C-REN's proposed activities for WE&T and code compliance have value in terms of the significant distance of its service area to the IOUs' training centers."[13]

For WE&T, the 3C-REN program will offer regional, on-the-ground resources to address this gap. As noted in the 3C-REN Business Plan, "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." Specifically, the 3C-REN program will help build career pathways by providing access to in-person trainings and mentorships, including HTR workers and those in identified DACs. This will include local Energy Advisor services for in-field training to build capabilities and on-the-job skills, a service not offered by the IOUs. Separately, 3C-REN will offer in-person training on technical and soft skills, a service not offered locally by the IOUs.

For C&S, the 3C-REN will establish a regional Code Coach offering to run concurrent to and alongside other training efforts. This approach will be more hands-on and locally relevant than existing IOU resources. 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 and from the mechanical engineer to the plan checker, will be encouraged to attend trainings. The Code Coach approach, having local counter-to-counter and on-call experts for the region, will foster an environment where stakeholders have a deeper understanding of building performance and interrelated concerns.

[13] D.18-05-41, Finding of Fact 63.

B. 3C-REN UNDERTAKING PILOTS ACTIVITIES WHERE THERE IS NO CURRENT UTILITY UNDERTAKING, AND WHERE THERE IS A POTENTIAL FOR SCALABILITY TO A BROADER GEOGRAPHIC REACH, IF SUCESSFUL.

At this time, 3C-REN is not proposing a program using this threshold criteria for compliance with D.12-11-015. Instead, 3C-REN is proposing programs that both fill in gaps to IOU services and that target HTR markets.

C. 3C-REN UNDERTAKING PILOT ACTIVITIES IN HARD TO REACH MARKETS, WHETHER OR NOT THERE IS A CURRENT UTILITY PROGRAM THAT MAY OVERLAP.

As noted in Decision (D.) 18-05-041, the CPUC intends to "authorize 3C-REN's proposed business plan activities for residential direct install programs that target hard-to-reach customers."[14] Through its residential program, the 3C-REN program will deliver a DI program that targets hard-to-reach residential customers, including single family and multifamily, renters and owners, and DACs in Ventura, Santa Barbara and San Luis Obispo Counties. As noted in the Business Plan, "reported IOU residential savings in the Tri-Counties is not substantial" and "could be due the hard to reach elements on the geographic area and lack of ability to effectively reach customers consistently."

3C-REN aims to address this hard-to-reach market through its intervention strategies of "Strategy 1. Build trust and interest in energy savings over time," and "Strategy 2. Apply neighborhood approaches to achieve scale in reach and savings. Under the first strategy, activities will include offering a direct install program targeting hard-to-reach customers, as well as simple upgrade packages offered for cost to streamline easy installation and adoption of deeper retrofits in hard-to-reach customers. Under the second strategy, 3C-REN will deploy a neighborhood-based approach to engage hard-to-reach customers and integrate workforce development opportunities to build skills and community buy-in.

As noted in the Business Plan, "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." However, there may be instances where a customer may contact 3C-REN, but the customer would be best served by an IOU program. 3C-REN and the IOUs will establish a protocol for customer handoff.

[14] D.18-05-41, Conclusion of Law 54.

Table 5. 3C-REN CROSS-CUTTING & RESIDENTIAL D. 12-11-015 Compliance, by program

D.12-11-015 Threshold Criteria that apply for each program	Comparable IOU Program if applicable	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard to reach markets, whether or not there is a current utility program that may overlap.
3C-REN WE&T 3C-WET-001	PG&E Integrated Energy Efficiency Training (IEET) SCE WE&T IEET (SCE-13-SW-010A) SoCalGas WE&T IEET (SCG 3729)	Strategy 3. Establish local, targeted training for building professionals. • Local Energy Advisor for in-field training to build capabilities and on-the-job skills • In-person training, hosted locally, on technical and soft skills		
3C-REN C&S 3C-CS-001	Statewide C&S Compliance Improvement Subprogram	Strategy 4. Provide Regional assistance to Building Departments and Jurisdictions to help comply and adjust to Codes and future updates. • Local Energy Code Coach service to provide ongoing technical training for building departments		

3C-REN Residential DI 3C-R-001	PG&E Moderate Income Direct Install Program (PGE210011) SoCalGas EUC – SoCalGas Middle Income Direct Install (SCG 3702) SCE Residential Direct Install (Formerly Energy Upgrade California – MIDI) (SCE-13-SW-001G)			Strategy 1. Build trust and interest in deeper energy savings over time. • Offer Direct Install program targeting hard-to-reach customers • Develop simple upgrade packages to streamline and offer easy installation and adoption of deeper retrofits Strategy 2. Employ neighborhood approaches to achieve scale in reach and savings. • Integrate workforce development into neighborhood programs to build skills and community buy-in

APPENDIX A - IOU(s) PORTFOLIO SUMMARY OF PROGRAMS OFFERED FOR 2019

For information on IOUs portfolio of programs, please refer to the California Energy Data and Reporting System https://cedars.sound-data.com/programs/list/.

Table 1. PG&E Summary of Comparable Programs

IOU Program Unique ID	Sector	Annual Budget	Eligible Measures
PG&E Integrated Energy Education Training Program (formerly Centergies) **[PGE21071]**	Cross-cutting: WE&T	$8,564,820	Not applicable. Non-resource program
PG&E Compliance Improvement Program **[PGE21053]**	Cross Cutting: Codes & Standards	$4,044,129	Not applicable. Non-resource program
PG&E Energy Fitness (Middle Income Direct Install) **[PGE210113]**	Residential	$3,000,000	LED lighting, water savings measures, HVAC tune-ups and efficiency retrofits, advanced power strips, and smart thermostats

Table 2. SCE Summary of Comparable Programs

IOU Program Unique ID	Sector	Annual Budget	Eligible Measures
SCE WE&T Integrate Energy Education Training Program (formerly Centergies) **[SCE-13-SW-010A]**	Cross-cutting: WE&T	$4,480,729	Not applicable. Non-resource program
SCE C&S – Compliance Improvement **[SCE-13-SW-008C]**	Cross Cutting: Codes & Standards	$1,382,984	Not applicable. Non-resource program
SCE Residential Direct Install Program **[SCE-13-SW-001G]**	Residential	$12,635,284	HVAC Measures • Efficient Fan Control • Brushless Fan Motor • Air Flow Adjustment • Condenser Coil Cleaning • Refrigerant Charge Adjustment

			• Duct Test and Seal • Window Evaporative Cooler Variable Speed Pool Pump Residential Smart (Communicating) Thermostat

Table 3. SoCalGas Summary of Comparable programs

IOU Program Unique ID	Sector	Annual Budget[15]	Eligible Measures
SCG3729 - SoCalGas WE&T Integrated Energy Efficiency Training (IEET)	Cross Cutting	$2,548,697	Not applicable.
SCG3726 – C&S – Compliance Enhancement	Cross Cutting	$ 251,207	Not applicable.
SCG 3705 - SoCalGas Middle Income Direct Install Program	Residential	$2,000,000	• Energy Education • Attic Insulation • Attic Insulation – R13 – Knee Wall • Exhaust Venting (Kitchen/Bath) – cut opening with vent (Done in conjunction with attic insulation) • Vent – Eave (Done in conjunction with attic insulation) • Duct Repair – (Done in conjunction with attic insulation) • Duct Testing • Duct Sealing • Duct Board Installation • Low Flow Kitchen Faucet Aerator • Low Flow Bathroom Faucet Aerator • Low Flow Showerhead • Low Flow Handheld Showerhead • Showerhead adaptor

[15] Actual budget information will be provided in the Program Administrator's 2019 Energy Efficiency Annual Budget Advice Letter filing on September 4, 2018.

			• Shower Diverter Valve (in conjunction with Low Flow Showerhead) • Thermostatic Shower Valve • Smart Thermostat • Natural Gas Appliance Testing (NGAT) (done in conjunction with Duct Sealing)

Appendix B –IOU Workforce Education and Training Class List

PG&E Workforce Education and Training (WE&T) Class List

1. Classes in Alignment with 3C-REN Focus Areas, 2017 and 2018-to-date

The classes listed below are a subset of all PG&E trainings offered from January 1, 2017 to June 30, 2018. These trainings are aligned with 3C REN's business plan, which emphasized the need for residential, multi-family, and small-medium business trainings. The classes are organized into four categories—Building Envelope; Codes and Standards; HVAC- Residential; and Other, which includes zero net energy (ZNE), Renewables, Energy Simulation Software, and Water Efficiency.

A. Building Envelope
1. Advanced Framing for Energy and Resource Efficiency
2. Advanced Framing Saves Energy, Material and Labor: Rebuilding for Greater Comfort and Affordability
3. Air Sealing and Insulating Existing Homes
4. Air Sealing for an Efficient New Home
5. Air Sealing to Achieve Zero Net Energy - New Techniques and Applications
6. Building Science Principles for High Performance Residential Building Enclosures
7. Continuous Exterior Insulation & Moisture Management: Applied Building Science for Residential Building Enclosures
8. High Performance Crawl Spaces: A Practical Approach to Air Sealing and Insulating
9. High Performance Enclosures: Air Tight, Well-Insulated, Properly Ventilated - Rebuilding for Comfort, Efficiency, and Affordability
10. How to Design and Build High Performance Walls and Roofs
11. Thermal By-Pass, Quality Insulation Installation, Advanced Building Envelope - MI-BEST Series 5
12. Window Selection for New and Existing Homes

B. Codes and Standards
13. 2019 Title 24: Where We're Headed with the Residential Standards - (In-Person and Webinar)
14. Title 24 Proper Procedures for Charging Air Conditioners and Heat Pumps
15. Please see attached Energy Code Ace Standards Essentials Courses handout for list of courses offered statewide by the C&S Compliance Improvement Subprogram

C. HVAC/R
16. ACCA Manual D - Duct Design
17. ACCA Manual J - Equipment Sizing and Selection
18. Advanced ACCA Manual D
19. Air Conditioning and Heat Pump Refrigeration Module by IHACI: Sessions 1-4
20. Balanced Ventilation for High Performance Homes
21. Electric Module by IHACI: Sessions 1 - 2
22. Hands-on Blower Door Duct Testing and Combustion Appliance Safety for Laney College

23. HVAC/R New Hire Module by IHACI: Sessions 1 - 4
24. NATE Training Series by IHACI: Sessions 1-8
25. Optimizing Residential HVAC System Performance
26. Refrigerant Charge Verification - MI-BEST Series 3
27. Residential Heat Pumps: Quality Design and Installation
28. Residential Heating, Ventilation, and Air Conditioning (HVAC): Small Heat Pumps and Small Furnaces for High Efficiency and More Affordability

D. Other (Including ZNE, Renewables, Simulations, Water Efficiency)
29. ZNE: 2020 Is Just Around the Corner!
30. Best Practice Designs for Cost Effective Approaches to ZNE Commercial Building Enclosures
31. Design Thinking for Zero Net Energy - Rebuilding for Comfort, Efficiency, and Affordability
32. Solar PV: Technology and Valuation
33. Heat Pumps: Residential Applications and Comparison with Solar Energy Systems
34. CBECC-Res: Under the Hood
35. EnergyPro 7 Software for 2016 Title 24 Residential Compliance: Introduction Session & Intermediate/Advanced Session
36. Water Heaters Efficiency
37. Water, Energy and Time Efficient Hot Water Systems for New Homes - Rebuilding for Comfort, Efficiency, and Affordability
38. Electric Heat Pumps for Domestic Space and Water Heating: Applications and Considerations
39. CSD Engineering M&V Training
40. Air Flow Measures and Static Pressure - MI-BEST Series 2
41. Building Envelope and Duct Testing - MI-BEST Series 1
42. Building Pressures and Ventilation Verification - MI-BEST Series 4
43. Commissioning Residential Building Enclosures (In Person and Simulcast)
44. National Association of Realtors (NAR) Green Certification Workshop
45. Residential CEA Exam Preparation Workshop

2. **Full List of PG&E Classes, 2017 and 2018-to-date**

PG&E hosted the following classes between January 1, 2017 and June 30, 2018. Many were offered multiple times according to demand. PG&E offers internet or simulcast participation options for remote attendees in most circumstances unless the hands-on nature of the class prevents virtual instruction.

1. 0-10V Dimming: Technology, Techniques & Applications
2. 2016 Title 24 Part 6 Essentials - Nonresidential Standards Essentials for Architects
3. 2016 Title 24 Part 6 Essentials: Standards & Technology for Nonresidential Lighting
4. 2017 Food Service Forecast
5. 2018 Foodservice Forecast Seminar
6. 2019 Title 24: Where Were Headed with the Nonresidential Standards - Webinar
7. 2019 Title 24: Where Were Headed with the Residential Standards - Webinar
8. A Class for Control Freaks: Getting the Most from your Building Automation System
9. ACCA Manual D - Duct Design
10. ACCA Manual J - Equipment Sizing and Selection

11. Advanced ACCA Manual D
12. Advanced Framing for Energy and Resource Efficiency
13. Advanced Framing Saves Energy, Material and Labor Rebuilding for Greater Comfort and Affordability
14. Advanced Lighting Control Systems Case Studies
15. Advanced Lighting Control Systems: Hands-On Workshop
16. Advanced OpenStudio
17. Air Conditioning and Heat Pump Refrigeration Module by IHACI: Sessions 1-4
18. Air Distribution Module by IHACI: Sessions 1-4
19. Air Flow Measures and Static Pressure - MI-BEST Series 2
20. Air Sealing and Insulating Existing Homes
21. Air Sealing for an Efficient New Home
22. Air Sealing to Achieve Zero Net Energy - New Techniques and Applications
23. Airside Economizer: Design, Performance, and Commissioning
24. Airside Economizers: Design, Performance, and Commissioning
25. Allergens & Gluten Free: What You Need to Know
26. An Overview of the Commissioning Process for New and Existing Buildings
27. Annual Water Conservation Showcase
28. Applying State of the Art Commercial Kitchen Ventilation Technologies for Comfort and Performance
29. ASHRAE Guideline 36 Best of Class Sequences and Companion Functional Performance Tests for HVAC Systems
30. Balanced Ventilation for High Performance Homes
31. Basic Excel for Energy Auditors
32. Basic of Solar Electric Systems
33. Basics of Photovoltaic (PV) Systems for Grid-Tied Applications
34. Best Practice Designs For Cost Effective Approaches to ZNE Commercial Building Enclosures
35. Best Practices for Industrial Lighting
36. Best Practices for Lighting Audits
37. Best Practices for Lighting Retrofits
38. Best Practices for Outdoor Lighting
39. Best Practices in Residential Hot Water Heater Systems
40. BPI Combustion Safety and Depressurization
41. BPI Overview of Combustion Safety Testing
42. Build a Better Burger
43. Building Enclosures: Continuous Exterior Insulation, Thermal Continuity, and High R-Value Walls
44. Building Envelope and Duct Testing - MI-BEST Series 1
45. Building Pressures and Ventilation Verification - MI-BEST Series 4
46. Building Science Principles and Practice for Nonresidential Enclosures
47. Building Science Principles for High Performance Nonresidential Building Enclosures
48. Building Science Principles for High Performance Residential Building Enclosures
49. CALCTP Systems Course
50. Calculating Lighting Solutions
51. California Building Energy Code Compliance (CBECC-COM) Software for the 2016 Title 24 Energy Code Introduction and Simplified Geometry
52. California Department of Public Health, Food and Drug Branch
53. Cancelled: Heating Hot Water and Steam Systems: Design, Performance, and Commissioning
54. CBECC-Res: Under the Hood

55. Charles Eley: Design Professional's Guide to Zero Net Energy Buildings
56. Chilled and Condenser Water Systems: Design, Performance, and Commissioning Issues
57. CKV Diagnosis & Prevention
58. Clearing the Air on Kitchen Ventilation
59. Collaborative Partnering: How Teams Use this Structured Process to Manage Risk, Resolve Issues and Achieve Exceptional Outcomes on Projects
60. Combustion Safety and Depressurization
61. Commercial Food Service: LEED Loads and NZE
62. Commercial HVAC/R Introduction Module by IHACI: Sessions 1-4
63. Commercial Package Unit Advanced Diagnostics
64. Commercial PV Systems: Key Concepts and Best Practices in Design, Commissioning and Maintenance
65. Commercial Quality Maintenance and Installation of Economizers
66. Commissioning Residential Building Enclosures
67. Contemporary Ways to Design with Daylight
68. Continuous Exterior Insulation & Moisture Management: Applied Building Science for Residential Building Enclosures
69. Control Systems: Design, Performance, and Commissioning
70. Cooking with Combi: Better Tasting Food, Fast
71. CRAF Eden ROP Class
72. CSD Engineering M&V Training
73. Daylight Metrics - An Overview for Designers and Building Professionals
74. Demand Control Ventilation (DCV) and Variable Speed Fans
75. Design Health and Sustainability into Operations Webinar with Stanford and the Culinary Institute of America
76. Design High Efficiency Hot Water Systems for Commercial Foodservice
77. Design Thinking for Zero Net Energy - Rebuilding for Comfort, Efficiency, and Affordability
78. DIVA-for-Rhino Software Training: Computer Daylighting Analysis
79. DLC Advanced Lighting Control Systems Training
80. Electric Heat Pumps for Domestic Space and Water Heating: Applications and Considerations
81. Electric Heat Pumps for Domestic Space Heating: Applications and Considerations
82. Electric Module by IHACI: Sessions 1-4
83. ElumTools for Revit Software Training: Lighting Documentation and Simulation
84. Energy Audit Report Writing Workshop: Conveying Value to Customers
85. Energy Audit Skills: Tools, Data collection Techniques, & Calculations
86. Energy Audit Tool Kit Training
87. Energy Auditing Techniques for Small & Medium Commercial Facilities (3 Day Class)
88. Energy Efficiency for Data Centers: New Construction and Retrofit
89. Energy Efficient Design and Control of Chilled Water Plants
90. Energy Efficient Design and Retrofit of Laboratory Buildings
91. Energy Plus EMS Controls
92. Energy Plus for Energy Modeling Practitioners
93. Energy Plus for Energy Modeling Practitioners (2 Day Class)
94. Energy Storage Systems
95. EnergyPro 7 Software for 2016 Title 24 Nonresidential Compliance - Intermediate/Advanced
96. EnergyPro 7 Software for 2016 Title 24 Nonresidential Compliance - Introduction
97. EnergyPro 7 Software for 2016 Title 24 Residential Compliance - Intermediate/Advanced
98. EnergyPro 7 Software for 2016 Title 24 Residential Compliance - Introduction

99. Evaluating and Selecting Luminaires
100. Exhaust Hood Air Balance Training
101. Existing Building Commissioning Workshop Series
102. Fans, Ductwork, and Air Handling Components: Design, Performance, and Commissioning
103. Farm to Fork: Greener Restaurants
104. Farmer John's Class
105. Fast Track for Transitioning to Food Trucks
106. Financing Energy Projects
107. Financing Fundamentals for Energy Projects
108. Food Safety & Preventative Maintenance for Commercial Kitchens
109. Foodservice in Motion: Food Truck to Brick & Mortar
110. Gas Heating Module by IHACI: Session 1
111. Gas Heating Module by IHACI: Session 2
112. Graphic Representation of Data: Making Charts that Matter
113. Hands On Advanced Lighting Controls
114. Hands-on Blower Door Duct Testing and Combustion Appliance Safety for Laney College
115. Heat Pumps: Residential Applications and Comparison with Solar Energy Systems
116. Heating & Cooling Load Calculations and HVAC Equipment Sizing Using IESVE Software
117. Heating Hot Water and Steam Systems: Design, Performance, and Commissioning
118. Herspring Gibbs Training
119. High Dynamic Range Imaging for Assessing Human Visual Comfort and Evaluating Energy Efficiency Opportunities
120. High Performance Crawl Spaces: A Practical Approach to Air Sealing and Insulating
121. High Performance Enclosures: Air Tight, Well-Insulated, Properly Ventilated - Rebuilding for Comfort, Efficiency, and Affordability
122. Hot Water Design for Commercial Kitchens
123. How to Design and Build High Performance Walls and Roofs
124. How to Prepare a Control Intent Narrative (CIN) and Sequence of Operations (SOO) for Advanced Lighting Controls
125. How to Prepare a Lighting Control Intent Narrative and Sequence of Operations for Advanced Lighting Control Systems
126. How to Write the Owners Project Requirements (OPR) and Basis of Design (BOD) for Building Enclosure
127. How to Write the Owner's Project Requirements (OPR) and Basis of Design (BOD) for Lighting and Advanced Lighting Controls
128. HVAC Fundamentals: New Ideas for Novices (2 Day Class)
129. HVAC/R New Hire Module by IHACI: Sessions 1-4
130. IESVE Software Training for 2016 Title 24 Compliance for Nonresidential Buildings
131. Innovators Evening Lecture Series - CxI (Commissioning Investigations): Uncovering Energy Waste, Operational Issues and Other Offenses
132. Innovators Evening Lecture Series - What I Learned On My Summer Vacation; Crossing the US by Bicycle for Climate Action
133. Innovators Evening Lecture Series: WRNS Studio - Finding the Story Line with Clients for ZNE
134. Innovators Evening Lecture Series: Carbon Lighthouse - Buildings Matter: Tackling Climate Change through Efficiency Production
135. Innovators Evening Lecture Series: David Baker Architects - At the Frontiers of Sustainable Urban Housing
136. Innovators Evening Lecture Series: Larry Strain - Buildings and the Time Value of Carbon

137. Innovators Evening Lecture Series: Mary Ann Piette, The Future of Demand Response and Customer Load Flexibility
138. Innovators Evening Lecture Series: Meeting the Challenge of Integrating Electric Lighting and Daylighting in a High-rise Courthouse
139. Innovators Evening Lecture Series: Project Drawdown - A Comprehensive Plan to Reverse Global Warming
140. Innovators Evening Lecture Series: SERA and Cutler Anderson Architects Create a Landmark Federal Building in Downtown Portland
141. Innovators Evening Lecture Series: Solar + Storage for Resiliency
142. Inspecting Photovoltaic (PV) Systems for Code Compliance
143. Integrated Design for Projects of All Sizes and All Delivery Methods Case Studies of Successful Projects
144. Integrated Design Process: Overcoming Design and Management Challenges
145. Integrated Design Process: Project Goals and Metrics How to Establish Them, Assess Success and Keep on Track Through the Design Process
146. Integrated Design: Mastering the Project Management Process
147. Introduction Automation of Buildings and Industrial Facilities using PLCs
148. Lighting Basics
149. Lighting Controls: How Occupant Behavior Impacts Building Energy Performance and ZNE
150. Lighting for Commercial Foodservice
151. Lighting for Commercial Foodservice Seminar
152. Lighting Fundamentals
153. LIGHTING WELL: Implementing the WELL Building Standard
154. LightStanza Software Advanced Training
155. LightStanza Software Basic Training
156. Logic Diagrams and Control Sequences
157. Manitowoc Service School Class
158. Mastering the Craft of Sustainable Brewing
159. Mastering the Project Management Process
160. McDonald's Operational Best Practices Training
161. Microgrids: Basic Applications, Technologies, Value and Economics
162. Mission College Training
163. Model Water Efficient Landscape Ordinance (MWELO) and the New Normal for California Landscaping
164. Mr. Food Safety
165. Mr. Food Safety Class
166. NATE HVAC/R Support by IHACI: Sessions 1-4
167. NATE Training Series by IHACI: Sessions 1-8
168. National Association of Realtors (NAR) Green Certification Workshop
169. OpenStudio Launch Pad
170. Optimizing Residential HVAC System Performance
171. Passive Building - A Path to Zero: Principles, Standards & Local Case Study
172. Performance Foodservice Sales and Vendor Showcase
173. PG&E Rates and Tariffs: Essential Information for Energy Projects
174. Photovoltaic (PV) Site Analysis and System Sizing
175. Photovoltaic PV Site Analysis and System Sizing
176. Plug Load Workshop: The measurement and management of miscellaneous loads

177. Power, Energy and Therms: Fundamental Concepts, Monitoring Techniques and Load Disaggregation
178. Pro Reps West Amana Event
179. Programmable Logic Controllers (PLC) LEVELs 1-6: Industrial and Automated Controls (2-Day)
180. Pumps and Piping Systems: Design, Performance, and Commissioning
181. Pumps: Design, Performance, and Commissioning Issues
182. Putting Health and Wellbeing Research Findings into Practice
183. Putting the Kitchen of the Future to the Test
184. Putting the Kitchen of the Future to the Test
185. PV + Batteries: Integrating Storage with Grid-Tied Photovoltaic Systems
186. Radiant Cooling and Heating Systems for Large Commercial Buildings
187. RCx101: Identifying and Assessing Common Retro-Cx Opportunities
188. Reduce Downtime with an Equipment Care Plan
189. Refrigerant Charge Verification - MI-BEST Series 3
190. Residential CEA Exam Preparation Workshop
191. Residential Heat Pumps: Quality Design and Installation
192. Residential Heating, Ventilation, and Air Conditioning (HVAC): Small Heat Pumps and Small Furnaces for High Efficiency and More Affordability
193. Resilient Design for Buildings, Cities and Regions
194. Sacramento State University Training
195. San Francisco Environment Training
196. Savings By Design Energy Modeling Using EnergyPro Software
197. Savings By Design Energy Modeling Using IESVE Software
198. Setting Up a New Restaurant
199. Solar Jobs Fair 2017
200. Solar PV: Technology and Valuation
201. Solar Water Heating Advanced Commercial Systems
202. Solar Water Heating Systems
203. Southern Pride Seminar
204. Sustainability Beyond the Plate - Intro to Energy Efficiency
205. Sustainability Beyond the Plate - National Energy Education Development [NEED]
206. Sustainable Savings: How Buying the Right Equipment Can Save Water, Energy and Money Now and in the Future
207. System Diagram Workshop
208. The Kitchen Tune-Up: Look Under Your Restaurant's Hood for Energy & Water Savings
209. The Promise of Progress for Lighting and the Return to Design: Adapting to Change
210. The Science and Application of Circadian Lighting
211. Thermal By-Pass, Quality Insulation Installation, Advanced Building Envelope - MI-BEST Series 5
212. Title 24 Duct Installation Standards and Diagnostic Testing
213. Title 24 Part 6 Essentials - Mechanical and Electrical
214. Title 24 Part 6 Essentials - Nonresidential Standards Essentials for Architects
215. Title 24 Part 6 Essentials - Nonresidential Standards for Energy Consultants
216. Title 24 Part 6 Essentials - Nonresidential Standards for Plans Examiners and Building Inspectors
217. Title 24 Part 6 Essentials - Nonresidential Standards for Small Commercial AC Quality Installation Contractors
218. Title 24 Part 6 Essentials - Residential Standards for AC Quality Installation Contractors
219. Title 24 Part 6 Essentials - Residential Standards for Energy Consultants
220. Title 24 Part 6 Essentials - Residential Standards for Plans Examiners and Building Inspectors

221. Title 24 Part 6 Essentials - Residential Standards for Plans Examiners and Building Inspectors - Train the Trainers
222. Title 24 Part 6 Essentials - Standards and Technology for Office Lighting
223. Title 24 Part 6 Essentials - Standards and Technology for Residential Lighting
224. Title 24 Part 6 Essentials - Standards and Technology for Retail Lighting
225. Title 24 Proper Procedures for Charging Air Conditioners and Heat Pumps
226. Title 24: Where We're Headed with the 2016 Nonresidential Standards
227. Title 24: Where We're Headed with the 2016 Residential Standards
228. Togo's Training
229. Tools and Resources for Successfully doing Business with PG&E
230. True Service School Class
231. Understanding and Applying the M&V Concepts and Options of the International Performance Measurement and Verification Protocol (IPMVP)
232. Using Building Energy Simulation
233. Variable Air Volume (VAV) Systems: Design, Performance, and Commissioning
234. Variable Speed Drives (VSDs): Design, Performance, and Commissioning
235. Wasting Away: Food Waste Reduction for Restaurants
236. Water Audit Basics for Small to Medium Size Businesses
237. Water Efficiency for Food Service Training
238. Water Heaters Efficiency
239. Water Heaters: Their Evolution and How to Make the Right Choice for the Customer
240. Water, Energy and Time Efficient Hot Water Systems for New Homes - Rebuilding for Comfort, Efficiency, and Affordability
241. WE&T Operations Planning Meeting
242. What You Don't Know You Don't Know About Hot Water Systems
243. What You Need To Know Before NRA
244. What's in the Water?
245. Wind Energy + Storage for Commercial and Agricultural Applications
246. Window Selection for New and Existing Homes
247. Zero Net Energy Buildings and Beyond: Balancing Building and Grid Objectives
248. ZNE: 2020 Is Just Around The Corner!

SCE Workforce Education and Training (WE&T) Class List

3. Classes in Alignment with 3C-REN Focus Areas, 2017 and 2018-to-date

The classes listed below are a subset of all SCE trainings offered from January 1, 2017 to June 30, 2018. These trainings are aligned with 3C REN's business plan, which emphasized the need for residential, multi-family, and small-medium business trainings. The classes are organized into four categories—Codes and Standards; HVAC- Residential; and Other, which includes zero net energy (ZNE), Renewables, Sustainability, and Pumps and Water Delivery.

A. Codes & Standards
46. 2016 Title 24 Part 6 Essentials: Residential Standards - Plans Examiners & Building Inspectors
47. 2016 Title 24 Part 6 Essentials: Nonresidential Standards - Plans Examiners & Building Inspectors
48. Title 24 Part 6 Essentials: Residential Standards for Plans Examiners & Building Inspectors
49. Title 24 Part 6 Essentials: Residential Standards - Plans Examiners & Building Inspectors

50. Title 24: Where We're Headed with the 2016 Standards
51. Beginning EnergyPro 7 Nonresidential
52. Beginning EnergyPro 7 Residential
53. Advanced EnergyPro 7 Nonresidential
54. Advanced EnergyPro 7 Residential
55. HERS Advanced Rater Training Program: 2016 Title 24 Part 6 Residential Overview
56. 2016 Title 24 Part 6 Essentials - Nonresidential Standards for Small Commercial AC Quality Installation Contractors
57. 2016 Title 24 Part 6 Essentials - Residential Standards for AC Quality Installation Contractors
58. Title 24: Where We're Headed with the 2016 Standards- Irwindale
59. IES-VE Software Training for 2016 Title 24 Compliance for Nonresidential Buildings
60. Introduction to CBECC-Com Energy Modeling Software for Nonresidential Buildings using Simplified Geometry
61. Title 24: Where We're Headed with the 2019 Standards
62. HERS Advanced Rater Training Program: Building Energy Science I
63. HERS Advanced Rater Training Program: Building Energy Science II
64. IHACI: CA 2016 Title 24 Module Part 1
65. IHACI: CA 2016 Title 24 Module Part 2
66. CALGreen Title 24 Part 11
67. Office Lighting: Title 24 and Technology Update
68. Residential Lighting: Title 24 and Technology Update
69. 2016 Title 24 Part 6 Essentials: Residential Standards - Plans Examiners & Building Inspectors
70. 2016 Title 24 Part 6 Essentials: Nonresidential Standards - Plans Examiners & Building Inspectors
71. Title 24 Part 6 Essentials: Residential Standards for Plans Examiners & Building Inspectors
72. Title 24 Part 6 Essentials: Residential Standards - Plans Examiners & Building Inspectors

B. HVAC/R Systems & Technologies
73. Basic Heating, Ventilating and Air Conditioning (HVAC)
74. Residential and Light Commercial HVAC
75. IHACI: (CAQI/QM/QS) Gas Heating Module Part 1- Practical Fundamentals and Theory of Gas Heating
76. IHACI: (CAQI/QM/QS) Electrical Module Part 1 - Practical Fundamentals and Theory of HVAC/R Systems
77. IHACI: AC/HP Refrigeration Module Part 1 - Practical Fundamentals and Theory of the Refrigeration Circuit
78. HERS Advanced Rater Training Program: Manual J, D & S
79. IHACI: NATE Certification Training Series - Part 1 -2 (Core, Gas Heating, Air Conditioners & Heat Pumps, & Air Distribution)
80. IHACI: CA 2016 Title 24 Module Part 1 - 2
81. IHACI: (CAQI/QM/QS) Electrical Module Part 1 -4
82. IHACI: AC/HP Refrigeration Module Part 1 - 4
83. HERS Advanced Rater Training Program: Mobile Integrated Building Energy Science Training (MI-BEST) 5-Day Class
84. IHACI: (CAQI/QM/QS) Air Distribution Module Part 1 - 4
85. IHACI (CAQI/QM/QS) System Performance Module: Class 1 - 4
86. HERS Advanced Rater Training Program: HVAC System Airflow Analysis

87. HERS Advanced Rater Training Program: Hands-on Refrigerant Charge Measurement
88. HERS Advanced Rater Training Program: Quality Installation - High Efficiency Gas Furnace

C. Other (Including ZNE, Renewables, Sustainability, Pumps & Water Delivery, Water Efficiency)

89. SCE Pump Efficiency Testing & Best Practices for Water Operators
90. Outage Communication for Water Customers
91. Time-Of-Use Rates & Money Saving Strategies for Water Customers
92. California Friendly Landscape Training
93. Cooling Towers: Water- Energy Savings Opportunities
94. Pump Testing and Improving Your Pumping Plant Efficiency
95. Water Flush Deep Well Turbine Pump, Coliform in Wells, and Liners
96. LEED® Green Associate: Taking the First Step in Green Building Using LEED
97. GPro: Green Professional Building Skills Training - Fundamentals of Building Green
98. Zero Energy Accelerator Course with ILFI: Introduction
99. Zero Energy Accelerator Course with ILFI: Advanced (Residential)
100. HERS Advanced Rater Training Program: Building Energy Science I
101. HERS Advanced Rater Training Program: Building Energy Science II
102. Understanding California's High Performance Attics and Wall Requirements
103. Building Integrated Photovoltaics
104. Smart Inverter Setting Requirements Workshop (Webinar)
105. HERS Advanced Rater Training Program: Advanced Solar
106. All Things Renewable

4. **Full List of SCE Classes, 2017 and 2018-to-date**

1. SCE hosted the following classes between January 1, 2017 and June 30, 2018. Many were offered multiple times according to demand. 2016 Title 24 Part 6 Essentials - Nonresidential Standards for Small Commercial AC Quality Installation Contractors
2. 2016 Title 24 Part 6 Essentials - Residential Standards for AC Quality Installation Contractors
3. 2016 Title 24 Part 6 Essentials: Nonresidential Standards - Plans Examiners & Building Inspectors
4. 2016 Title 24 Part 6 Essentials: Residential Standards - Plans Examiners & Building Inspectors
5. 2018 Foodservice Forecast -Step into the Future
6. 24th Annual Water Conference General Session
7. Advanced EnergyPro 7 Nonresidential
8. Advanced EnergyPro 7 Residential
9. Advanced Lighting Control Systems for Specifiers
10. Advanced Power Quality
11. All Things Renewable *Updated for 2017*
12. Automatic Daylighting Controls Acceptance Testing For: Designers, Engineers, Architects, and Contractors (New Class)
13. Basic Heating, Ventilating and Air Conditioning (HVAC)
14. Basics of LED Technology
15. Beginning EnergyPro 7 Residential
16. Beginning EnergyPro 7 Nonresidential

17. Benchmarking Energy Use in Commercial Buildings
18. Beyond Efficient Lamps
19. Build A Better Burger
20. Building Integrated Photovoltaics
21. CALGreen Title 24 Part 11
22. California Advanced Lighting Controls Training Program AT Technician: Lighting Acceptance Test Technician Certification Course - 2 Day Workshop
23. California Advanced Lighting Controls Training Program AT Technician: Lighting Acceptance Test Technician Certification Course - Day 2 of 2
24. California Advanced Lighting Controls Training Program AT Technician: Lighting Acceptance Test Technician Certification Course - Day 2 of 2 Workshop
25. California Advanced Lighting Controls Training Program (CALCTP) Systems - (2 Day)
26. California Advanced Lighting Controls Training Program (CALCTP) Systems - (2 Day) DAY 2 OF 2
27. California Friendly Landscape Training
28. CKV Check Up - Diagnosis & Prevention
29. Commercial and Industrial HVAC PM and Troubleshoot
30. Cooling Towers: Water- Energy Savings Opportunities
31. Daylighting For Buildings
32. Demand Response and Institutional Tuning Lighting Controls Acceptance Testing For: Designers, Engineers, Architects, and Contractors (New Class)
33. Demand Response: Gain an Edge on Power Costs
34. Emergency Lighting: Codes, Circuits, Controls & Calculations
35. Energy Management Systems (EMS)
36. Enhanced Retrocommissioning (ERCx)
37. From Candles to LEDs - Getting to the Point
38. From Fluorescent to Induction - An Area of Lamp Efficiency
39. Fundamentals of Electricity and Energy Efficiency
40. GPro: Green Professional Building Skills Training - Fundamentals of Building Green
41. Grounding and Bonding
42. HERS Advanced Rater Training Program: 2016 Title 24 Part 6 Residential Overview
43. HERS Advanced Rater Training Program: Advanced Solar
44. HERS Advanced Rater Training Program: Building Energy Science I
45. HERS Advanced Rater Training Program: Building Energy Science II
46. HERS Advanced Rater Training Program: Hands-on Refrigerant Charge Measurement
47. HERS Advanced Rater Training Program: HVAC System Airflow Analysis
48. HERS Advanced Rater Training Program: Manual D
49. HERS Advanced Rater Training Program: Manual J
50. HERS Advanced Rater Training Program: Manual S
51. HERS Advanced Rater Training Program: Mobile Integrated Building Energy Science Training (MI-BEST) 5-Day Class
52. HERS Advanced Rater Training Program: Mobile Integrated Building Energy Science Training (MI-BEST) 5-Day Class (Day 2 of 5)

53. HERS Advanced Rater Training Program: Mobile Integrated Building Energy Science Training (MI-BEST) 5-Day Class (Day 3 of 5)
54. HERS Advanced Rater Training Program: Mobile Integrated Building Energy Science Training (MI-BEST) 5-Day Class (Day 4 of 5)
55. HERS Advanced Rater Training Program: Mobile Integrated Building Energy Science Training (MI-BEST) 5-Day Class (Day 5 of 5)
56. HERS Advanced Rater Training Program: Quality Installation - High Efficiency Gas Furnace
57. Hot Rebates and Cool Savings for Foodservice
58. HVAC Control Basics
59. IES-VE Software Training for 2016 Title 24 Compliance for Nonresidential Buildings
60. IHACI (CAQI/QM/QS) System Performance Module: Class 1 - Thermodynamics: Heat In Motion
61. IHACI (CAQI/QM/QS) System Performance Module: Class 2 - A Sub-System of the Building
62. IHACI (CAQI/QM/QS) System Performance Module: Class 3 - Heating System: Comfort with Energy Efficiency
63. IHACI (CAQI/QM/QS) System Performance Module: Class 4 - Cooling System: Comfort with Energy Efficiency
64. IHACI: (CAQI/QM/QS) Air Distribution Module Part 1 - Practical Fundamentals and Physical Properties of Air
65. IHACI: (CAQI/QM/QS) Air Distribution Module Part 2 - Practical Fundamentals and Theory of Proper Air Distribution Design
66. IHACI: (CAQI/QM/QS) Air Distribution Module Part 3 - Fundamental Theory and Techniques of Air Side Design and Installation
67. IHACI: (CAQI/QM/QS) Air Distribution Module Part 4 - Advanced Theory and Techniques of Air Side Design and Installation
68. IHACI: (CAQI/QM/QS) Electrical Module Part 1 - Practical Fundamentals and Theory of HVAC/R Systems
69. IHACI: (CAQI/QM/QS) Electrical Module Part 2 - Essential HVAC/R System Motor Theory for the Field Technician
70. IHACI: (CAQI/QM/QS) Electrical Module Part 3 - Different Electrical Components Found in the HVAC/R Industry
71. IHACI: (CAQI/QM/QS) Electrical Module Part 4 - Electrical Schematics: A Roadmap to Diagnosing a HVAC/R System
72. IHACI: (CAQI/QM/QS) Gas Heating Module Part 1- Practical Fundamentals and Theory of Gas Heating
73. IHACI: (CAQI/QM/QS) Gas Heating Module Part 2- Quality Installation, Maintenance, and Service of Gas Heating Systems
74. IHACI: AC/HP Refrigeration Module Part 1 - Practical Fundamentals and Theory of the Refrigeration Circuit
75. IHACI: AC/HP Refrigeration Module Part 2 - CAQI of Air Conditioning and Heat Pump Systems
76. IHACI: AC/HP Refrigeration Module Part 3 - CAQM of Air Conditioning and Heat Pump Systems
77. IHACI: AC/HP Refrigeration Module Part 4 - CAQS of Air Conditioning and Heat Pump Systems
78. IHACI: CA 2016 Title 24 Module Part 1

79. IHACI: CA 2016 Title 24 Module Part 2
80. IHACI: Chiller Module Part 1 - Fundamental Theory & Basic Operation of Commercial Chillers
81. IHACI: Chiller Module Part 2 - Installation, Operation and Service Practices of Commercial Chillers
82. IHACI: Commercial HVAC/R Introduction Module Part 1 - Why, What, and How of Properly Operating HVAC Systems
83. IHACI: Commercial HVAC/R Introduction Module Part 2 - HVAC Systems for Single Story Commercial Buildings
84. IHACI: Commercial HVAC/R Introduction Module Part 3 - Complex HVAC Systems for Commercial Buildings
85. IHACI: Commercial HVAC/R Introduction Module Part 4 - Built-up HVAC Systems for Commercial Buildings
86. IHACI: Cooling Tower Module Part 1 - Fundamental Theory & Basic Operation of Commercial Cooling Towers
87. IHACI: Cooling Tower Module Part 2 - Installation, Operation and Service Practices of Commercial Cooling Towers
88. IHACI: NATE Certification Training Series - Air Conditioners and Heat Pumps: Part 1 (Introduction)
89. IHACI: NATE Certification Training Series - Air Conditioners and Heat Pumps: Part 2 (Installation & Service)
90. IHACI: NATE Certification Training Series - Air Distribution: Part 1 (Introduction)
91. IHACI: NATE Certification Training Series - Air Distribution: Part 2 (Installation & Service)
92. IHACI: NATE Certification Training Series - Core: Part 1 (General Skills)
93. IHACI: NATE Certification Training Series - Core: Part 2 (Electrical Skills)
94. IHACI: NATE Certification Training Series - Gas Heating: Part 1 (Introduction)
95. IHACI: NATE Certification Training Series - Gas Heating: Part 2 (Installation & Service)
96. Integrating Photovoltaics Into the Building
97. Introduction to CBECC-Com Energy Modeling Software for Nonresidential Buildings using Simplified Geometry
98. Introduction to Lighting
99. Introduction to Programmable Logic Controllers: Energy Efficiency Applications
100. Kitchen Tune Up: Look under your Restaurant's Hood for Energy & Water Savings
101. LEED® Green Associate: Taking the First Step in Green Building Using LEED
102. Building Operator Certification - Level 1
103. Lighting Control Strategies and Devices
104. Lighting for Commercial Food Service
105. Office Lighting: Title 24 and Technology Update
106. Outage Communication for Water Customers - 1:00 PM - 2:00 PM
107. Outage Communication for Water Customers - 2:15 PM - 3:15 PM
108. PLC LEVEL 1: Industrial Electricity and Automated Controls (2-Day Workshop)
109. PLC LEVEL 2: Industrial Electricity and Automated Controls (2-Day Workshop)
110. PLC LEVEL 3: Industrial Electricity and Automated Controls (2-day class)

111. PLC LEVEL 4: Industrial Electricity and Automated Controls (2-day class)
112. PLC LEVEL 6: Industrial Electricity and Automated Controls (2-Day Workshop)
113. Power Quality 101
114. Practical Lighting Controls Acceptance Testing For: Designers, Engineers, Architects, and Contractors
115. Practical Lighting Controls Acceptance Testing For: Designers, Engineers, Architects, and Contractors (New Class)
116. Pump Testing and Improving Your Pumping Plant Efficiency
117. Residential and Light Commercial HVAC
118. Residential Lighting: Title 24 and Technology Update
119. SCE Pump Efficiency Testing & Best Practices for Water Operators
120. Shut-Off and Outdoor Lighting Controls Acceptance Testing For: Designers, Engineers, Architects, and Contractors (New Class)
121. Smart Inverter Setting Requirements Workshop (Webinar)
122. The Phenomenal LED (New Class)
123. Time-Of-Use Rates & Money Saving Strategies for Water Customers
124. Title 24 Part 6 Essentials: Residential Standards - Plans Examiners & Building Inspectors
125. Title 24 Part 6 Essentials: Residential Standards for Plans Examiners & Building Inspectors
126. Title 24: Where We're Headed with the 2016 Standards
127. Title 24: Where We're Headed with the 2019 Standards
128. Understanding California's High-Performance Attics and Wall Requirements
129. Variable Refrigerant Flow and Ductless Systems - Design and Application
130. Water Flush Deep Well Turbine Pump, Coliform in Wells, and Liners
131. Zero Energy Accelerator Course with ILFI: Advanced (Residential)
132. Zero Energy Accelerator Course with ILFI: Introduction

SoCalGas Workforce Education and Training (WE&T) Class List

1. Classes in Alignment with 3C-REN Focus Areas, 2017 and 2018-to-date

The classes listed below are a list of SoCalGas' trainings offered from January 1, 2017 to June 30, 2018. These trainings are aligned with 3C REN's business plan, which emphasized the need for residential, multi-family, and small-medium business trainings.

1. City of LA Code Training
2. Building Operator Certification (BOC) Class #1005 – Indoor Environmental Quality
3. IHACI - (CAQI/CAQM/CAQS) Natural Gas Heating Module Part 1 (ERC)
4. IHACI - (CAQI/CAQM/CAQS) Natural Gas Heating Module Part 2 (ERC)
5. IHACI - (CAQI/CAQM/CAQS) Natural Gas Heating Module Part 2 (ERC)
6. IHACI - (CAQI/CAQM/CAQS) Natural Gas Heating Module Part 2 (Chatsworth)
7. Navien NPE Premium Condensing Tankless Gas Water Heater Training (Irvine, CA)

8. Building Science: Best Practice Designs For Cost-Effective Approaches to ZNE Commercial Buildings
9. Restaurant Management Workshop
10. IHACI - (CAQI/CAQM/CAQS) Electrical Module Part 1 (ERC)
11. Understanding Boiler Basics
12. IHACI - (CAQI/CAQM/CAQS) Electrical Module Part 2 (ERC)
13. Building Operator Certification (BOC) Class #1006- Common Opportunities for Low-Cost Operational Improvement
14. IHACI - (CAQI/CAQM/CAQS) Electrical Module Part 3 (ERC)
15. IHACI - (CAQI/CAQM/CAQS) Electrical Module Part 4 (ERC)
16. Boiler Water Treatment for Energy Efficiency
17. IHACI - (CAQI/CAQM/CAQS) HVAC/R New Hire & Safety Module Part 1 (Chatsworth)
18. IHACI - (CAQI/CAQM/CAQS) HVAC/R New Hire & Safety Module Part 2 (Chatsworth)
19. Beyond the Flame: Maintenance 101
20. IHACI - (CAQI/CAQM/CAQS) HVAC/R New Hire & Safety Module Part 3 (Chatsworth)
21. 2017 SoCalGas/SCE LGP Program Kickoff Workshop
22. California's New 2016 Title 24 Standards
23. IHACI - (CAQI/CAQM/CAQS) HVAC/R New Hire & Safety Module Part 4 (Chatsworth)
24. Building Operator Certification (BOC) Class #1008- Operation & Maintenance Practices for Sustainable Buildings
25. IHACI - (CAQI/CAQM/CAQS) AC & Heat Pump Refrigeration Module Part 1 (ERC)
26. Flex Your Savings With Flexible Menus
27. IHACI - (CAQI/CAQM/CAQS) AC & Heat Pump Refrigeration Module Part 2 (ERC)
28. CA Friendly Landscape Book Signing
29. IHACI - (CAQI/CAQM/CAQS) AC & Heat Pump Refrigeration Module Part 3 (ERC)
30. IHACI - (CAQI/CAQM/CAQS) AC & Heat Pump Refrigeration Module Part 4 (ERC)
31. LA Steam Operator's License Training 3 Day Seminar Series: Part 1
32. LA Steam Operator's License Training 3 Day Seminar Series: Part 2
33. LA Steam Operator's License Training 3 Day Seminar Series: Part 3
34. LA Steam Operator's License Training 3 Day Seminar Series: Part 4 Steam Turbines
35. Energy Smart Landscapes Series: Session 1: Irrigation: Designing and Maintaining an Efficient System
36. IHACI - (CAQI/CAQM/CAQS) Air Distribution Module Part 1 (ERC)
37. IHACI - (CAQI/CAQM/CAQS) Air Distribution Module Part 2 (ERC)
38. IHACI - (CAQI/CAQM/CAQS) Air Distribution Module Part 3 (ERC)
39. IHACI - (CAQI/CAQM/CAQS) Air Distribution Module Part 4 (ERC)
40. Navien NPE Premium Condensing Tankless Gas Water Heater Training (Irvine, CA)
41. Bake It Until You Make It
42. Well and Pump Engineering - Gaining Efficiencies Through Technology
43. BROAD Chiller Operator & Safety Seminar (Attendance by Invitation Only)
44. IHACI - NATE HVAC/R Support Training, Part 1 (Four-Night Class) (Chatsworth) *** NEW CLASS***

45. IHACI - NATE HVAC/R Support Training, Part 2 (Four-Night Class) (Chatsworth) ***NEW CLASS***
46. IHACI - NATE HVAC/R Support Training, Part 3 (Four-Night Class) (Chatsworth) ***NEW CLASS***
47. IHACI - NATE HVAC/R Support Training, Part 4 NATE Certificate Exam (Chatsworth) ***NEW CLASS***
48. Nutrition Labeling and Allergens: What You Need to Know
49. Distributed Energy Resources (DG/CHP) A Clean & Efficient Way to Reduce Costs While Increasing Reliability
50. IHACI - (CAQI/CAQM/CAQS) System Diagnostics Part 1 (ERC)
51. IHACI - (CAQI/CAQM/CAQS) System Diagnostics Part 2 (ERC)
52. Cooling Tower Design & Operation
53. IHACI - (CAQI/CAQM/CAQS) System Diagnostics Part 3 (ERC)
54. IHACI - (CAQI/CAQM/CAQS) System Diagnostics Part 4 (ERC)
55. Cooling Tower Water Treatment Management for Energy Conservation
56. IHACI - Commercial HVAC/R Introduction Module (Four-Night Class) Part 1 (ERC) *NEW CLASS*
57. IHACI - Commercial HVAC/R Introduction Module (Four-Night Class) Part 2 (ERC) *NEW CLASS*
58. IHACI - Commercial HVAC/R Introduction Module (Four-Night Class) Part 3 (ERC) *NEW CLASS*
59. IHACI - Commercial HVAC/R Introduction Module (Four-Night Class) Part 4 (ERC) *NEW CLASS*
60. Save the Waste with Innovative Technology
61. Energy Smart Landscapes Series: Session 2: Storm Water: Managing Landscapes that Slow, Stop and Clean Storm Water and Runoff
62. 2016 Title 24 Part 6 Essentials: Residential Standards Plans Examiners & Building Inspectors
63. EnergyPro 7 Software for 2016 Title 24 Residential Compliance - Introduction
64. EnergyPro 7 Software for 2016 Title 24 Residential Compliance - Intermediate/Advanced
65. EnergyPro 7 Software for 2016 Title 24 Nonresidential Compliance - Introduction
66. EnergyPro 7 Software for 2016 Title 24 Nonresidential Compliance - Intermediate/Advanced
67. Fast Track for Transitioning Food Trucks
68. 2016 Title 24 Part 6 Essentials: Non - Residential Standards Plans Examiners & Building Inspectors
69. California's New 2016 Title 24 Standards
70. Mastering the Craft of Sustainable Brewing
71. Navien NPE Premium Condensing Tankless Gas Water Heater Training (Irvine, CA)
72. Natural Gas Engines Seminar
73. Building Operator Certification (BOC) - 1001A
74. Building Operator Certification (BOC) - 1001B
75. IHACI - NATE Training Class 1, CORE: General Skills (ERC)
76. Pizza Trends you Knead to Know
77. IHACI - NATE Training Class 2, CORE: Electrical (ERC)
78. IHACI - NATE Training Class 3, Gas Heating: Part 1 (ERC)
79. IHACI - NATE Training Class 4, Gas Heating: Part 2 (ERC)
80. Understanding Boiler Basics

81. IHACI - NATE Training Class 1, Core: General Skills (Chatsworth)
82. Building Operator Certification (BOC) - 1007
83. IHACI - NATE Training Class 2, Core: Electrical Skills (Chatsworth)
84. Food Safety Checklist: 2017 & Beyond
85. IHACI - NATE Training Class 3, Gas Heating: Part 1 (Chatsworth)
86. Energy Smart Landscapes Series: Session 3: Public Health: Designing and Maintaining Landscapes that Improve Public Well-being
87. IHACI - NATE Training Class 4, Gas Heating: Part 2 (Chatsworth)
88. Boiler Water Treatment for Energy Efficiency
89. IHACI - NATE Training Class 5, AC & Heat Pumps: Part 1 (ERC)
90. IHACI - NATE Training Class 6, AC & Heat Pumps: Part 2 (ERC)
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92. IHACI - NATE Training Class 7, Air Distribution: Part 1 (ERC)
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104. Clearing the Air Kitchen Ventilation Efficiency
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106. LA Steam Operator's License Training 3 Day Seminar Series (DAY 2)
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109. Broad Absorption Chiller Operation & Safety
110. Building Operator Certification (BOC) - 1005
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112. Energy Smart Landscapes Series: Session 4: Creating Landscapes that Create Livable Environments
113. Design & Construction of High Performance Walls & Roofs (*NEW SEMINAR*)
114. Building Operator Certification (BOC) - 1006

Exhibit E

Security Incident Response Provision

PROGRAMS AGREEMENT
EXHIBIT E

Security Incident Response Provisions

1. Nondisclosure of Customer Confidential Information

Customer Confidential Information is deemed to be Confidential Information under the Programs Agreement, except that the exceptions to the obligations of nondisclosure and non-use of Confidential Information in Section 15, "Confidential Information and Security Requirements", of this Programs Agreement shall not apply to Customer Confidential Information. Notwithstanding anything to the contrary in the Programs Agreement, County's nondisclosure obligations with respect to Confidential Information that is also Customer Confidential Information shall survive any expiration or termination of the Programs Agreement in perpetuity. County shall hold the Customer Confidential Information in confidence and meet requirements of Applicable Laws and Applicable Standards relating to the custody, care and integrity of data and information.

2. Expiration or Termination of Programs Agreement

Notwithstanding anything to the contrary in the Programs Agreement, upon the expiration or termination of the Programs Agreement, or at any time upon request of Utility, County shall, within fifteen (15) days, either: (a) deliver to Utility all Customer Confidential Information in any medium, including all copies or parts of the Customer Confidential Information, in possession of County, its Subcontractors, and any of their respective employees, agents, or representatives, or (b) destroy or render non-readable and incapable of reconstruction all Customer Confidential Information. If destroyed, the destruction shall be certified in writing by County. Following expiration or termination of the Programs Agreement, or a request from Utility as described in the preceding sentences, County, its Subcontractors, and their respective employees may not retain any copy of the Customer Confidential Information for any purpose, including in anticipation of audits or litigation.

3. Subpoena Notification

Notwithstanding anything the contrary in the Programs Agreement, unless prohibited by law or court order, County shall, within 2 business days of receipt of a subpoena for disclosure of any Customer Confidential Information, provide notice as set forth in the Programs Agreement so that Utility and County may engage in good faith discussions about the appropriate response to the subpoena; provided however, if Utility informs County that it will seek to quash or modify the subpoena, then County shall delay responding to the subpoena to permit Utility time to quash or modify the subpoena. Nothing herein is intended to preclude County from complying with the subpoena when and as required to do so by law or court order. Additionally, County will provide Utility with an annual report identifying whether it has received any subpoenas for disclosure of Customer Confidential Information, and, if so, the dates of same. The annual report will be furnished to Utility no later than January 15 of the next calendar year.

4. Right to Audit

County will maintain, for a period of five (5) years after final payment of the last invoice of the calendar year, complete records of compliance with the terms of this Exhibit. Utility reserves the right to audit and copy any applicable documents related hereto. Utility may, at its discretion, assign the audit and duplication rights of this paragraph to a governmental agency or entity operating under the authority of a governmental agency. Any limitations on the number, frequency, scope or conduct of audits in the Programs Agreement shall not apply to audits relating to Customer Confidential Information, nor shall any

audit relating exclusively to Customer Confidential Information count against any limitation on the number or frequency of other audits permitted under the Programs Agreement.

5. Security Incidents

(A) Security Incident Response Plan: County shall develop, implement and maintain a written plan and process for preventing, detecting, identifying, reporting, tracking and remediating Security Incidents ("Security Incident Response Plan" or "SIRP"). A Security Incident shall mean an event or set of circumstances that results in a reasonable expectation of a compromise of the security, confidentiality or integrity of Customer Confidential Information under County's control ("Security Incident"). Examples of Security Incidents include:

(1) Security breaches to County's network perimeter or to internal applications resulting in potential compromise of Utility data or information;

(2) Loss of physical devices or media, e.g., laptops, portable media, paper files, etc., containing Utility data;

(3) Lapses in, or degradation of, County's security controls, methods, processes or procedures;

(4) The unauthorized disclosure of Customer Confidential Information; and

(5) Any and all incidents adversely affecting Utility's or its Affiliates', as the case may be, information assets.

(B) SIRP General Requirements: County's SIRP will include Security Incident handling and response procedures, specific contacts in an event of a Security Incident, the contacts' roles and responsibilities, and their plans to notify Utility or its Affiliates, as the case may be, concerning the Security Incident. The SIRP must be based on and meet all requirements of the following:

(1) U.S. federal and applicable state laws, statutes and regulations concerning the custody, care and integrity of data and information. County shall ensure that its SIRP and its business practices in performing work on behalf of Utility comply with California's Information Practices Act of 1977, California Civil Code §§ 1798.80 et seq., which addresses the provision of notice to Utility or its Affiliates, as the case may be, of any breach of the security of Customer Confidential Information if it is reasonably believed to have been acquired by an unauthorized person.

(2) Utility information management and information security policies and procedures as made available to County upon County's request ("Utility Policies and Procedures").

(C) County Response to Security Incident. The following will apply in the event of a Security Incident:

(1) County will submit a Security Incident Report (SIR) to Utility or its Affiliates, as the case may be. In the case of SCE, County shall submit the SIR by e-mailing the report to AVERT@sce.com ***and*** calling AVERT at (626)543-6003 in accordance with SCE Policies and Procedures and Applicable Laws. The SIR shall be given promptly, and in no event no more than one business day, upon discovery of a Security Incident as required by Applicable Laws and keep Utility or its Affiliates, as the case may be, informed of developments and new information. In the case of SoCalGas, *County further agrees that any breach or any other security incident that has the potential to compromise SoCalGas data must be reported to the Sempra Energy Security Operations Center (SOC@sempra.com (858) 613-3278) within 24 hours of knowledge of the breach followed by a plan for remediation within 72 hours*

(2) At Utility's or its Affiliates', as the case may be, request, County will meet with Utility or its Affiliates, as the case may be, to discuss the cause of the Security Incident, County's response, lessons learned and potential improvements to County's system security processes and procedures.

(D) Compromise of Customer Confidential Information.

(1) Additional SIRP Requirements for Customer Confidential Information. With respect to any Customer Confidential Information in the possession or under the control of County, to protect Customer Confidential Information from unauthorized access, destruction, use, modification or disclosure, County shall:

(a) Develop, implement and maintain reasonable security procedures and practices appropriate to the nature of the information to protect Customer Confidential Information from unauthorized access, destruction, use, modification, or disclosure; and

(b) Develop, implement and maintain data privacy and security programs with administrative, technical, and physical safeguards appropriate to the size and complexity of the County's business and the nature and scope of County's activities to protect Customer Confidential Information from unauthorized access, destruction, use, modification, or disclosure.

(2) Notice Requirements for Customer Confidential Information. In the event of a Security Incident where Customer Confidential Information was, or is reasonably believed to have been, acquired by an unauthorized person, County shall immediately provide the SIR required by Section 5 (C) of this Exhibit. This SIR shall state that Customer Confidential Information may be involved, and shall describe the suspected nature of the Customer Confidential Information.

(E) SIRP Review. At Utility's or its Affiliates', as the case may be, request, County shall review the SIRP at least annually with Utility's or its Affiliates', as the case may be, designated representatives to identify updates, changes or potential improvements; and a process to document these changes within ninety (90) days of these changes.

(F) Document Retention. County shall maintain all documentation relating to Security Incidents, whether in written or electronic form, including their identification, processing and resolution, for five (5) years after final resolution of the Security Incident, including the final resolution of all claims arising out of the Security Incident.

Exhibit F

Computing System and Security Review Obligations

PROGRAMS AGREEMENT
EXHIBIT F

Computing System Access and Security Review Obligations

1. Computing System Access.

(A) If Utility determines Contractor requires access to Utility's Computing Systems in order to perform the work or services under the Programs Agreement (hereafter in this exhibit, "Services"), Utility may grant County access subject to the conditions in this Exhibit, but only for the purpose of County performing the Services in accordance with the terms of the Agreement.

(B) County represents, warrants and covenants that it and its employees, Subcontractors and agents shall only access Utility's Computing Systems as necessary to perform the Services in accordance with the terms of the Programs Agreement.

(C) County shall promptly identify in writing to Utility those County employees, Subcontractors and agents who will require access to the Computing Systems in order to perform the Services. County shall execute, and shall cause each of its employees, Subcontractors and agents to execute the Computing System Use Acknowledgment ("CSUA") form and any other documents Utility may deem reasonably necessary to ensure County's compliance with this Exhibit. Upon receipt by Utility Information Security of County's signed CSUA form, and any other documents Utility may reasonably require, with regard to each person requiring Computing Systems access, Utility may issue appropriate computer or e-mail accounts, passwords, or access authorizations to County and its personnel. County acknowledges that these authorizations are for the specifically identified individuals only, and County shall ensure that these authorizations shall not be shared or transferred among its or Subcontractors' or agents' personnel. County shall ensure that the Computing Systems, any accessed Utility information or data, any user accounts, passwords or any other access authorizations remain secure during County's access. All information and data retrieved during County's access to Utility Computing Systems are Confidential Information and subject to Section 15, "Confidential Information and Security Requirements", of this Programs Agreement.

(D) County shall be responsible for any breach of this Exhibit by its employees, Subcontractors or agents, or by any other person who obtained access to the Computing Systems directly or indirectly from County. County shall notify Utility immediately in the event County has reason to know or suspect that a breach of this Exhibit has occurred. Utility may immediately revoke County's, Subcontractors' or their agents' access to Utility Computing Systems. Such revocation shall not relieve County of its obligations to perform the Services in accordance with the terms of the Agreement.

2. Security Review.

County represents and warrants to Utility that it and its Subcontractors and agents each has taken all commercially reasonable steps necessary to maintain the confidentiality, integrity and availability of its own computing systems. Utility or its authorized representative shall have the right to examine County's and its Subcontractors' and agents' records and reports relating to their respective security policies, practices and procedures at any time. These include, without limitation, any internal, external or regulatory audit reports or reviews relating to the security of County's or its Subcontractors' or agents' computing systems, and their compliance with their respective security policies, practices and procedures. County represents and warrants that it has the authority to grant Utility and its authorized representatives access to its Subcontractors' and agents' records and reports.

Exhibit G

Tri-County and Sub-Contractors Time and Materials Hourly Rate Schedule

Exhibit G

3C-REN Staff Rates- FY 18-19

Entity	Position Title	FY 18.19 Rates
County of Ventura	Management Analyst II	$ 93.72
County of Ventura	Management Assist IV-C	$ 64.69
County of Ventura	Program Admin I	$ 72.91
County of Ventura	Program Admin II	$ 79.42
County of Ventura	Program Assistant	$ 67.07
County of Ventura	Program Management Analyst	$ 118.88
County of Ventura	Senior Program Administrator	$ 73.80
County of Ventura	Snr Deputy Executive Officer	$ 156.72
County of Ventura	Tech Spec IV-MB	$ 58.74
County of San Luis Obispo	Division Manager	$ 113.49
County of San Luis Obispo	Administrative Services Manager	$ 100.13
County of San Luis Obispo	Supervising Planner	$ 97.93
County of San Luis Obispo	Utility Coordinator	$ 91.28
County of San Luis Obispo	Accountant III	$ 84.19
County of San Luis Obispo	Student Intern	$ 40.06
County of Santa Barbara	Enterprise Ldr-Gen	$ 136.73
County of Santa Barbara	Enterprise Ldr-Gen	$ 130.87
County of Santa Barbara	Team/Project Ldr-Gen	$ 113.61
County of Santa Barbara	Dept Bus Spec II	$ 100.71
County of Santa Barbara	Dept Bus Spec II	$ 99.48
County of Santa Barbara	Dept Bus Spec I	$ 87.57

3C-REN Contractor Rates

Entity	Position Title	FY 18.19 Rates
Blue Point Planning	Principal Consultant	$ 175
Blue Point Planning	Senior Consultant	$ 165
Blue Point Planning	Assistant	$ 85
Frontier Energy	President	$ 285
Frontier Energy	Vice President / Sr. Director	$ 280
Frontier Energy	Director	$ 260
Frontier Energy	Sr. Manager / Engineering Manager	$ 230
Frontier Energy	Manager	$ 204
Frontier Energy	Sr. Engineer / Sr. Program Mgr	$ 184
Frontier Energy	Engineer / Program Mgr	$ 156
Frontier Energy	Sr. Program Consultant / Sr. Analyst	$ 143
Frontier Energy	Program Consultant / Analyst	$ 124
Frontier Energy	Sr. Program Coordinator / Sr. Technician	$ 104
Frontier Energy	Program Coordinator / Technician	$ 89
Frontier Energy	Administrative	$ 75

Exhibit H

Monthly Invoicing and Reporting Requirements

PROGRAMS AGREEMENT
EXHIBIT H

Monthly Invoicing and Reporting Requirements

1. 3C-REN Expenditure Reporting via monthly invoicing

   (a) 3C-REN will use the same IR Tool template at all levels of program implementation including contractors and sub-contractors to ensure that the same cost accounting treatment and principles are used for consistency, accounting transparency, and efficiency of the expenditure tracking, recording and invoice process.
   (b) 3C-REN will provide separate invoice reporting for each subprogram (Residential Direct Install, Codes & Standards, WE&T).
   (c) Invoices for 3C-REN portfolio EM&V activities will be separate and independent from program invoices.
   (d) Only costs incurred within the program year can be reported against the respective program year budget.
   (e) If overlay activities occurs amongst the various sub-programs, clear cost allocation to each sub-program budget is required (e.g., a single event intended to deliver for more than one sub-program, the Codes & Standards, WE&T or RES DI). Advanced discussion with the Lead Utility may be needed and can be achieved through a Coordination Committee mechanism.
   (f) Cost category allocation should be consistent with Decision D. 09-09-047 which provides guidance for the proper cost reporting allocations and requirements in the three cost categories, ADMIN, MKT, and DI.

2. Invoice Back-up Requirements for EE Projects Installations

   These requirements may change as program design changes or by updated reporting requirements from the Commission.

   (a) Dated customer project application data
   (b) Project ID, project scope and measure codes
   (c) Project and site data (measure types installed, measure description / code, installed address, customer name, service account number, IOU service territory, etc.)
   (d) Project completion documentation
   (e) Incentive Type: Direct Install, Co-Pay, Bundled Measures, Incentive Calculation, Total Incentive Amount, Check Number, Date Paid
   (f) Final KWh and Therms savings from installed measure
   (g) Name, address, and phone number of Contractor
   (h) Equipment purchase documentation which includes:
      a. Quantity of units purchased for qualified and eligible energy efficiency products;
      b. Vendor / Supplier invoice for equipment purchase;

c. Equipment Specification Sheet
d. Equipment price

(i) Signed customer authorization form or statement for incentive payment made to a Third-Party other than the customer when applicable
(j) Permit Number (if applicable and as required by law)
(k) Safety Test summary documentation and results when test is required

3. Codes & Standards and WE&T Invoice Support Requirements for Training Events

When applicable, 3C-REN will provide date, location, attendee sign-in sheet, and educational materials as supporting documents.

4. Media Buy

(a) 3C-REN will provide vendor or supplier invoice for the purchased services, printed media, radio, TV or social media.
(b) A copy of final printed media, voice message or video clip should be provided as support.

Exhibit I

Maximum Contract Sum and IOU Maximum Contribution

Exhibit I

Maximum Contract Sum

1.0 2019 3C-REN Authorized Budget and IOU Maximum Contribution

The following table represents the approved 3C-REN budget for 2019 and 2019 IOU maximum contribution under this Programs Agreement:

2019 3C-REN Authorized Budget		2019 IOU Maximum Contribution		
3C-REN Cost Category	**3C-REN**	**PG&E**	**SCE**	**SoCalGas**
Admin	$ 621,292	$ 283,309.15	$ 213,724.45	$ 124,258.40
Marketing & Outreach	$ 372,775	$ 169,985.40	$ 128,234.60	$ 74,555.00
Direct Implementation	$ 3,951,883	$ 1,802,058.65	$ 1,359,447.75	$ 790,376.60
Direct Install	$ 249,600	$ 113,817.60	$ 85,862.40	$ 49,920.00
Incentives	$ 768,850	$ 350,595.60	$ 264,484.40	$ 153,770.00
3C-REN Total:	$ 5,964,400	$ 2,719,766.40	$ 2,051,753.60	$ 1,192,880.00
EM&V:3C-REN	$ 79,028	$ 31,164.00	$ 34,196.00	$ 13,668.00
Total:	**$ 6,043,428**	**$ 2,750,930.40**	**$2,085,949.60**	**$ 1,206,548.00**
Residential DI	**3C-REN**	**PG&E**	**SCE**	**SoCalGas**
Admin	$ 161,536	$ 73,660.42	$ 55,568.38	$ 32,307.20
Marketing & Outreach	$ 96,922	$ 44,196.43	$ 33,341.17	$ 19,384.40
Direct Implementation	$ 1,619,968	$ 738,705.41	$ 557,268.99	$ 323,993.60
Direct Install	$ 249,600	$ 113,817.60	$ 85,862.40	$ 49,920.00
Incentives	$ 768,850	$ 350,595.60	$ 264,484.40	$ 153,770.00
Residential Total:	**$ 2,896,876**	**$ 350,595.60**	**$ 264,484.40**	**$ 153,770.00**
WE&T	**3C-REN**	**PG&E**	**SCE**	**SoCalGas**
Admin	$ 186,388	$ 84,992.93	$ 64,117.47	$ 37,277.60
Marketing & Outreach	$ 111,832	$ 50,995.39	$ 38,470.21	$ 22,366.40
Direct Implementation	$ 972,556	$ 443,485.54	$ 334,559.26	$ 194,511.20
WE&T Total:	**$ 1,270,776**	**$ 579,473.86**	**$ 437,146.94**	**$ 254,155.20**
Codes & Standards	**3C-REN**	**PG&E**	**SCE**	**SoCalGas**
Admin	$ 273,368	$ 124,655.81	$ 94,038.59	$ 54,673.60
Marketing & Outreach	$ 164,021	$ 74,793.58	$ 56,423.22	$ 32,804.20
Direct Implementation	$ 1,359,359	$ 619,867.70	$ 467,619.50	$ 271,871.80
C&S Total:	**$ 1,796,748**	**$ 819,317.09**	**$ 618,081.31**	**$ 359,349.60**

2.0 2020 3C-REN Authorized Budget and IOU Maximum Contribution

To be determined by future Commission approval

3.0 2021 3C-REN Authorized Budget and IOU Maximum Contribution

To be determined by future Commission approval

4.0 2022 3C-REN Authorized Budget and IOU Maximum Contribution

To be determined by future Commission approval

5.0 2023 3C-REN Authorized Budget and IOU Maximum Contribution

To be determined by future Commission approval

6.0 2024 3C-REN Authorized Budget and IOU Maximum Contribution

To be determined by future Commission approval

7.0 2025 3C-REN Authorized Budget and IOU Maximum Contribution

To be determined by future Commission approval

Exhibit J

Energy Efficiency Policy Manual Version 5 July 2013

R.09-11-014

ENERGY EFFICIENCY POLICY MANUAL

Version 5
July 2013

Applicable to post-2012 Energy Efficiency Programs

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ENERGY EFFICIENCY POLICY MANUAL Version 5.0
FOR POST-2012 PROGRAMS

i. Introduction

This document presents the California Public Utilities Commission's (Commission) policy rules and related reference documents for the administration, oversight, and evaluation of energy efficiency programs funded by ratepayers in California. The purpose of the Energy Efficiency Policy Manual is to provide the most up to date list of the rules established by Commission Decisions and Resolutions that govern the administration of energy efficiency programs. This manual enumerates standing Commission directives that continue to apply to the current portfolio even as subsequent decisions supersede past directives. Version 5.0 shall apply to all energy efficiency activities commencing in program year (PY) 2013 and beyond. The policy rules, terms and definitions contained herein pertain to efficiency activities funded through the following mechanisms:

- The gas public purpose program (PPP) surcharges, as authorized by §890-900.
- Electric procurement rates, as authorized by the Commission.

The rules in this policy manual, unless specifically indicated, apply to all the following entities: the investor-owned utilities (IOUs), Community Choice Aggregators (CCA), and Regional Energy Networks (RENS) that are funded through the mechanisms above. This manual applies to the four IOUs:

- Pacific Gas and Electric Company (PG&E),
- Southern California Edison Company (SCE),
- San Diego Gas & Electric Company (SDG&E) and
- Southern California Gas Company (SoCalGas).

Chapter III applies to the following CCA and RENs:

- Marin Energy Authority (MEA),
- San Francisco Bay Area Regional Energy Network (BayREN), and
- Southern California Regional Energy Network (SoCalREN)

The rules in this manual do **not** currently apply to:

- Energy Savings Assistance Programs for low income customers
- California Alternative Rates for Energy (CARE) for low-income customers
- Interruptible rate or load management programs
- Self-generation and demand-response programs developed in response to AB970 (§ 399.15(b)).

This document supersedes all previous versions of the Energy Efficiency Policy Manual. The Commission's policy rules ("Rules") enumerate Commission directives that apply on an ongoing basis to the current and future energy efficiency portfolios, commencing in 2013. While this manual does not include all Commission directives that are specific to the current portfolio cycle. Commission directives that are not included in this manual still apply.

ii. Common Terms and Definitions

Common terms and definitions will facilitate the administration and evaluation of energy efficiency activities. In particular, program definitions should be designed to facilitate to the extent possible: (1) the identification of energy efficiency activities by end-use savings potential, (2) the evaluation, measurement and verification (EM&V) of those activities based on Commission-adopted EM&V protocols, and (3) the coordination of program administration and evaluation with resource planning and procurement needs. To this end, all entities subject to these rules and all program implementers should use the definitions included in Appendix B when characterizing any proposed program activity. The burden is on them to justify any departure from those definitions.

iii. Reference Documents and E-Links

See APPENDIX A

1. Energy Action Plan
2. Energy Action Plan Update
3. California Energy Efficiency Strategic Plan
4. Standard Practice Manual
5. Database for Energy Efficient Resources (DEER)
6. LT Avoided Cost Methodology and E3 Calculators
7. EE Program Reporting Requirements Manual
8. EM&V Protocols
9. D.04-09-060, Energy Savings Goals
10. D.05-01-055, EE Administrative Structure
11. D.05-04-051, Update to Policy Rules
12. D.05-09-043, 2006-2008 Funding Levels
13. D.06-06-063, Cost-Effectiveness Update
14. D.07-09-043, Risk/Reward Incentive Mechanism
15. D.07-10-032, Issues Related to Goals and Strategic Plan
16. D.08-01-006, Cost-Effectiveness Update
17. D.08-07-047, Total Market Gross Goals
18. D.08-09-040, Adopting the Long-Term Energy Efficiency Strategic Plan
19. D.09-05-037, Counting Issues
20. D.09-09-047, Adoption of 2010-12 Portfolio
21. D.10-04-029, EM&V Processes
22. D.10-12-054, PFM on 10-12 Portfolio
23. D.11-07-030, 2010-12 Ex-Ante Value Update
24. D.12-05-015, 2013-14 Portfolio Guidance Decision
25. D.12-11-015, Adoption of 2013-14 Portfolio

XII. Energy Efficiency Policy Objectives

1. **Energy Efficiency as a Procurement Resource.** Commission and state energy policy, as expressed in the Energy Action Plan (EAP) and reaffirmed in Decision (D.) 04-12-048, is to make energy efficiency and demand response the IOUs' highest priority procurement resource. The 2005 EAP II continues strong support for the loading order and identifies energy efficiency and demand response as the State's preferred means of meeting growing energy needs. After cost-effective efficiency and demand response, we rely on renewable sources of power and distributed generation, such as combined heat and power applications.[1] This is also consistent with § 454.5(b)(9)(C) [2] which requires IOUs to first meet their "unmet resource needs through all available energy efficiency and demand reduction resources that are cost effective, reliable, and feasible." In order to promote the resource procurement policies articulated in the Energy Action Plan and by this Commission, energy efficiency activities funded by ratepayers should offer programs that serve as alternatives to more costly supply-side resource options (resource programs). Focusing energy efficiency efforts in this way is the most equitable way to distribute program benefits. By keeping energy resource procurement costs as low as possible through the deployment of a cost-effective portfolio of resource programs, over time all customers will share in the resource savings from energy efficiency.

2. **Energy Savings Goals**. The Commission's is to pursue all cost-effective energy efficiency opportunities over both the short and long term. The Commission established electricity and natural gas savings goals, pursuant to Pub. Util. Code § 454.55 and 454.56. In D.04-09-060, the Commission first provided numerical goals for electricity and natural gas savings by utility service territory. The Commission-adopted energy savings goals are expressed in terms of Gigawatt hours, million-therms, and peak Megawatt load reductions. These goals were

[1] http://docs.cpuc.ca.gov/word_pdf/REPORT/51604.pdf

[2] Hereafter all references to code sections are to the Public Utilities Code unless otherwise noted.

informed by the Energy Efficiency Potential and Goals Study, and were later updated in D.08-07-047, D.09-05-037, D.09-09-047, D.12-05-015, and D. 12-11-015, and shall continue to be updated periodically by the Commission. IOUs should develop their energy efficiency program portfolios so that they will meet or exceed these savings goals. The Commission's intent is for goals to: (1) be appropriately aggressive;[3] (2) support long-term procurement planning;[4](3) encourage a focus on long-term savings;[5] and (4) be based on the best available information.[6] Goals for the 2013-2014 portfolio cycle will be applied on the following basis:

a. Energy savings goals are based on achieving 100% of incremental market potential identified in the most recent Potential Study for both gas and electric savings.[7]

b. Separate energy savings goals were adopted for IOU Codes and Standards (C&S) advocacy. The C&S advocacy category represents the estimated energy savings forecasted for the Title 20 and 24 updates and federal appliance standards that can be attributed to the IOUs' C&S advocacy program.[8]

c. Energy savings goals, excluding Codes and Standards, are set on a "gross basis," meaning that the savings counted includes free-ridership. D.08-07-047 adjusted the IOU-specific goals to a gross basis citing an increased opportunity to support more strategic, long-term energy efficiency programs. Defining goals as gross "may open up the

[3] D.04-09-060 at 3
[4] D.04-09-060 at 35
[5] D.07-10-032 at 5
[6] D.08-07-047 at 18-19
[7] The Potential Study can be viewed at http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/Energy+Efficiency+Goals+and+Potential+Studies.htm
[8] D.12-11-015 at 56-58

opportunity for more program options which support the long-term goals for energy efficiency than the use of net goals."[9]

d. For the 2013-2014 portfolio, the Commission adopted annual goals. The Commission intends to develop a better understanding of the sustained impact of the utility programs (including decay and market transformative effects) to encourage programs that will have lasting impacts and to hold IOUs accountable for long-term savings in future portfolios.[10]

3. **Implementation of the California Long-Term Energy Efficiency Strategic Plan.** D.07-10-032 established a broader framework for statewide coordination on energy efficiency program design, in order to overcome market barriers to more widespread adoption of energy efficiency and to capture longer-term savings. The decision directed the IOUs to work with Commission staff and market participants to prepare the California Long-Term Energy Efficiency Strategic Plan (Strategic Plan). Adopted in D.08-09-040, the Strategic Plan set forth a roadmap for energy efficiency in California through 2020 and beyond, by articulating a long-term vision and goals for each economic sector and identifying specific near-term, mid-term and long-term strategies to achieve the goals.[11] D.08-09-040 and the subsequent October 30, 2008 Ruling in A.08-07-021 directed the IOUs to align their programs with Strategic Plan goals by clearly identifying utility actions for all Strategic Plan near-term strategies and action steps, where a utility role is important, and to provide programs that reflect the Strategic Plan short-term steps and milestones.[12]

a. Among the market strategies identified as necessary to achieve market transformation, the Strategic Plan established three long-term goals for

[9] D.08-07-047 at 30

[10] D.12-05-15 at 95

[11] The Strategic Plan can be viewed at http://www.cpuc.ca.gov/NR/rdonlyres/D4321448-208C-48F9-9F62-1BBB14A8D717/0/EEStrategicPlan.pdf

[12] D.08-09-040 OP 2

energy efficiency:

- All new residential construction in California will be zero net energy by 2020;
- All new commercial construction in California will be zero net energy by 2030; and
- Heating, Ventilation, and Air Conditioning (HVAC) industry will be reshaped to ensure optimal equipment performance

b. The Strategic Plan expanded the Commission's objectives for the energy efficiency portfolios to also pursue market transformation, which was defined as "long-lasting sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where continuation of the same publicly-funded intervention is no longer appropriate in that specific market. Market transformation includes promoting one set of efficient technologies until they are adopted into codes and standards (or otherwise adopted by the market), while also moving forward to bring the next generation of even more efficient technologies to the market."[13]

4. **Energy Efficiency Program Design.** IOUs, RENs and CCAs are expected to design their portfolios of energy efficiency programs to comply with program design guidance for the current portfolio cycle.[14] The proposed portfolio shall be submitted as an application for Commission review and approval. The IOUs should implement statewide programs in order to achieve economies of scale and employ industry best practices.[15]

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[13] D. 09-09-047 at 354

[14] 2013-14 Portfolio cycle program guidance provided in D.12-05-15 and D.12-11-015

[15] In D.07-10-032 at 31, the Commission stated that "We expect the utilities to explain strategies to engage the full range of stakeholders, even those who may not currently be integrated, in delivering energy efficiency savings. Many strategies likely will lend themselves to statewide implementation approaches and program delivery, including

Footnote continued on next page

5. **Program Portfolio Development, Balance and Management.** The most appropriate program designs and balance of program funding across market sectors (e.g., residential, industrial, commercial) should be based on maximizing cost-effective long-term savings. D.07-10-032 directed the IOUs to work with stakeholders, including the Commission and the California Energy Commission (CEC) staff as well as market participants, to encourage the application of best practices, portfolio diversity and innovation.[16] IOUs are expected to coordinate to develop and manage statewide programs, in order to avoid duplications of efforts and promote innovation and good program management. IOUs should also include a selection of non-resource programs such as statewide marketing and outreach programs, information and education programs, workforce education and training, emerging technologies programs and other activities in their proposed portfolios that support the Commission's short-term and long-term energy savings goals. Non-resource programs also help in achieving Strategic Plan objectives.

6. **Integrated Demand Side Management.** In order to achieve maximum savings while avoiding duplication of efforts, reducing transaction costs, and diminishing customer confusion, the IOUs are required to integrate customer demand side programs, such as energy efficiency, self-generation, advanced metering, and demand response in a coherent and efficient manner.[17] Integrated demand side management (IDSM) is identified in the Strategic Plan as an overarching strategy to promote customer-side energy management and achievement of zero net energy goals.

7. **Emerging Technologies.** In order to provide higher levels of bridging between available upstream innovations and the marketplace, the deployment of new and improved energy efficiency products and applications is needed. The main purpose of emerging technologies programs should be to increase the probability

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collaboration with Publicly Owned Utilities (POUs) and market stakeholders."

[16] Ibid. at 85

[17] D.07-10-032 at 5

that new energy efficiency technologies, systems or practices that have significant energy savings potential but have not yet achieved sufficient market share to become self-sustaining or commercially viable. Emerging technologies include early prototypes of hardware, software, design tools or energy services. Program strategies should focus on reducing both the performance uncertainties associated with new products and applications and the institutional barriers to introducing them into the market. IOUs should ensure appropriate levels of funding to test, demonstrate, and increase the commercialization of emerging technologies. IOUs should also work with the CEC through its research and development program and with other stakeholders to ensure alignment of the research agenda that supports the Big Bold Energy Efficiency Strategies identified in the Strategic Plan, as well as the Commission energy goals.

8. **Codes and Standards (C&S).** In order to ensure that energy efficiency programs support the adoption of higher efficiency standards rather than compete with them, the IOUs shall implement programs to advocate for the adoption of higher codes and standards. D.12-05-015 established separate goals for codes and standards and affirmed that 100% of verified net savings shall count toward meeting these goals. The baseline for gross savings should be the previous standard or the prevailing market practice.

9. **Marketing Outreach and Education (ME&O).** At the time of issuance of this Policy Manual, the statewide Market Outreach and Education program applicable to post-2012 programs is under consideration in A.12-08-007 et. al.

10. **Competitive Bidding for Third Party Programs.** Competitive solicitations can help to identify innovative approaches or technologies for meeting savings goals with improved performance that might not otherwise be identified during the program planning process, and can take advantage of the unique strengths that third parties bring to the table. For each program planning cycle, the IOUs shall propose a portfolio of programs that reflects the continuation of successful IOU and non-IOU implemented programs. As part of that process, the IOUs will identify a minimum of 20% of funding for the entire portfolio of programs that will be put out to competitive bid to third parties for the purpose of soliciting innovative ideas and proposals for improved portfolio performance.

a. IOUs will develop and issue RFPs using criteria approved by the Commission and select a set of bids. The Peer Review Groups (including Commission staff and their independent consultant(s)) will observe the IOUs' bid selection process to ensure that the criteria are applied properly. Before finalizing their selections, the IOUs will discuss the proposed results of their bid review process with the Peer Review Groups (PRGs, including Energy Division's independent consultants).

b. While some program partners may be best suited to functioning as a subcontractor to the Program Administrator and performing a supporting role for the program, this should not be the only option available for partnership programs. Other partnership arrangements, e.g., where the local government partner is fully involved in program planning and implementation, may take better advantage of the relative strengths of each partner. These arrangements must, in any event, be considered in light of other applicable Commission decisions, including the implementation of community choice aggregation, and should in no way diminish or dilute the responsibility and accountability of IOUs to meet the Commission-adopted savings goals.

11. **Local Government and Institutional Partnerships.** Local Government Partnerships are agreements between an IOU and a city or county for the purpose of engaging local governments in leadership in demand side management (DSM). Specifically, LGPs are designed to generate energy and demand savings within their own facilities and in their communities through a joint utility-local government program design incorporating utility offerings and local government leadership, take actions which support the California Energy Efficiency Strategic Plan which leverages their local government role/authority, and provide DSM outreach in the community. Cities or counties are eligible to propose LGPs at the beginning of a program cycle or mid-cycle. The Peer Review Group will also oversee the development of criteria and selection of government partnership programs. Pursuant to D.12-05-015, beginning in the 2013-2014 cycle, new candidate partners must also adhere to deep retrofit criteria, as defined in the IOUs' program implementation plans.

12. **Pilot Programs.** Pilot programs should be designed to create the measures and program delivery mechanisms of the future, enabling IOUs to achieve deeper savings and market transformation. The pilots should be limited in scope and duration so that results are available in a specified time frame and limited in budget so that unsuccessful programs have a limited impact on the overall portfolio. All results of pilot programs must be shared widely with the other IOUs and with the stakeholders in the sector impacted by the pilot. There should be a specific plan and timeframe to move successful pilot programs into statewide use (if applicable)

    Each proposed pilot should contain the following elements:[18]

    a. A specific statement of the concern, gap, or problem that the pilot seeks to address and the likelihood that the issue can be addressed cost-effectively through utility programs;
    b. Whether and how the pilot will address a Strategic Plan goal or strategy and market transformation;
    c. Specific goals, objectives and end points for the project;
    d. New and innovative design, partnerships, concepts or measure mixes that have not yet been tested or employed;
    e. A clear budget and timeframe to complete the project and obtain results within a portfolio cycle - pilot projects should not be continuations of programs from previous portfolios;
    f. Information on relevant baselines metrics or a plan to develop baseline information against which the project outcomes can be measured;
    g. Program performance metrics (see Section 4.6.3);
    h. Methodologies to test the cost-effectiveness of the project;
    i. A proposed EM&V plan; and

[18] D.09-09-047 at 48-49

j. A concrete strategy to identify and disseminate best practices and lessons learned from the pilot to all California IOUs and to transfer those practices to resource programs, as well as a schedule and plan to expand the pilot to utility and hopefully statewide usage.

XIII. Funding Guidelines for IOUs

1. **Energy Efficiency Funds from Electric Procurement Rates and Gas PPP Surcharges.** Pursuant to § 381, 381.1, 399 and 890-900, gas PPP surcharge and/or electric procurement funds must be spent to deliver energy efficiency benefits to ratepayers in the service territory from which the funds were collected. Gas PPP surcharge and/or electric procurement collections must fund energy efficiency programs that benefit gas and/or electric customers within an IOU's service territory, as adopted by the Commission. However, nothing in these Rules is intended to prohibit or limit the ability of the Commission to direct the IOUs to jointly fund selected measurement studies, statewide marketing and outreach programs, or other energy-efficiency programs and activities that reach across service territory boundaries that serve statewide energy efficiency efforts.

2. **Cost Caps and Targets.** All IOUs shall reflect all costs associated with the delivery of their energy efficiency programs in their filings in the energy efficiency portfolio applications and shall note, where applicable, when the costs are recovered in other proceedings.[19] Costs shall reflect the caps and targets defined in D.09-09-047 and clarified in D.12-11-015.[20] Administrative cost definitions are further delineated in Appendix F.

   a. Administrative costs for utility energy efficiency programs (excluding non-IOU third party and/or government partnership budgets) are limited to 10% of total energy efficiency budgets. These costs shall be inclusive of any energy efficiency-related costs authorized and

[19] D.12-11-015 at 94

[20] Administrative costs defined in D.09-09-047 at 49 and OP 13.

collected in other proceedings, reflecting the fully-loaded utility personnel costs of delivering energy efficiency programs in their energy efficiency applications, but shall also note where the costs have been or will be recovered elsewhere, so funds are not approved and collected for the same purposes twice in two different proceedings. Administrative costs shall be consistent across IOUs. Administrative costs shall only be shifted into any other cost categories subject to the fund shifting rules in Rule II.3 and Appendix C of this manual. IOUs shall not reduce the non-utility portions of government partnership and third party implementer administrative costs, as compared to levels contained in the most recent budget authorizing decision without following authorized fund shifting guidelines subject to the fund shifting guidelines in Appendix C.

b. ME&O cost targets for energy efficiency are set at 6% of total adopted energy efficiency budgets, subject to the fund-shifting rules in Rule II.3 and Appendix C.

c. Direct Implementation Non-Incentive costs (DINI, further defined in Appendix F), which is defined as resource program delivery support costs, shall have a target value set at 20% of the total adopted energy efficiency budgets.[21] The IOUs are required to minimize their non-incentive budgets as much as possible to achieve the target.[22]

3. **Fund Shifting Rules.** Appendix C contains fund-shifting rules established in D.12-11-015, the December 22, 2011 ACR in R.09-11-014, D.09-09-047, D.09-05-037, D.07-10-032, D.06-12-013, and D.05-09-043 to apply to the current funding

[21] This target was adopted for 2010-12 cycle in D.09-09-047 at 6, at 74 and OP 13c and re-iterated for the 2013-14 cycle. D.12-11-015 at 98 states "This provision of D.09-09-047 is still in effect and has not been superseded, though the target is also not met by the proposed portfolios. We find that such a target is still reasonable for 2013-2014."
[22] D.12-11-015 at 101

cycle.[23] IOUs shall file an Advice Letter for any shift of funds greater than 15% of the authorized budget, per annum among the following fund-shifting categories, except C&S, ET and ME&O, as detailed in Appendix C.

1) Statewide residential
2) Statewide commercial
3) Statewide agricultural
4) Statewide industrial
5) Statewide lighting
6) Statewide codes and standards
7) Statewide emerging technologies
8) Statewide workforce, education, and training
9) Statewide marketing, education, and outreach
10) Statewide integrated demand-side management
11) Statewide financing
12) Third party programs (competitively bid)
13) Local government and institutional partnerships
14) Other programs

4. **Funding of Program Cycle Extensions.** IOUs may spend up to 15% of next-cycle funds within the final year of the program cycle after the next-cycle portfolio is approved to avoid interruptions of those programs continuing into the next cycle, per D.07-10-032. The IOUs may continue the average monthly level of expenditures for the final year of a budget cycle to continue on a month-to month basis until the next portfolio budget is approved (or as specified in the

[23] Fund shifting rules were most recently modified by D.12-11-015, COL 50 which defined the program categories.

Commission decision for the next portfolio budget cycle).[24] IOUs should tap into the next-cycle funds only when no other energy efficiency funds (i.e. unspent uncommitted funds from previous programs years) are available to devote to this purpose.

5. **Treatment of Unspent Funds from Prior Portfolio Cycles.** At the beginning of each portfolio cycle, IOUs should apply prior cycle(s) unspent funds to the new portfolio, including any associated interest collected, to offset revenue requirements in the new portfolio cycle as approved by the Commission through the IOUs' EE applications.[25] Committed funds are defined as those associated with individual customer projects and/or are contained within contracts signed during a previous program cycle and associated with specific activities under the contract. Committed funds are not considered "unspent funds," and need not be spent during that particular program cycle so long as there is an expectation that the activities will be completed and that the committed funds are spent to complete the activities for which they were committed. Savings will be counted in the cycle in which the project is completed.[26]

6. **Funds for Projects with Long Lead Times**. Funds may be committed for projects with lead times beyond three years under the following conditions:[27]

    a. Long-term projects that require funding beyond the program cycle shall be specifically identified in the utility portfolio plans and shall include an estimate of the total costs broken down by year and associated energy savings;

    b. Funds for long-term projects must be actually encumbered in the current program cycle;

    c. Contracts with all types of implementing agencies and businesses must

[24] D.09-09-047 at 307

[25] D.12-11-015 at 93

[26] D.12-11-015 at 92

[27] D.07-10-032 at 97

explicitly allow completion of work beyond the end of a program cycle;

d. Encumbered funds may not exceed 20% of the value of the current program cycle budget to come from the subsequent program cycle, except by approval in the energy efficiency portfolio application or an advice letter process;

e. Long-term obligations must be reported and tracked separately and include information regarding funds encumbered and estimated date of project completion; and

f. Energy savings for projects with long lead times will be calculated by defining the baseline as the applicable codes and standards, or regulations for industrial projects, at the time of the issuance of the building or regulatory permit for the project.[28]

7. **Program Cancelation**. IOUs shall not eliminate any energy efficiency program or sub-program except through the energy efficiency portfolio application or an Advice Letter seeking such a change.

XIV. Regional Energy Networks & Community Choice Aggregators

1. **Definition of Regional Energy Networks.** In D.12-11-015, the Commission authorized the formation of Regional Energy Networks (RENs), to enable local government entities to plan and administer energy efficiency programs independent from the IOUs. RENs are distinguishable from other LGPs in that they are regional, representing several local government entities, and by the fact that they are selected by the Commission instead of the IOUs. RENs are intended to be additional to and not instead of LGPs, and should not take away from LGPs in design or budget. REN territories should not overlap. 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

[28] D.07-10-032 at 95

independently, without utility interference or direction as it relates to the design and delivery of their programs. The IOUs will serve as fiscal managers responsible for all usual fiscal and management functions including fiscal oversight and monitoring,[29] such as providing the day-to-day contract management functions and disbursement of ratepayer funds. The Commission retains the authority to direct changes to the REN energy efficiency programs. RENs and the IOUs should coordinate and cooperate for seamless program offerings and to avoid customer confusion.

2. **Applications by Community Choice Aggregators (CCAs).** CCAs are subject to particular treatment in statute under § 381.1 related to their desire to administer energy efficiency funds. Senate Bill (SB) 790 (Stats. 2011, Ch.599, Leno) modified Section 381.1 in various ways to allow CCAs to access energy efficiency funds. At the time of issuance of this Policy Manual, the implementation of SB 790 is under consideration in R.09-11-014. A decision will be rendered in that proceeding on the overall permanent procedures for handling CCA activities and reporting with respect to energy efficiency programs and funds. In the meantime, the administrative structure for CCA programs shall be treated exactly the same as for the RENs when the CCA applies for energy efficiency funding under § 381.1(a)-(e).

3. **Implementation Oversight and Reporting Requirements**. The RENs are subject to the same periodic reporting requirements as the IOUs to the Commission, listed in Rule V of this Policy Manual. The RENs will also be independently accountable for delivering results outlined in their respective program implementation plans (PIPs). IOUs will receive attribution toward their portfolio goals for REN energy savings.[30] Additionally, RENs and CCAs will submit monthly narrative reports, which enable Commission staff to track and perform a variety of specialized activities. Detailed specifications for these reports are

[29] D.12-11-015 at 10

[30] D.12-11-015 at 11

found on the Energy Efficiency Groupware Application (EEGA.)

4. **Threshold of Review.** To qualify for consideration, a REN program activity must meet one or more of the following criteria to be considered for approval:[31]

   a. Activities that IOUs cannot or do not intend to undertake. The rationale for this should be obvious – if a REN can deliver a service to the market that the IOUs cannot, it should be considered.

   b. Pilot activities where there is no current utility program offering, and where there is potential for scalability to a broader geographic reach, if successful. In this case, the concept would be to test program delivery that is different or unique, for potential to be scaled up to a statewide approach delivered either by RENs and/or by IOUs in the future.

   c. Pilot activities in hard-to-reach markets, whether or not there is a current utility program that may overlap. These activities may or may not be intended to be scalable to a larger area. The rationale is that hard-to-reach markets (including multi-family and low to moderate income residential, as well as small commercial)[32] need all the help they can get to achieve successful energy efficiency savings. A piloted approach may work well in a particular geographic region because of its specific characteristics, or it may be appropriate for a wider delivery by RENs and/or IOUs elsewhere.

5. **Program Cost-Effectiveness Threshold**. For the 2013-2014 program cycle, the Commission did not set a threshold cost-effectiveness level, either TRC or PAC,

[31] Ibid. at 17

[32] Hard to reach residential customers are defined as "those customers who do not have easy access to program information or generally do not participate in energy efficiency programs due to a language, income, housing type, geographic, or home ownership (split incentives) barrier." Hard to reach business customers also include factors such as business size and lease (split incentive) barriers.

for the approval of REN programs. RENs will, however be expected to report the cost effectiveness of their programs through the submission of their E3 calculators.

6. **Fund-Shifting.** The fund-shifting limits established for RENs will apply to the categories of programs similar to the IOUs' statewide categories. For example, all REN residential programs will be treated as one "bucket," with financing programs in another "bucket," and so on, such that the limits apply on shifting between those program types, as they do for IOUs. Should a REN wish to exceed the fund-shifting limits in 2013 or 2014, it should file an advice letter justifying the proposed shifts of funds that exceed the 15% limit, just as a utility would. If a REN desires to modify its PIP, they should notify the appropriate utility and Commission staff, use the PIP addendum process in Rule V.2, and document the changes in the Energy Efficiency Groupware Application website,[33] utilizing the same process by which the IOUs make changes to their PIPs.

7. **Evaluation, Measurement and Verification Requirements for RENs**. Commission staff should manage all REN evaluations, including impact and process evaluations. This is consistent with the direction on the evaluation of utility pilot programs. Commission staff will include evaluation of any funded REN programs in their evaluation, measurement, and verification (EM&V) plans and budgets for 2013-2014. It will be especially important, with the REN activities, to emphasize more evaluation to determine if certain piloted activities were successful and should be scaled up in 2015 and beyond, or discontinued altogether. To the extent possible, Commission staff and RENs themselves should consider early evaluation activities prior to the end of 2014, in order to have more information going into the 2015 portfolio design process.[34]

[33] http://eega.cpuc.ca.gov/

[34] D.12-11-015 at 17

XV. Cost-Effectiveness

1. **Standard Practice Manual (SPM).** The cost-effectiveness indicators referred to in these rules are described in the *California Standard Practices Manual: Economic Analysis of Demand-Side Management* (SPM).[35] Cost-effectiveness analyses must be performed in a manner consistent with the indicators and methodologies included in the SPM, with clarifications indicated in Commission decisions relating to this subject.

2. **Total Resource Cost Test (TRC).** This Commission relies on the Total Resource Cost Test (TRC) as the primary indicator of energy efficiency program cost effectiveness, consistent with our view that ratepayer-funded energy efficiency should focus on programs that serve as resource alternatives to supply-side options. The TRC measures net costs as a resource option based upon the total costs for the participants and the utility. The benefits are the net present value of avoided costs of the supply-side resources avoided or deferred. The TRC costs encompass the net present value of the net costs to participants for installed measures over the measure life plus all the costs incurred by the program administrator. The net benefits and net participant costs exclude the benefits derived from and costs paid by free-rider participants.[36] The net cost to participants is the actual costs minus any rebates[37] from the program administrator. The net present values are calculated using a discount rate that reflects each utility's after-tax weighted average cost of capital (WACC), based

[35] D,12-05-015 at 28

[36] D.07-09-043 at 157

[37] Per SPM and Decisions including D.08-01-006, rebate amounts used to reduce participant costs are defined to include only dollar benefits such as rebates or rate incentives (monthly bill credits) paid by the program administrator to a participating customer (ratepayer). These costs are included in the program administrator total cost so must not be counted twice. Rebates paid to free-rider participants are included as TRC costs in the program administrators cost.

on the most recent cost of capital decision.[38]

3. **Program Administrator Cost Test (PAC).** The Program Administrator Cost (PAC) test of cost-effectiveness should also be considered in evaluating program and portfolio cost-effectiveness. Under the PAC test the program benefits are the same as used in the TRC test. The costs however, are defined to include only the net present value of all costs incurred by the program administrator while excluding the costs incurred by the participating customers. As in the TRC test, the net present values for the PAC are calculated using a discount rate that reflects each utility's after-tax weighted cost of capital, based on the most recent cost of capital decision.

4. **Application of the TRC and the PAC: the Dual-Test.** Applying both the TRC and PAC cost-effectiveness tests is called the "Dual-Test." The portfolio of energy efficiency programs are required to show a positive net benefit, based on the TRC and PAC tests, on a prospective basis during the program planning stage.[39] Test results are usually shown as benefit cost ratio, and a portfolio is said to have "passed" a test if the benefit cost ratio is greater than 1. Both the TRC and PAC tests of cost-effectiveness need to be considered when evaluating program proposals, in order to ensure that program administrators and implementers do not spend more on rebates/cash incentives than absolutely necessary to achieve TRC net benefits.[40] The energy efficiency portfolio as a whole must pass both the TRC and PAC tests to be eligible for funding.[41] It is expected that incentives offered for the installation of a measure will not exceed the incremental cost of the measure, and thus, activities that pass the TRC test normally will also pass

[38] D.12-05-015 at 38 contains a table of the current IOU WACC values and OP 2 directs the use of the after-tax Weighted Average Cost of Capital as the discount rate.

[39] D.05-04-051 at 43

[40] D.06-06-063 at 72

[41] D.05-04-051, Attachment 3, Rule IV and D.08-01-006 at 21

the PAC test.[42] However, if deployment of the program requires rebates or financial incentives to participants that exceed the measure cost, then the program may pass the TRC test, but fail the PAC test. Incentives or rebates that exceed the TRC cost for a measure must be justified in workpaper submissions that are approved by Commission Staff.[43]

5. **Overall Cost-Effectiveness of IOU and REN Portfolios.** It is the responsibility of the Commission to approve a portfolio, including both utility and REN proposals that is cost-effective overall, because the IOUs are not in control of the REN proposals and therefore cannot make the cost-effectiveness tradeoffs within their portfolio. The Commission will therefore apply the dual test for overall portfolio cost effectiveness, taking into consideration passing both the TRC and PAC tests for each utility service territory portfolio without the RENS, as well as entire approved portfolio that includes the RENs.[44]

6. **Avoided Costs and Other Inputs**. TRC and PAC benefits should be computed using the avoided cost methods and input assumptions, including avoided greenhouse gas emissions related cost that have been developed for the evaluation of energy efficiency programs in the Standard Practice Manual and most recently updated in D.12-05-015.[45]

7. **Cost Effectiveness Adjustments for Free-Ridership and Market Effects.** Net to Gross (NTG) ratios are used to estimate and describe the "free ridership" that may be occurring within energy efficiency programs, that is, the degree to which customers would have installed the program measure or equipment even without the financial incentive (e.g., rebate) provided by the program.[46] Cost-

[42]D.06-06-063 at 72 recognizes only "limited instances for program design purposes where the cash rebate to the customer exceeds the measure installation cost"

[43] Originally defined in D.92-09-080, the dual test was last modified in D.05-04-051

[44] D.12-11-015 at 18

[45] Also see D.05-04-024 and D.06-06-063

[46] Definition and calculation of Net-to-Gross adjustments to TRC test were described in Attachment 9 of D.07-09-043

effectiveness of the portfolio shall be calculated as net of free riders, or on a "net savings basis" for the purpose of establishing budget levels that meets the legislative requirement in § 454.5.

a. Commission Staff has the responsibility to perform research on free ridership and market effects and to use the results of that research to develop updated NTG values for use in portfolio planning and utility reporting. This research often involves interviews with customers and others who participate in the utility programs. The IOUs are required to cooperate and facilitate this research. Utility customers are required cooperate with Commission staff in this research as a condition of receipt of energy efficiency funds. The IOUs must respond to Commission Staff's request for evaluation data in a timely manner to facilitate this research so as to improve the reliability of NTG results.[47] Our adopted DEER is the repository of the NTG values to be used for planning and reporting. Commission Staff shall strive to update DEER with uniform statewide NTG values that represent typical expected results.[48]

b. The "default" NTG values shall be used when there is a lack of research on the NTG value for the program or delivery mechanism. This may apply to new or existing measures (or if a proposed delivery mechanism has deviated substantially from past related program activities).[49] When new measures or programs are proposed, Commission staff may utilize the results of previously completed research produced during similar program or measure piloting activity to set an appropriate NTG value.[50] Alternatively staff may determine that no piloting research is required and accept proposed use of

[47] D.12-05-015 at 51
[48] Ibid at 54 and OP 6
[49] D.12-05-015 adopted DEER NTG table.
[50] D.12-05-015 at 339

default or other appropriate NTG values.

c. For measures added to the portfolio as a direct result of Emerging Technology Program activities (Emerging Technology measures) the IOUs may request in their non-DEER work paper submissions that a measure be assigned a NTG value at or above 0.85. Commission Staff shall have the authority to accept or reject a utility Emerging Technology measure classification and to set any Emerging Technology measure NTG value at or above 0.85 as it deems appropriate.[51] Similarly, Energy Upgrade California shall be treated as a custom project activity with a default NTG value of 0.85.

d. For custom projects the adopted ex ante review process provides Commission Staff with the ability to review and update ex ante values including NTG for those projects.[52] The IOUs are expected to respond to Commission staff reviews by taking steps to improve NTG results.[53] Utility programs should strive to push customers to augment projects to include action that would not occur without incentive support or redesign the incentive structure to encourage deeper and more comprehensive activities as well as aligning the incentive amounts to be commensurate with the level of savings that can be attributed to the program.[54]

e. Market effects are defined as additional energy savings that occur as a result of the energy efficiency programs, but that are not included in the utility savings claims. The Commission acknowledges that market effects occur. However, in D.12-11-015 the Commission determined that there were not sufficiently current or technically rigorous market

[51] Ibid at 62 and OP 14 and OP 15

[52] Ibid OP 149 "Commission Staff shall assign, at its discretion, Net-to-Gross (net of free ridership) values as part of its ex ante project reviews process."

[53] Ibid at 61 and OP12

[54] Ibid.

effects studies to base market effect estimates on, and instead determined to apply a portfolio-level "market effects adjustment" of 5% across all resource programs for the entire 2013-14 cost effectiveness calculation.[55] This 5% market effect adjustment shall be applied to increase TRC and PAC benefits as well as to increase TRC participant costs (excluding the deduction of program rebates or incentives paid to participants).

8. **Portfolio Filing of Prospective Cost Effectiveness**. A prospective showing of cost-effectiveness using the Dual-Test for the entire portfolio of ratepayer-funded energy efficiency activities and programs (i.e., individual programs, plus all costs not assignable to individual programs, such as overhead, planning, evaluation, measurement verification and administrator compensation and performance, if applicable) is a threshold condition for eligibility for ratepayer funds. This prospective showing of cost-effectiveness shall include the costs for shareholder incentives that are projected to be paid under the energy efficiency shareholder incentive mechanism in effect at that time.[56]

   This threshold requirement applies to each of the following: (1) the service-territory wide program portfolios offered by each IOU Program Administrator, excluding emerging technologies programs, and (2) excluding On-Bill Financing loans[57], and (3) the entire program portfolio collected from an IOU's ratepayers, including RENs and CCA programs. IOU program administrators must demonstrate that the first threshold requirement is met on a prospective basis in their program funding applications to the Commission. IOUs must also demonstrate that the proposed level of electric and natural gas energy efficiency program activities are expected to meet or exceed the Commission-adopted

[55] D-12-11-015 at 49
[56] D.07-09-043 at 220
[57] D.09-09-047 at 288

electric and natural gas savings goals, by service territory.[58]

a. To support comparisons of all resources in the IOUs' procurement portfolio, the program administrators are required to also provide levelized unit cost estimates at the portfolio, end-use and measure level consistent with the methods described in the SPM. This information should be submitted with the program administrators' compliance filings.

9. **Program Performance Metrics.** The usefulness of the TRC test as a primary indicator of cost-effectiveness is limited for certain programs which do not necessarily focus on the timing or type of resource needs of the utility, such as programs designed to demonstrate or commercialize promising emerging energy efficiency technologies or structurally change the marketplace. For statewide marketing and outreach programs and information-only programs, the link between programs and savings is also difficult to discern. Therefore, the Commission and program administrators will need to consider factors and performance metrics other than the TRC and PAC Tests of cost-effectiveness when evaluating such program proposals for funding and when evaluating their results. Program performance metrics are objective, quantitative indicators of the progress of a program toward the short and long-term market transformation goals and objectives in the Strategic Plan. Beyond this program cycle, the IOUs shall submit one joint advice letter to request approval for their proposed logic models and metrics for each statewide program and associate sub-programs, and pilot programs for each program cycle as part of their energy efficiency portfolio application process.[59]The process for developing PPMs is described in Appendix 2 of D.09-09-047. The proposed performance metrics shall comply with the following principles:

a. The metrics shall be designed for simplicity and cost effectiveness when

[58] Per D.04-09-060, savings from LIEE programs will also count towards these goals.
[59] D.09-09-047 at 92

considering data collection and reporting requirements.

b. Integrated metrics shall be developed for programs that employ more than one technology or approach, such as whole building programs.

c. Program models and logic should be dynamic and change in response to external, e.g., market conditions, and internal conditions.

d. The metrics shall link short-term and long-term strategic planning goals and objectives to identified program logic models.

e. Performance metrics shall be maintained and tracked in the EEGA database (or a similar database to be determined under the guidance of Commission staff).

10. **Cost Effectiveness Requirements for Fuel Substitution Programs/ Measures/ Projects.** Fuel substitution programs/projects may offer resource value and environmental benefits. Fuel-substitution programs should reduce the need for supply without degrading environmental quality. For purposes of applying these tests, fuel substitution proponents must compare the technologies offered by their program/measure/project with the industry standard practice same-fuel substitute technologies available to prospective participants that would have TRC and PAC benefit-cost ratio of 1.0 or greater. The burden of proof falls on the party sponsoring the analysis to show that the baseline comparison adheres to this requirement. Fuel substitution program/measures/projects with a predominantly load building or load retention character are not eligible for funding, and the proponent of a fuel-substitution program carries the burden of proof to demonstrate that the program/measure/project focuses on energy efficiency and creates net resource value. Fuel-substitution programs/projects, whether applied to retrofit or new construction applications, must pass the following three-prong test to be considered further for funding:[60]

a. The program/measure/project must not increase source-BTU consumption. Proponents of fuel substitution programs should

[60] Rules for fuel substitution programs were most recently modified by D.09-12-022.

calculate the source-BTU impacts using the current CEC-established heat rate.

b. The program/measure/project must have TRC and PAC benefit-cost ratio of 1.0 or greater. The TRC and PAC tests used for this purpose should be developed in a manner consistent with Rule IV.4.

c. The program/measure/project must not adversely impact the environment. To quantify this impact, respondents should compare the environmental costs with and without the program using the most recently adopted values for avoided costs of emissions.[61] The burden of proof lies with the sponsoring party to show that the material environmental impacts have been adequately considered in the analysis.

11. **Mid-Cycle Funding Augmentations.** Costs and energy savings from mid-budget cycle funding additions for programs other than Energy Savings Assistance Programs (ESAP) shall be counted when calculating portfolio cost-effectiveness and shall count towards the IOUs' energy efficiency goals for resource planning purposes.

XVI. Implementation Oversight and Reporting Requirements

1. **Reporting Requirements.** Commission staff is directed to develop and update reporting requirements to ensure that the types of data and the format of the information presented in the IOUs, RENs or CCAs' filings and reports are as consistent as possible.[62] The IOUs, RENs and CCAs (except as modified for RENs

[61] Most recently updated by D.12-05-015 at 31

[62] Initial directives on application tables and reporting requirements were established in D.04-12-048 OP 13, which authorized Energy Division to update. Reaffirmed in D.05-09-043 at 155, D.09-09-047 at 64. Current Reporting Requirements are included in Policy Manual V.5, Appendix D.

and CCAs in Rule III.3) are required to follow the Commission's Energy Efficiency Reporting Requirements Manual for the current program cycle. Please see Appendix D for Reporting Requirements, and refer to http://eega.cpuc.ca.gov for the most current reporting templates and Energy Division guidelines. The following regularly occurring reports are required:

a. Monthly Reports on expenditures and savings

b. Quarterly Reports on budgets and expenditure caps

c. Fund Shift Report on program funding modifications

d. Utility Tracking data to report program accomplishments, evaluation sampling and cost effectiveness calculations

e. Program Performance Metric Annual Reporting

f. Energy Efficiency Program Annual Reports [63]

g. Other reports as required by the Commission

2. **Program Implementation Plans (PIP).** IOUs and RENs shall submit PIPs in their original application filings using the template provided by the Commission staff,[64] and shall update the PIPs to comply with any decision directives in their compliance filings. Programs administrators shall also update their PIPs to reflect any mid-cycle program changes. PIPs shall include program logic models that diagram the program objectives, outputs and outcomes in a specified PIP format with their portfolio applications. The following program changes require the affected portions of the PIP to be resubmitted to EEGA as a PIP addendum:[65]

   a. Changes to eligibility rules

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[63] Pursuant to Attachment C of ALJ Ruling Adopting Annual Reporting Requirements for Energy Efficiency and Addressing Related Reporting Issues, dated August 8, 2007

[64] In D.12-05-015 at 358, the Commission Staff was directed to provide a revised PIP template to the service list.

[65]The PIP addendum process has been defined by the Energy Division, per D.04-12-048 OP 13 directive to update the program reporting requirements as needed.

b. Changes affecting incentive levels

c. Fund shifts

d. Portfolio Budget and Other Commission–Directed Changes

e. Changes to Program Theory/Logic Models

f. Addition or elimination of programs and/or sub-programs

g. Changes in program targets

h. Change in sub-program approach - unless the IOUs submit logic models for the sub-programs

i. Changes in incented measures

j. Changes in adopted PPMs/MTIs

3. **Counting of Savings.** The reporting of ex ante savings estimates in the compliance filings is subject to Rule VI on ex ante review. When estimating ex ante savings values for either portfolio planning or accomplishment reporting the IOUs, RENS and CCAs shall use values and methods from the most recent version of Database for Energy Efficient Resources (DEER) if the measure values are available. If DEER values and methods are not available, the IOUs, RENs and CCAs may propose new values for staff review and approval, subject to Rules VI 4-6. The protocols for developing ex post savings estimates are provided in the California Energy Efficiency Evaluation Protocols,[66] updated in D.09-05-037, and through DEER updates.

   a. The definition of peak megawatt load reduction contained in the most recently adopted DEER shall be used to estimate and verify peak demand savings values. The DEER method utilizes an estimated average grid level impact for a measure between 2 p.m. and 5 p.m. during a "heat wave" defined by three consecutive weekdays for

[66] April 16, 2006 ALJ Ruling in R.01-08-028

weather conditions that are expected to produce a regional grid peak event.[67]

b. Incentives and savings in communities with "reach" building codes or similar efficiency requirements shall be no different from those in other communities, and shall not be treated as free riders.[68]

4. **Program Modifications for RENs.** If a REN desires to modify its PIP, it should notify the appropriate utility and Commission staff, use the PIP addendum process in Rule V.2, and document the changes in the Energy Efficiency Groupware Application website[69], utilizing the same process by which the IOUs make changes to their PIPs. Should a REN wish to exceed the fund-shifting limits in a portfolio cycle, it should file an advice letter justifying the proposed shifts of funds that exceed the 15% limit, just as a utility would.

XVII. Ex-Ante Savings and Review

1. **Commission Oversight of Ex Ante Values**. The estimated energy savings values for energy efficiency measures used for planning and reporting accomplishments for energy efficiency programs, referred to as the *ex ante* values, are subject to the review and approval of Commission staff. The ex ante review process must be managed by Commission staff because it involves judgments that can influence both the development of performance targets and the measurement of program

[67] D.06-06-063 OP 1. The DEER version adopted in D.12-05-015 utilizes a 3-day "heat wave" that occurs on consecutive days in June through September such that the three consecutive days do not include weekends or holidays, and where the heat wave is ranked by giving equal weight to the peak temperature during the 72-hour period, the average temperature during the 72-hour period and the average temperature from noon – 6pm over the three days.

[68] D.09-05-037 OP 4

[69] http://eega.cpuc.ca.gov/

achievements.[70] Due to the conflict-of-interest concerns the IOU Portfolio Managers would not be the appropriate entities to manage or directly contract for the ex ante review process.[71]

2. **Freezing of Ex Ante Values.** Upon approval by Commission staff, the ex ante values shall be frozen for remainder of the current cycle. This freeze of *ex ante* energy savings values shall apply both to energy efficiency measures contained in the DEER and non-DEER measures covered by workpapers which are developed by IOUs and other program implementers. Unreviewed non-DEER workpapers that were submitted as part of the applications for the 2013-1014 cycle shall be granted interim approval[72]. Interim approval indicates that all values and approaches have been approved for the duration of the program cycle or until a formal review occurs. If a formal review of an interim approved work paper requires significant changes to be made, then those significant changes should be applied prospectively from the time of the completed review and the new values will then be frozen for the duration of the program cycle. The frozen version of DEER and frozen non-DEER work papers are posted at the DEER website (http://www.deeresources.com) maintained by Energy Division.

3. **Mid-cycle updates of Ex Ante Values.** Ex ante values should be adopted and held constant throughout the portfolio cycle. However, mid-cycle updates of ex ante values are warranted if newly adopted codes or standards take effect during the cycle.[73] The IOUs shall make appropriate adjustments to their participation and incentive calculation rules as well as update their ex ante value calculations in response to codes and standards changes.[74] IOUs, RENs and CCAs are expected to update non-DEER workpapers with the latest Codes and Standards updates. A mid-cycle update is required to incorporate changes due to newly

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[70] D.05-01-055 at 120

[71] D.05-01-055 at 121

[72] D.12-05-015 at 334

[73] These changes are known at least one year ahead of their effective date.

[74] D.12-05-015 at 324

adopted codes or standards. Commission staff may perform mid-cycle review of any non-DEER workpapers with interim approval and require revisions to those workpapers. These mid-cycle revisions shall be frozen prospectively for the 2013-14 portfolio.[75] Mid-cycle workpaper review shall follow the Phase 2 review process included as Appendix G.

4. **Ex-Ante Review of Non-DEER Measures.** For non-DEER measures, the IOUs are instructed to use DEER values as starting points and/or apply the DEER methodologies for estimating the non-DEER parameter value for cases in which any of the specific parameters of an IOU installation differ from the assumptions that form the basis of a DEER measure. The IOUs and other entities submitting workpapers do not have the option to replace DEER assumptions and values with their preferred values unless the Commission Staff agrees with their proposal for such replacements.[76]Additionally, IOUs and other entities submitting workpapers shall utilize the latest information available, including the Commission's most recently available evaluation results, when updating or developing new workpapers[77]. All ex ante values shall be updated or developed in consideration of the latest information available, including Unit Energy Savings (UES), Effective Useful Life (EUL), Installation Rate (IR), NTG and Cost. Commission staff shall review all utility proposed non-DEER assumptions and values. The IOUs must work with Commission Staff, following the workpaper and non-DEER workpaper submittal, review and approval process that was originally issued in the November 18, 2009 ruling and updated in D.10-12-054, D.11-07-030 and D.12-05-015.[78] Commission Staff's review of "interim approval" workpapers or new workpapers submitted mid-cycle shall adhere to the Phase 2

[75] D.12-05-015 at 336

[76]D.12-05-015 at 326

[77] D.12-05-015 at 332

[78] November 18, 2009 ALJ Ruling in A.08-07-021. D.09-09-047 OP 4 states that, "Review of completed IOU work papers regarding ex-ante savings estimates are subject to Commission Staff review and approval, as set forth in an ALJ Ruling of November 18, 2009 in Application 08-07-021, et al. Each IOU shall cooperate with Commission Staff to allow upfront consultation regarding such work papers."

workpaper review process, including the dispute resolution process described in Appendix G.

5. **Installation Rate for DEER and non-DEER Measures.** All deemed measures have an installation rate, which is the ratio of the number of verified installations of that measure to the number of claimed installations rebated by the utility during a claim period.[79] The installation rate is reported separately in claims and not included in the reported savings for the measure. Staff shall maintain a table of installation rates for DEER and non-DEER measures. For any measures not listed in this table, the installation rate shall be assumed to be 1.0. IOUs and other entities shall include in their workpapers the proposed installation rates for the measure covered by a workpaper.

6. **Establishment of Baseline for use in Establishing TRC Savings and Costs.** The approach to establish a baseline for ex ante gross savings values requires the review of the evidence related to one of the three baseline choices: (1) new equipment that is replaced on burnout (ROB), turnover or replacement due to normal retrofit and remodeling activities (NR), and new construction (NC); or (2) the pre-existing equipment used in the program induced early retirement (ER) case. For new equipment choices that are selected under the ROB, NR and NC cases and are subject to existing regulations, codes or standards, the baseline equipment should be determined by the regulation, code, or industry standard. The customer's reason for equipment replacement could alter the baseline choice, depending on whether compelling evidence demonstrates that the replacement was a program induced early retirement.[80]

   a. In the cases when there is no regulation, code, or standard that applies, which would normally set the baseline equipment requirements, the baseline must be established using a "standard practice" choice. For purposes of establishing a baseline for energy savings, we interpret the standard practice

[79] D.11-07-030 at 22

[80] D.11-07-030 at 40, Appendix I to Attachment B

case as a choice that represents the typical equipment or commonly-used practice, not necessarily predominantly used practice.

b. For the case of program-induced early retirement, the remaining useful life of the existing equipment should be used as the starting assumption for the period of accelerated retirement. To establish the period of accelerated retirement, we recommend using one-third of the effective useful life in DEER as the remaining useful life until further study results are available to establish more accurate values.[81] Commission staff has been given flexibility to utilize alternative remaining useful life values, based upon compelling project or technology specific evidence.[82]

c. The measure or project cost utilized in an early-retirement case is the full cost incurred to install the new high-efficiency measure or project, reduced by the net present value of the full cost that would have been incurred to install the standard efficiency second baseline equipment at the end of the remaining-useful-life period. Thus, the early-retirement cost in the cost effectiveness calculation is higher than the incremental cost used in a replace-on-burnout or normal-replacement case, only by the time value of the dollar amount of the standard equipment full installed cost, using the adopted cost-effectiveness discount rate to calculate that time valuation.

d. A "dual baseline" must be utilized for program-induced early retirement measures. The dual baseline reflects the difference between the savings that should be credited for the initial years of installation based upon the pre-existing or replaced equipment versus the savings credit in later years that should be based upon an eventual pre-existing equipment replacement assumed to occur if the measure had not been installed as part of the program. At the later date, when the pre-existing equipment would have been replaced due to normal turnover for reasons such as imminent failure or

[81] Summary of EUL-RUL Analysis for the April 2008 Update to DEER at 2

[82] D.12-05-015 at 348

remodeling, an alternate equipment efficiency baseline should be utilized. This "dual baseline" requires two savings calculation periods:

- The remaining useful life (RUL) which DEER establishes as one-third of the expected useful life (EUL) for the equipment type (which may reflect the EUL of the new equipment rather than the replaced equipment). During the RUL period ("first baseline"), savings is calculated using the full reduced energy use between the measure and the pre-existing condition. The measure cost for this period is the full cost of equipment, including installation, for the measure.

- The period between the RUL and EUL defines the second baseline calculation period. For this period, the savings are calculated based on the difference between the measure and code/regulations or industry standard practice baseline technologies. The measure cost for this period is the full cost of equipment, including installation, for the second baseline equipment measure. As discussed above, the TRC cost for an ER measure is calculated by subtracting this value discounted by the RUL number of years at the adopted discount rate from the measure cost utilized for the measure equipment in the initial baseline period.

7. **Custom Projects.** The adopted process for Energy Division's review of custom projects is provided in Attachment B of D.11-07-030.[83]The IOUs shall follow the custom project ex ante value review process set forth in Attachment B.[84] The IOUs shall provide a summary list of all custom projects, in pre-application stage and application stage, in their Custom Measure and Project Archive (CMPA). Each utility shall keep a complete up-to-date electronic archive of all custom measures and projects. Each project should be added to the archive immediately after either being identified in the pre-application stage, or after the date of the

[83] D.11-07-030 at 40

[84] D.11-07-030 OP 7

customer's application to the utility, whichever is sooner. Project specific tools and processes will be stored in the CMPA. Projects Energy Division selects for review will have their complete documentation from the IOU CMPA placed into an Energy Division Review CMPA which, with the Utility Custom Project Summary List, will be housed on an internet-accessible website that meets reasonable security and legal requirements. The Energy Division will be responsible for establishing and maintaining that website. Energy Division shall maintain a public archive database with a summary of issues identified in its custom applications and projects reviews, and the Energy Division dispositions of those issues. Customer-specific data and information should be removed from the Energy Division summary of issues and dispositions.

8. **HVAC Interactive Effects**. Measures, such as lighting and refrigeration, have a secondary impact on heating and cooling loads and thus heating and cooling energy consumption. These "interactive effects" are appropriate for incorporation into DEER.[85] The gas and electric IOUs shall include those effects in non-DEER workpapers and custom measures and projects calculations. In its review of IOUs' workpapers and custom measures and projects, Commission Staff shall ensure the IOUs include these effects when Staff deems that inclusion has a significant impact on the savings estimate.

9. **Persistence of Savings**. Until EM&V results inform better metrics, the IOUs may apply a conservative deemed assumption that 50% of savings persist following the expiration of a given measure's life.[86]

10. **Gross Realization Rate.** The gross realization rate (GRR) is a multiplier that attempts to take into account the likelihood that not all Commission-approved projects undertaken by IOUs will come to fruition. Based on studies from past years' outcomes, a GRR value of 0.90 shall be applied as a conservative value to account for the difference between projected and actual energy savings for un-

[85] D.09-05-037, OP 3 denied the IOUs' proposal to eliminate HVAC interactive effects from DEER.

[86] D.09-090-47 OP 49

reviewed custom projects.[87]

XVIII. Evaluation, Measurement and Verification (EM&V)

1. **Purpose of EM&V.** The development of energy efficiency programs that deliver reliable energy savings for California's ratepayers depends on well-designed policies and methods of portfolio performance evaluation, measurement and verification (EM&V). Rigorous and strategically focused EM&V practices are required to gauge the performance of IOUs, RENs, CCAs, and Implementers, verify energy savings, improve the design and success of future energy efficiency programs and enhance the reliability of forecasted savings for resource planning purposes. In D.05-04-051 the Commission ordered portfolio evaluation efforts to be structured such that they can: 1) inform the program selection process, 2) provide early feedback to program implementers, 3) produce impact evaluations at the end of the funding period, and 4) feedback into the planning process for future program cycles. D.07-10-032 and D.10-04-029 further updated the EM&V process.

2. **IOU and ED Collaboration on EM&V Plan.** Per D.09-09-047, D.10-04-029, and D.12-11-015, the IOUs and Commission staff are expected to jointly prepare an EM&V Plan in order enhance timeliness, transparency and consistency across EM&V work products and to streamline EM&V processes.[88] The IOUs and Commission staff are expected to adhere to the plan. D.10-04-029 set out the roles and relationships among the Commission staff, IOUs, and stakeholders regarding Evaluation, Measurement and Verification (EM&V) of energy efficiency programs for 2010 through 2012. In D. 12-05-015, the Commission indicated that guidelines for collaboration, cooperation, and dispute resolution adopted by D.10-04-029 will continue to apply to the 2013-2014 EM&V activities.

3. **Energy Division Role in EM&V Administration.** D.05-01-055 adopts an

[87] D.11-07-030 at 38, OP 6

[88] D.09-09-047 at 301

approach to EM&V administration whereby Energy Division has management and contracting responsibilities for all EM&V impact-related studies that will be used to 1) measure and verify energy and peak load savings; 2) generate data for savings estimates, cost-effectiveness inputs, and the Commission's adopted performance basis; and 3) evaluate whether portfolio goals are met. Additionally, in D.10-04-029 the Commission determined that the ED is permitted to manage evaluations that may be considered process or formative evaluations.[89] ED may, on a case by case basis, use program implementers as a vehicle for collecting EM&V data when this would clearly be more efficient.[90]

4. **IOU Role in EM&V Administration.** D.05-01-055 adopts an approach to EM&V administration whereby IOUs may directly contract for (and serve as technical lead in managing) early EM&V, process and program design evaluations as well as market assessment studies. Managing these studies assists IOUs in selecting and managing a portfolio of programs to meet the Commission's objectives as well as provide them with access to information on a real-time basis to improve program delivery. While soliciting input from Commission staff, the IOUs should also take the lead in allocating Commission-authorized funding for this category of EM&V across individual studies, develop the scope of work for each study and prepare the RFPs when needed. In their program plan applications, the IOU should also describe each type of study (including general scope of work) that they plan to manage and/or directly contract for in this category. All interested parties should have an opportunity to consider whether any of those proposed studies would create a conflict of interest if the IOU or program implementers managed and directly contracted for them.

5. **ED Role in IOU EM&V Studies.** Commission staff's role for approval and involvement in IOU EM&V projects shall be as set forth in Attachment 2 of D.10-04-029.

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[89] D.10-04-029 at 19

[90] D.10-04-029 at 42

a. An IOU shall seek approval from Commission staff before initiating EM&V ex-ante studies, or EM&V process and formative evaluations. The EM&V ex ante studies referred to here are studies conducted by an IOU to develop energy savings estimates in specific cases where there is no existing ex-ante estimate or an existing estimate is out of date[91] and needs testing, and for which Commission staff is not already conducting or planning to conduct a project to develop estimates for the same measure (regardless of the funding dollars).[92] The IOU management role for developing ex-ante savings estimates or EM&V process or formative evaluations shall be under the oversight of Commission staff, who shall have the authority to deny approval of IOU proposed projects. This authority is limited to situations where there is a conflict of interest with a contractor the IOU wishes to hire, where there is duplication or significant overlap with studies already planned or carried out by Energy Division, or where Commission staff can specify why a study is unnecessary or inappropriate.

   Energy Division's approval process for IOU's ex-ante studies, or EM&V process or formative evaluations, is limited to no more than two weeks. Any Commission staff denial of approval shall be in writing to the IOU requesting approval. If the proposed IOUs study is not approved within the two week timeframe, then it will be approved by default.

b. If Commission staff expects to take three months or more to complete an ex ante study, an IOU may request to develop the ex-ante study in order to ensure more timely information. The Commission staff may approve, or reject the request by providing the IOU, within two weeks

[91] D.11-07-030 Attachment B states that it depends on the pace that the industry is moving, indicating that industry standard practice is five years.
[92] D.10-04-029 at 16

of the IOU's request, with a written statement indicating that such rejection is due to duplication of a study that will also be completed within 3 months, conflict of interest or other specific rationale.

c. Commission staff may make case-by-case exceptions to the Commission-adopted firewall policy regarding program implementers in order to collect data needed for EM&V.

6. **IOU Role in Energy Division managed EM&V Studies.** All EM&V related projects undertaken by the IOUs and Energy Division, regardless of funding source, shall adhere to the same policies and procedures adopted in D.10-04-029 as EM&V-funded projects, except that such EM&V policies and procedures do not apply to projects not previously considered to be in the EM&V category. The process for the IOUs involvement in ED's EM&V studies shall supersede the process adopted in Decision 05-01-055, and shall be as follows:[93]

a. Commission staff and the IOUs will convene publicly-noticed meetings among their staff, EM&V contractors, and stakeholders to share key results and EM&V findings that might lead to improvements in the portfolio and identify best practices and possible improvements to evaluation methods. Such meetings will take place sometime around the middle of the program cycle or at such time when significant results from various EM&V projects are available. If so requested by parties or stakeholders, ED or IOUs, or both, should hold short informal meetings with groups or individual organizations, to discuss EM&V work progress and results.

b. Commission staff and IOUs will convene ad hoc meetings (approximately quarterly) among Commission staff, EM&V contractors, IOU EM&V staff and IOU program managers to discuss work progress and results. These meetings are to provide for timely feedback to program design and implementation. The IOUs can

[93] D.10-04-029 OP 10, 12

request meetings with ED to discuss work progress and results at any time.

c. When significant results are produced by the EM&V work, and a technical report is not immediately pending, the Commission staff and/or the IOUs will provide informal written summaries of the results to the IOUs and other stakeholders. These written summaries will be posted on the same website used for posting EM&V work plans and comments.

7. **Dispute Resolutions.** A party may file a "Motion for Evaluation, Measurement and Verification Dispute Resolution" (EM&V Motion) with the assigned Administrative Law Judge for resolution of an EM&V matter. The EM&V Motion must include a statement from Commission staff giving its side of the dispute and documentation of an attempt at informal dispute resolution. The Administrative Law Judge may issue a Ruling to resolve the dispute. The filing party or the Commission staff may ask that the matter be resolved by the assigned Commission or the full Commission. In that case, the Administrative Law Judge (ALJ) will consult with the assigned Commissioner to determine the appropriate course of action. In this situation, the assigned Commissioner or ALJ may issue a Ruling to resolve the dispute. If the assigned Commissioner determines the matter should be brought before the full Commission, the ALJ or assigned Commissioner shall issue a Proposed Decision and allow for comment under Rule 14 of the Commission's Rules of Practice and Procedure. An EM&V motion filed pursuant to D.10-04-029 may be used for the following purposes only: [94]

   - Dispute over selection of an EM&V contractor;
   - Disputes about project-specific final EM&V work plans;
   - Disputes over results of EM&V studies or reports (except for Energy Division Verification Reports, which are issued via draft resolutions per D.08-12-059);

[94] D.10-04-029 OP 7-9

- Disputes regarding final EM&V technical reports; and
- Disputes concerning public vetting of EM&V projects.

8. **Public Vetting Process.** ED shall determine which EM&V projects should be publicly vetted, and shall follow the process laid out in the Energy Division Straw Proposal, pages 8-11, issued by Ruling in A.08-07-021 on July 7, 2009.[95] Commission staff should coordinate with other pertinent state agencies wherever such coordination enhances the state's overall energy policy goals.[96] ED should weigh the value of public input on EM&V studies versus the extra time such input would entail.[97]

XIX. Shareholder Incentive Mechanism

At the time of issuance of this Policy Manual, the Shareholder Incentive Mechanism applicable to post-2012 programs is under consideration in R.12-01-005.

XX. Advisory Groups

1. **Purpose of Peer Review Groups (PRG).** Each IOU is advised by a Peer Review Group for the energy efficiency program evaluation and selection process. Each PRG shall include Energy Division and DRA staff, as well as an IOU-selected group of non-financially interested members with extensive energy efficiency expertise that are willing to serve as peer reviewers for the energy efficiency program evaluation and selection process.

2. **Role of PRGs.** As described in D.05-01-055 and D.07-10-032, members of each PRG will be expected to: (1) oversee the development of criteria and selection of government partnership programs, (2) review the IOUs' submittals to the Commission and assess the IOUs' overall portfolio plans, their plans for bidding

[95] D.10-04-029 OP 11

[96] D.10-04-029 at 13-14

[97] Ibid. at 28

out pieces of the portfolio per the minimum bidding requirement and (3) review the bid evaluation utilized by the IOUs and their application of that criteria in selecting third-party programs. In addition, the four PRGs are expected to meet and assess the statewide portfolio in terms of its ability to meet or exceed short and long-term savings goals in compliance with these Rules. The PRG will not be responsible for the review of fund shifting.[98]

3. **Programs Advisory Groups.** The IOUs are encouraged to use Program Advisory Groups as a consultative resource for mid-cycle program changes or additions or for post-2014 portfolio planning. The IOUs should include discussion of a possible Programs Advisory Group role in their proposals to improve the competitive solicitation for third-party programs.[99]

XXI. Affiliate and Disclosure Rules

1. **Transactions with IOU Affiliates.** To avoid anti-competitive behavior and cross-subsidies between IOUs and their affiliates, all transactions between the IOU administrator and any implementer that is an affiliate of PG&E, SCE, SDG&E or SoCalGas are banned, per D.05-01-055.

2. **Treatment of Energy Efficiency Service Providers.** The IOUs, RENs and CCAs will not provide preferential treatment to any provider of an energy efficiency service that uses energy efficiency program funds.

3. **Conflict of Interest.** Bidders for EM&V contracts, including program design evaluation and market assessment studies, shall provide full disclosure of any potential conflicts of interest, including all current non-energy efficiency related contracts with IOUs, RENs, CCAs and program implementers.

[98] D.09-09-047 at 311

[99] D.12-05-015 at 371

XXII. Process and Procedural Issues

1. **Energy Efficiency Policy Manual Disclaimer**. This Policy Manual is a summary of Commission directives for energy efficiency. It does not supersede any Commission Decision. IOUs, RENs and CCAs are required to meet the orders of previous Commission decisions regardless of whether or not they are included in this policy manual. If there is any conflict between this Policy Manual and a Commission decision, the Commission's decision controls.

2. **Modifications to Policy Manual and Related Rules.** The assigned ALJ or Commissioner may issue a ruling directing Commission staff revisions to the Policy Manual when necessary.

3. **Complaints and Dispute Resolution.** Any program proposal for energy efficiency funding must describe a dispute resolution process to be used in dealing with complaints from end-use gas or electric consumers participating or attempting to participate in the program. In programs where the IOUs, RENs, and CCAs hold contracts with third parties, those contracts will also be required to include dispute resolution provisions.

APPENDIX A: Reference Documents

1. **Energy Action Plan**

   http://www.cpuc.ca.gov/PUBLISHED/REPORT/51604.htm

2. **Energy Action Plan Update, February 2008**

   http://www.cpuc.ca.gov/NR/rdonlyres/58ADCD6A-7FE6-4B32-8C70-7C85CB31EBE7/0/2008_EAP_UPDATE.PDF

3. **California Energy Efficiency Strategic Plan**

   September 2008 Plan

   http://www.cpuc.ca.gov/NR/rdonlyres/D4321448-208C-48F9-9F62-1BBB14A8D717/0/EEStrategicPlan.pdf

   Action Plans can be found at:

   http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/eesp/index.htm

4. **Standard Practice Manual.** Economic Analysis of Demand-Side Management Programs. October 2001.

   ftp://ftp.cpuc.ca.gov/puc/energy/electric/energy+efficiency/em+and+v/std+practice+manual.doc

   SPM 2001 Correction Memo. From D.07-09-043, Attachment 9, page 7 of 7 linked below for the "SPM Correction Memo of October 7, 1988"

   http://www.cpuc.ca.gov/NR/rdonlyres/3D41FF54-9809-4651-8898-78F93F84999B/0/CorrectionMemoSPM1071988.pdf

   SPM 2007 Clarification Memo From D.07-09-043, attached to this reference list.

   http://www.cpuc.ca.gov/NR/rdonlyres/A7C97EB0-48FA-4F05-9F3D-4934512FEDEA/0/2007SPMClarificationMemo.doc

   NTG Numerical Examples from D.07-09-043

   http://www.cpuc.ca.gov/NR/rdonlyres/101F0713-7277-43A8-883D-8EF2712EFA8A/0/NumericalExamplesNTGAdjtoTRCD0709043.pdf

5. **Database for Energy Efficient Resources (DEER)**

   http://www.deeresources.com

6. **Methodology and Forecast of Long Term Avoided Costs for the Evaluation of California Energy Efficiency Programs**

http://www.ethree.com/CPUC/E3_Avoided_Costs_Final.pdf

7. **CPUC Energy Efficiency Program Reporting Requirements Manual**

   http://eega.cpuc.ca.gov/StandardTables/GuidanceDocument.aspx

8. **CPUC Energy Efficiency Program EM&V Protocols**
   ftp://ftp.cpuc.ca.gov/PUC/energy/electric/energy+efficiency/em+and+v/evaluatorsprotocols_final_adoptedviaruling_06-19-2006.doc

9. **D.04-09-060** Interim Opinion: Energy Savings Goals for Program Year 2006 and Beyond. See attached tables for the savings goals adopted in that decision, by IOU service territory.

   http://www.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/40212.htm

   Subsequent decisions and that affected the goals are summarized in:

   http://www.cpuc.ca.gov/NR/rdonlyres/1B6275F6-DFE2-44EE-A273-6CC7E8D54CAA/0/AppendixP.pdf

10. **D.05-01-055** Interim Opinion on the Administrative Structure for Energy Efficiency: Threshold Issues

    http://www.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/43628.htm

11. **D.05-04-051** Update Policy Rules For Post-2005 Energy Efficiency and Threshold Issues Related to Evaluation, Measurement and Verification of Energy Efficiency Programs

    http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/45783.PDF

12. **D.05-09-043** Interim Opinion: Energy Efficiency Portfolio Plans and Program Funding Levels for 2006-2008 – Phase 1 Issues

    http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/49859.PDF

13. **D.06-06-063** Interim Opinion: 2006 Update of Avoided Costs and Related Issues Pertaining To Energy Efficiency Resources

    http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/57756.PDF

14. **D.07-09-043** Interim Opinion on Phase 1 Issues: Shareholder Risk/Reward Incentive Mechanism for Energy Efficiency Programs

    http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/73172.PDF

15. **D.07-10-032** Interim Opinion on Issues Relating to Future Savings Goals and Program Planning for 2009-2011 Energy Efficiency and Beyond

    http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/74107.PDF

16. **D.08-01-006** Interim Opinion Denying Joint Petition for Modification of Decision 06-06-063

    http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/77638.PDF

17. **D.08-07-047** Decision Adopting Interim Energy Efficiency Savings Goals for 2012 Through 2020, and Defining Energy Efficiency Savings Goals for 2009 Through 2011

    http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/85995.PDF

18. **D.08-09-040** Decision Adopting the California Energy Efficiency Strategic Plan

    http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/91068.PDF

19. **D.09-05-037** Interim Decision Determining Policy and Counting Issues for 2009 to 2011 Energy Efficiency Programs

    http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/101543.PDF

20. D.09-09-047 Decision Approving 2010 to 2012 Energy Efficiency Portfolios and Budgets

    http://docs.cpuc.ca.gov/PublishedDocs/PUBLISHED/GRAPHICS/107829.PDF

21. **D.10-04-029** Decision Determining Evaluation, Measurement and Verification Processes for 2010 Through 2012 Energy Efficiency Portfolios

    http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/116710.PDF

22. **D.10-12-054** Decision Addressing Petition For Modification Of Decision 09-09-047

    http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/128605.PDF

23. D.11-07-030 Third Decision Addressing Petition for Modification of Decision 09-09-047**,** 2010-12 Ex-Ante Value Update

    http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/139858.PDF

24. D.12-05-015 Decision Providing Guidance on 2013-2014 Energy Efficiency Portfolios and 2012 Marketing, Education, and Outreach

    http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/166830.PDF

25. **D.12-11-015** Decision Approving 2013-2014 Energy Efficiency Programs and Budgets

    http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M034/K299/34299795.PDF

APPENDIX B: GLOSSARY

COMMON ENERGY EFFICIENCY TERMS AND DEFINITIONS

Adopted Program Budget
The program budget as it is adopted by the Commission. Inclusive of costs (+/-) recovered from other sources.

Advanced Technologies
Measures or processes which exceed the efficiency or thermodynamic performance of standard energy using equipment or processes.

Affiliate
Any person, corporation, utility, partnership, or other entity 5% or more of whose outstanding securities are owned, controlled, or held with power to vote, directly or indirectly either by an administrator or any of its subsidiaries, or by that administrator's controlling corporation and/or any of its subsidiaries as well as any company in which the administrator, its controlling corporation, or any of the administrator's affiliates exert substantial control over the operation of the company and/or indirectly have substantial financial interests in the company exercised through means other than ownership. For purposes of these Rules, "substantial control" includes, but is not limited to, the possession, directly and indirectly and whether acting alone or in conjunction with others, of the authority to direct or cause the direction of the management of policies of a company. A direct or indirect voting interest of five percent (5%) or more by the administrator, its subsidiaries, or its affiliates in an entity's company creates a presumption of control.

Avoided Costs
Avoided costs refers to the incremental costs avoided by the investor-owned utility when it purchases power from qualifying facilities, implements demand-side management, such as energy efficiency or demand-response programs, or other wise defers or avoids generation from existing/new utility supply-side investments or energy purchases in the market. Avoided costs also encompass the deferral or avoidance of transmission and distribution-related costs. (D.08-01-006, Footnote 2)

Baseline Data
The state of performance and/or equipment that what would have happened in the

absence of the program induced energy efficiency.

Coincident Peak Demand
The metered or estimated demand of a device, circuit, or building that occurs at exactly the same time as the system peak for a given year and weather condition.

Community Choice Aggregators
Organizations created by local governments pursuant to Assembly Bill 117 for the purpose of procuring power and administering energy efficiency programs on behalf of local citizens.

Competitive Solicitation
The process whereby parties are requested to submit bids offering innovative approaches to energy savings or improved program performance.

Conservation
Reduction of a customer's energy use achieved by relying on changes to the customer's behavior which may result in a lower level of end use service.

Conservation Measures
Activities and/or behaviors aimed at reducing energy consumption.

Conservation Programs
Programs which are intended to influence customer behavior as a means to reduce energy use.

Cost Effectiveness
An indicator of the relative performance or economic attractiveness of any energy efficiency investment or practice when compared to the costs of energy produced and delivered in the absence of such an investment.

Cream Skimming
Cream skimming results in the pursuit of a limited set of the most cost-effective measures, leaving behind other cost-effective opportunities. Cream skimming becomes a problem when lost opportunities are created in the process.

Cross Subsidization
Benefits enjoyed by one group, such as a customer class, which are funded by another group.

Custom Measures/projects
Energy efficiency efforts where the customer financial incentive and the ex ante energy savings are determined using a site-specific analysis of the customer's facility (D.11-07-030 page 31).

Customer
Any person or entity that pays an electric and/or gas bill to an IOU or CCA and that is the ultimate consumer of goods and services including energy efficiency products, services, or practices.

Cumulative Savings
As clarified in D.07-10-032, cumulative savings represent the savings in that year from all previous measure installations (and reflecting any persistence decay that has occurred since the measures were installed) plus the first-year savings of the measures installed in that program year.

Deemed Measure
A prescriptive energy efficiency measure.

Delayed Installation
Products which are claimed as installed in a specific quarter but are likely to be installed at a later date (D.11-07-030, page 21).

Dual Test
The requirement that an energy efficiency activity pass both the TRC and the PAC cost-effectiveness test.

E3 Calculator
The E3 calculator is a model developed by Energy Environmental Economics (or "E3" for use by the IOUs to map Commission-adopted avoided costs to energy efficiency programs for cost-effectiveness calculations.

Effective Useful Life (EUL)
An estimate of the median number of years that the measures installed under the program are still in place and operable.

Electricity Savings
Reduced electricity use (or savings) produced by either energy efficiency investments which maintain the same level of end use service or conservation actions which usually reduce energy use by reducing the quantity or quality of the baseline energy services

demanded.

Emerging Technologies
New energy efficiency technologies, systems, or practices that have significant energy savings potential but have not yet achieved sufficient market share (for a variety of reasons) to be considered self sustaining or commercially viable. Emerging technologies include late stage prototypes or under-utilized but commercially available hardware, software, design tools or energy services that if implemented appropriately should result in energy savings.

Emissions Reductions
The Commission requires annual reporting of reduced emissions of carbon dioxide (CO2), sulfur oxides (SOx), nitrous oxides (NOx), and particulate matter (PM10) as a result of energy efficiency savings. The IOUs use the E3 calculator to compute the annual electric and natural gas emissions reductions, which are the units implemented in the year times the annual emission reduction for a particular measure. The E3 calculator calculates values of CO2 in tons per kWh or therms; NOx and PM10 are in pounds per kWh or therms.

The following equations are from the "E3 Calculator Tech Memo" found at the following web link:
http://ethree.com/documents/E3%20EE%20calcs/E3%20Calculator%20TechMemo%205d.doc

Electric Reductions: CO2 tons per year *(Emission[E][CO2])*

$$Emission[E][CO2]_y = \sum_{Q=1+(y-1)*4}^{y*4} \left(IN_{M,Q} * kWh\_A_M * NTG_M * ER[CO2]_M \right)$$

Where

y	=	year of consideration. 2006 = 1. "Total Annual" used for years 2008 through the end of the implementation period.
Q	=	Quarter of the year. Jan-Mar 2006 = 1.
$IN_{M,Q}$	=	# of incremental of measures implemented in quarter *Q*.
NTG_M	=	Net–to-Gross ratio for measure *M*.
$ER[CO2]_M$	=	Emission rate of CO2 in tons per kWh of measure *M*. (The emissions rate for each measure is calculated using the product of the hourly measure savings load shape and the hourly heat

rate for the IOU.).

kWh_A_M = Annual kWh reduction for measure *M*.

NOX and PM-10 equations are the same. Just replace [CO2] with the appropriate indicator. Note that CO2 emission rate is in tons per kWh. NOX and PM-10 are in pounds per kWh.

Gas Reductions: CO2 tons per year *(Emission[G][CO2])*

$$Emission[G][CO2]_y = \sum_{Q=1+(y-1)*4}^{y*4} \left(IN_{M,Q} * Th\_A_M * NTG_M * ER[CO2]_{GCT} \right)$$

$$Emission[G][CO2]_y = \sum_{Q=1+(y-1)*4}^{y*4} \left(IN_{M,Q} * Th\_A_M * NTG_M * ER[CO2]_{GCT} \right)$$

Where

y = year of consideration. 2006 = 1. "Total Annual" used for years 2008 through the end of the implementation period.

Q = Quarter of the year. Jan-Mar 2006 = 1.

$IN_{M,Q}$ = # of incremental of measures implemented in quarter *Q*.

NTG_M = Net–to-Gross ratio for measure *M*.

$ER[CO2]_{GCT}$ = Emission rate of CO2 in tons per therm, based on the gas combustion type (GCT) specified on the input sheet for the measure.

Th_A_M = Annual gas reduction (in therms) for measure *M*.

NOX and PM-10 equations are the same. Just replace [CO2] with the appropriate indicator. Note that CO2 emission rate is in tons per Therm. NOX and PM-10 are in pounds per Therm.

Energy Efficiency Groupware Application (EEGA)
The IOUs post reports to the EEGA webpage, which is accessible to the public: http://eega.cpuc.ca.gov.

End Use

1) The purpose for which energy is used (e.g. heating, cooling, lighting).
2) A class of energy use that an energy efficiency program is concentrating efforts upon. Typically categorized by equipment purpose, equipment energy use intensity, and/or building type.

Energy Efficiency
Activities or programs that stimulate customers to reduce customer energy use by making investments in more efficient equipment or controls that reduce energy use while maintaining a comparable level of service as perceived by the customer.

Energy Efficiency Measure
An energy using appliance, equipment, control system, or practice whose installation or implementation results in reduced energy use (purchased from the distribution utility) while maintaining a comparable or higher level of energy service as perceived by the customer. In all cases energy efficiency measures decrease the amount of energy used to provide a specific service or to accomplish a specific amount of work (e.g., kWh per cubic foot of a refrigerator held at a specific temperature, therms per gallon of hot water at a specific temperature, etc). For the purpose of these Rules, solar-powered, non-generating technologies are eligible energy efficiency measures (D.09-12-022, OP 1).

Energy Efficiency Programs
Programs that reduce customer energy use by promoting energy efficiency investments or the adoption of conservation practices or changes in operation which maintain or increase the level of energy services provided to the customer.

Energy Efficiency Savings
The level of reduced energy use (or savings) resulting from the installation of an energy efficiency measure or the adoption of an energy efficiency practice, subject to the condition that the level of service after the investment is made is comparable to the baseline level of service. The level of service may be expressed in such ways as the volume of a refrigerator, temperature levels, production output of a manufacturing facility, or lighting level per square foot.

Evaluation, Measurement and Verification (EM&V)
Activities that evaluate, monitor, measure and verify performance or other aspects of energy efficiency programs or their market environment.

Evaluation Project Budget
The project level evaluation budget as it is defined by the program administrators or Energy Division for internal program budgeting and management purposes. Inclusive of direct and allocated overhead and costs (+/-) recovered from other sources.

Ex Ante Values

Estimated savings values calculated based on assumptions prior to the evaluation of the portfolio cycle. These savings reflect the IOU reported savings, which are trued up with final evaluation.

Ex Ante Review
The review process that occurs before savings for a measure or project savings claim is "frozen" to verify that the ex ante values used to calculate the reported savings are reasonable and based on best available information.

Financial Incentive
Financial support (e.g., rebates, low interest loans, free technical advice) provided to customers as an attempt to motivate the customers to install energy efficient measures or undertake energy efficiency projects. (See Rebate)

Free Drivers
A free driver is a non-participant who adopted a particular efficiency measure or practice as a result of a utility program. (From April 2006 EM&V Protocols)

Free riders (Free Ridership)
Program participants who would have installed the program measure or equipment in the absence of the program.

Fuel Substitution
Programs which are intended to substitute energy using equipment of one energy source with a competing energy source (e.g. switch from electric resistance heating to gas furnaces).

Funding Cycle
Period of time for which funding of energy efficiency programs have been approved by the Commission.

Gas Savings
Reduced natural gas usage (or savings) produced by either energy efficiency investments which maintain the same level of end use service or conservation actions which can reduce energy use by reducing the quantity or quality of the baseline services provided.

Gross Savings
Gross savings count the energy savings from installed energy efficiency measures

irrespective of whether or not those savings are from free riders, i.e., those customers who would have installed the measure(s) even without the financial incentives offered under the program. Gross savings are adjusted by a net-to-gross ratio to produce net savings, that is, to remove the savings associated with free riders.

Gross Realization Rate
Gross Realization Rate (GRR) is the ratio of achieved energy savings to predicted energy savings; as a multiplier on Unit Energy Savings, the GRR takes into account the likelihood that not all Commission-approved projects undertaken by IOUs will come to fruition.

Hard to Reach, Residential
Those customers who do not have easy access to program information or generally do not participate in energy efficiency programs due to a language, income, housing type, geographic, or home ownership (split incentives) barrier. These barriers are defined as:

Language – Primary language spoken is other than English, and/or
Income – Those customers who fall into the moderate income level (income levels less than 400% of the federal poverty guidelines and/or
Housing Type – Multi-family and Mobile Home Tenants, and/or
Geographic – Businesses in areas other than the San Francisco Bay Area, San Diego area, Greater Los Angeles Area (Los Angeles, Orange, San Bernardino, Riverside and Ventura counties)or Sacramento, and/or
Home Ownership – Renters

Incremental Measure Cost
The additional cost of installing a more efficient measure calculated from the price differential between energy-efficient equipment and services and standard or baseline state. These costs include any direct or indirect incremental cost that is attributable to the energy efficiency activity. This may include design assistance, surveys, materials and labor, commissioning costs, etc.

Information & Education
Information and education programs can provide a wide range of activities designed to inform or educate a customer or customer group. Generally these range from in-depth, one-on-one, on-site or centrally located classroom style instruction in topics related to energy efficiency, to programs that target information to specific types of customers, to general information provided to a wide range of customers, to short inexpensive public service announcements on FCC approved communication frequencies. Programs intended to provide customers with information regarding generic (not customer-specific) conservation and energy efficiency opportunities. For these programs, the

information may be unsolicited by the customer.

Innovation Incubator
A low-cost, stand-alone program designed to grow innovative energy saving programs and processes for the larger portfolio over the long term. The incubator funds new program ideas that meet reasonable scientific scrutiny for potentially cost-effective energy savings and peak reduction.

Installation Rate
Installation Rate is the ratio of the number of verified installations of a measure divided by the number of claimed installations rebated by the utility during a claim period. Typically Installation Rates used on an ex ante basis will be based upon previous ex post evaluations.

Institutional Barriers
A type of market barrier: In this case, the internal organizational hurdles that inhibit the evaluation and or choice to take energy efficiency actions.

Least Cost/Best Fit
The procurement of cost-effective supply and demand-side resources that, regardless of ownership, meet capacity and energy deliverability requirements. Energy efficiency resources are constructed from the bottoms up approach that aggregates the demand and energy savings from various energy-saving measures and activities into applicable end-use categories such as space cooling, space heating, lighting, and refrigeration, in order to provide near- and long-term peaking, intermediate, and baseload requirements.

Levelized Cost
An estimate of the annualized cost of installing an energy efficiency measures divided by the annual energy savings. Typically calculated by multiplying the incremental cost of the measure by capital recovery factor (function of discount rate and expected useful life of the measure) and then dividing by annual energy savings.

Load Management
Programs which reduce or shift electric peak demand away from periods of high cost electricity to non-peak or lower cost time periods, with a neutral effect on or negligible increase in electric use.

Lost Opportunities
Energy efficiency measures that offer long-lived, cost-effective savings that are fleeting

in nature. A lost opportunity occurs when a customer does not install an energy efficiency measure that is cost-effective at the time, but whose installation is unlikely to be cost-effective if the customer attempts to install the same measure later.

Market Effect
A market effect is a change in the structure or functioning of a market or the behavior of participants in a market that result from one or more program efforts. Typically these efforts are designed to increase in the adoption of energy-efficient products, services or practices and are causally related to market interventions. Market effects include reductions in energy consumption and/or demand in a utility's service area caused by the presence of the DSM program, beyond program related gross or net savings of participants. These effects could result from: (a) additional energy efficiency actions that program participants take outside the program as a result of having participated; (b) changes in the array of energy-using equipment that manufacturers, dealers and contractors offer all customers as a result of program availability; and (c) changes in the energy use of non-participants as a result of utility programs, whether direct (e.g., utility program advertising) or indirect (e.g., stocking practices such as (b) above or changes in consumer buying habits)." Participant spillover is described by (a), and non-participant spillover, by (b) and (c). Some parties refer to non-participant spillover as "free-drivers." (From EM&V Protocols, April 2006)

Market Transformation
Decision (D.)09-09-047, defines market transformation as "long-lasting, sustainable changes in the structure or functioning of a market achieved by reducing barriers to the adoption of energy efficiency measures to the point where continuation of the same publicly-funded intervention is no longer appropriate in that specific market. Market transformation includes promoting one set of efficient technologies until they are adopted into codes and standards (or otherwise adopted by the market), while also moving forward to bring the next generation of even more efficient technologies to the market."[100]

Marketing, Education and Outreach (ME&O)
Communications activities designed to identify, reach and motivate potential customers

[100] D.09-09-047 at p.354, OP 10.

to take actions to either learn more about or invest in energy efficiency opportunities.

Measures
1) Specific customer actions which reduce or otherwise modify energy end use patterns.
2) A product whose installation and operation at a customer's premises results in a reduction in the customer's on-site energy use, compared to what would have happened otherwise.

Net savings
The savings realized when free ridership is accounted for. The savings is calculated by multiplying the gross savings by the net to gross ratio.

Net to Gross Ratio
A ratio or percentage of net program savings divided by gross or total impacts. Net to gross ratios are used to estimate and describe the free-ridership that may be occurring within energy efficiency programs.

Non-price Factors
Those factors included in cost effectiveness tests, other than commodity prices and transportation and distribution costs, e.g., environmental factors.

Non-Resource Program
Energy efficiency programs that do not directly procure energy resources that can be counted, such as marketing, outreach and education, workforce education and training, and emerging technologies.

Participant Test
The Participant Test is the measure of the quantifiable benefits and costs to the customer due to participation in a program. Since many customers do not base their decision to participate in a program entirely on quantifiable variables, this test cannot be a complete measure of the benefits and costs of a program to a customer. (See SPM link under Attachment A.)

Partnership
Coordinated efforts of a utility and a local government or other entity to use the strengths of both parties to achieve energy savings goals.

Peak Demand, Reported (per OP 1 of D.06-06-063 as modified by D.12-05-015)
The peak megawatt load reduction contained in the most recently adopted DEER used

to estimate and verify peak demand savings values. The DEER method utilizes an estimated average grid level impact for a measure between 2 PM and 5 PM during a "heat wave" defined by a three consecutive weekdays for weather conditions that are expected to produce a regional grid peak event. DEER utilizes a 3-day "heat wave" that occurs on consecutive days in June through September such that the three consecutive days do not include weekends or holidays, and where the heat wave is ranked by giving equal weight to the peak temperature during the 72-hour period, the average temperature during the 72-hour period and the average temperature from noon – 6 PM over the three days.

Peak Demand-General (kW)
1) The maximum level of metered demand during a specified period, such as a billing month, or during a specified peak demand period.
2) Extremely high energy use, usually with reference to a particular time period.

Peak Savings- Coincident (kW)
The estimated peak (e.g. highest) demand savings (MW or kW) from a program for a specific time, date, and location coincident with the forecasted system peak for a given area and a given set of weather conditions. This estimate must also include consideration of the likelihood that the equipment is actually on at the time of coincident peak. Usage of this definition: Resource planning- for making adjustments to forecasts of peak usage for understanding reserve margins and reliability purposes.

Peak Savings- Daily Average (kW)
The average peak demand savings (kWh impacts/ # of hours in the peak rate period) for a given utility during their peak season. Example for SCE-Peak period is for summer weekdays from 12-6 PM. So - daily average savings would be the number of kWh saved/ # of kWhs saved for all weekday peak periods (= kWh/5 days/week * 12 weeks/ summer* 6 hours/day = kW average. Usage: Cost effectiveness analysis, primarily for valuing energy savings that occur during the peak period using "peak" average avoided costs.

Peak Savings –Non coincident (kW)
Estimated highest level of peak savings(kW or MW) for a given program during the peak time period for a given utility on the hottest day of a "normal" weather year. Thus if a group of measures saved 1MW at 2PM, 1.7 MW at 3PM, 1.6 MW at 4PM, 1.0 MW at 5 PM and 1.2 MW at 6 PM, the peak non coincident savings would be 1.7 MW. This savings estimate does not take into account how many of the affected devices or equipment will be operating during the peak time period. Usage: Cost effectiveness analysis and procurement.

Peer Review Group (PRG)
A subset of the Program Advisory Group consisting of non-financially interested members who will review utility submittals to the Commission, assess overall portfolio plans, plans for bidding out pieces of the portfolio, and the bid evaluation criteria for selecting third-party programs.

Performance Uncertainties
A market barrier: refers to new technologies or systems whose efficiency or system performance levels are uncertain due to lack of experience.

Portfolio
All IOU and non-IOU energy efficiency programs funded by ratepayers that areimplemented during a program year or cycle. May also refer to a group of programs sponsored, managed, and contracted for by a particular IOU.

Portfolio Reporting
Regularly scheduled reporting by the portfolio administrators directly to the Commission. Metrics reported are: portfolio budgets and expenditures, measures installed, services rendered, and other program activity deemed relevant to Energy Division's responsibility to support the Commission's responsibilities of quality assurance, policy oversight, and EM&V.

Pre-commercialization
A phase in the life of a product before it is readily available on the market.

Program
A collection of defined activities and measures that

- are carried out by the administrator and/or their subcontractors and implementers,
- target a specific market segment, customer class, a defined end use, or a defined set of market actors (e.g. designers, architects, homeowners),
- are designed to achieve specific efficiency related changes in behavior, investment practices or maintenance practice in the energy market,
- and are guided by a specific budget and implementation plan.

Program Activities
Any action taken by the program administrator or program implementer in the course of implementing the program.

Program Administrator
An entity tasked with the functions of portfolio management of energy efficiency programs and program choice.

Program Administrator Cost (PAC) Test
Under portfolio evaluation of cost effectiveness, the PAC test contains the program benefits of the TRC test, but costs are defined differently to include the costs incurred by the program administrator but not the costs incurred by the participating customer. (See the SPM link under Attachment A.)

Program Advisory Group (PAG)
Advisory groups for each utility service area composed of energy efficiency experts representing customer groups, academic organizations, environmental organizations, agency staff and trade allies in the energy market.

Program Cycle
The period of time over which a program is funded and implemented.

Program Implementation Plan
A detailed description of a program that includes program theory, planned program processes, expected program activities, program budget, projected energy savings and demand reduction and other program plan details as required by the Commission, assigned ALJ, or Energy Division.

Program Implementers
An entity or person that puts a program or part of a program into practice based on contacts or agreements with the portfolio manager.

Program Strategy
The set of activities deployed by the program in order to achieve the program's objectives.

Program Year(s)
The calendar year(s) during which the program operates.

Ratepayer
Those customers who pay for gas or electric service under regulated rates and conditions of service.

Rebate

A financial incentive paid to the customer in order to obtain a specific act, typically the installation of energy efficiency equipment.

Remaining Useful Life (RUL)
An estimate of the median number of years that an measure being replaced under the program would remain in place and operable had the program intervention not caused the replacement.

Report Month
The month for which a particular monthly report is providing data and information. For example, the report month for a report covering the month of July 2006, but prepared and delivered later than July 2006, would be July 2006.

Resource Programs
Energy Efficiency programs that generate energy savings that are quantified and tracked by program administrators.

Resource Value
An estimate of the net value of reliable energy (e.g., kWh, therms) and capacity (e.g., kW, Mcfd) reductions resulting from an energy efficiency program. This includes the net present value of all of the costs associated with a program and all of the estimated benefits (both energy and capacity). The calculation of resource value and associated benefits should be consistent with the avoided costs adopted in the most recent Commission proceeding or otherwise provided for by the Commission.

Savings Decay
The reduction of cumulative savings due to previous measure installations passing their Remaining Useful Life or Effective Useful Life. Per D.09-09-047 and until EM&V results inform better metrics, IOUs may apply a conservative deemed assumption that 50% of savings persist following the expiration of a given measure's life.[101]

Service Area
The geographical area served by a utility.

[101]D.09-09-047 at p.334

Short Term/Long Term
Planning terms referring to the timing or expected timing of program activities, program impacts, or program funding. Short term indicates program activities, program impacts, or program funding that occurs during the current program cycle. Long term indicates program activities, program impacts, or program funding that occurs beyond the current program cycle.

Source-BTU Consumption
Conversion of retail energy forms (kWh, therms) into the BTU required to generate and deliver the energy to the site. This conversion is used to compare the relative impacts of switching between fuel sources at the source or BTU level for the three-prong test required for fuel-substitution programs.

Standard Practice Manual (SPM)
The California Standard Practice Manual: Economic Analysis of Demand-side Programs and Projects is jointly issued by the California Public Utilities Commission and the California Energy Commission. The SPM provides the definitions for the standard cost effectiveness tests and their components used for energy efficiency programs. SPM tests are further clarified in Commission Decisions as cited in the Cost-Effectiveness Rules in this Policy Manual.

Statewide
Energy efficiency programs or activities that are essentially similar in design and available in all Commission regulated utility service areas in California.

Third Party/Non-IOU
Non-regulated implementers of ratepayer funded energy efficiency activities.

Total Resource Cost Test (TRC)
The TRC test measures the net resource benefits from the perspective of all ratepayers by combining the net benefits of the program to participants and non-participants. The benefits are the avoided costs of the supply-side resources avoided or deferred. The TRC costs encompass the cost of the measures/equipment installed and the costs incurred by the program administrator. (See SPM link under Attachment A.)

Unit Energy Consumption
Unit Energy Consumption (UEC) is the expected annual energy consumption of a technology, group of technologies, or process.

Unit Energy Savings

Unit Energy Savings (UES) is the estimated difference in annual energy consumption between a measure, group of technologies or processes and baseline, expressed as kWh for electric technologies and therms for gas technologies

Upstream Incentives
Incentives provided to manufacturers or retailers of high efficiency products in order to encourage their production and sales, in contrast to the more common downstream incentives, which are provided directly to customers as rebates.

Workpapers
Documentation prepared by the program administrators or program implementers that documents the data, methodologies, and rationale used to develop ex-ante estimates that are not in already fully contained in the Database for Energy Efficiency Resources (DEER) (D.10-04-029, footnote page 20).

Zero Net Energy
Zero Net Energy is defined as the implementation of a combination of building energy efficiency design features and on-site clean distributed generation such that the amount of energy provided by on-site renewable energy sources is equal to the energy consumed by the building annually, at the level of a single "project" seeking development entitlements and building code permits. Definition of zero net energy at this scale enables a wider range of technologies to be considered and deployed, including district heating and cooling systems and/or small-scale renewable energy projects that serve more than one home or business. (D.07-10-032, Footnote 42.)

(END OF APPENDIX B)

APPENDIX C: ADOPTED FUND SHIFTING RULES

As modified byD.12-11-015, 12/22/2011 ACR (R.09-11-014), D.09-09-047, D.09-05-037,D.07-10-032, D.06-12-013, andD.05-09-043

Fund Shifting Category	Shifts Among Budget Categories, Within Program	Shifts Among Programs, Within Category	Shifts Among Categories
Statewide Program (except ET, ME&O, and C&S)	No formal Commission review/approval required	No formal Commission review/approval required	Advice letter required for shifts >15% between statewide program categories in either direction (based on each category funding level) per annum. See rules below for shifting away from ET, ME&O, and C&S.
Third Party Programs (competitively bid) (See Notes Below)	No formal Commission review/approval required	No formal Commission review/approval required	Advice Letter required for shifts >15% between statewide and Third Party (competitively bid) program categories in either direction (based on total category funding level) per annum. Advice Letter is required if allocation to competitively bid programs falls below 20% of total portfolio funding.
Local Government and Institutional Partnerships (See Notes Below)	No formal Commission review/approval required	No formal Commission review/approval required	Advice Letter required for shifts >15% between statewide and Local Government and Institutional Partnership program categories in either direction (based on category funding level) per annum.
Other Programs (See Notes Below)	No formal Commission review/approval required	No formal Commission review/approval required	Advice Letter required for shifts >15% between program categories in either direction (based on category funding level) per annum.

Statewide C&S / ET / Marketing Education & Outreach (See Notes Below)	No formal Commission review/approval required	Advice Letter required for shifts that would reduce any of these programs by more than 1% of budgeted levels	Advice letter required for shifts that would reduce any of these programs by more than 1% of budgeted levels.

Notes

1. Any fund shifting will be shown on the quarterly fund shifting report which will be provided to the Energy Division beginning 7/1/13 (and every 90 days thereafter).
2. No program or sub-program shall be eliminated except through the Advice Letter process.
3. For adding new programs, except those chosen during a competitive process, an Advice Letter must be filed.
4. "Third Party Programs" include any third-party programs that are competitively bid and count towards the 20% competitive bidding requirement. In aggregate, these programs constitute a twelfth category (in addition to the 11statewide program categories), subject to the 15% fund-shifting rule requiring an Advice Letter if the amount transferred from this category is greater than 15% in either direction. Fund-shifting of any amount within this twelfth program category is allowed without an Advice Letter.
5. "Local Government and Institutional Partnerships." In aggregate, these programs constitute a thirteenth category (in addition to the 11statewide program categories, and third-party programs), subject to the 15% fund-shifting rule requiring an Advice Letter if the amount transferred from this category is greater than 15% in either direction. Fund-shifting of any amount within this thirteenth program category is allowed without an Advice Letter.
6. "Other Programs" include local programs and any other programs not capture in the aforementioned categories. In aggregate, these programs constitute a fourteenth category (in addition to the 11statewide program categories, third-party programs, and local government and institutional partnerships), subject to the 15% fund-shifting rule requiring an Advice Letter if the amount transferred from this category is greater than 15% in either direction. Fund-shifting of any amount within this fourteenth program category is allowed without an Advice Letter.

7. The 15% fund-shifting rule, requiring an Advice Letter if the amount transferred from this category is greater than 15% in either direction, is applied to the category funding level in the authorized budget adopted in the compliance filing pursuant to the most recent authorizing decision (or the decision itself, if there is no compliance filing).
8. Utility program administrator may carryover/carryback funding during the current program cycle without triggering a review/approval process.
9. Changes to incentive levels or modifications to program design (such as changes to customer eligibility requirements) will not trigger Energy Division or formal Commission review. Program administrators will notify the Commission of all incentive level changes that take place through the Program Implementation Plan Addendum process.
10. Advice letters are subject to GO 96B.
11. Marketing Education & Outreach and EM&V programs are subject to overall caps adopted in D.09-09-047 OP 13. Program administrators may request fund shifting augmentations if they wish to increase budget caps. In addition, the fund shifting changes adopted in D.09-09-047 are not intended to change Rule II.2 of the Energy Efficiency Policy Manual V.5 as applied to EM&V and ME&O spending below the adopted caps, nor to change the fund shifting rules for C&S or Emerging Technologies programs.

APPENDIX D: Reporting Requirements for Energy Efficiency

Introduction

The following section summarizes reporting requirements[102]for IOUs, and a new class of non-IOU program implementers, the Regional Energy Efficiency Networks (RENs) and Community Choice Aggregators (CCAs.) This includes monthly, quarterly, and annual reporting requirements, as well as ad-hoc and tracking data reporting requirements.

To maintain consistency in program reporting, RENs and CCAs will adhere to the same reporting specifications used by the IOUs for monthly and quarterly program tracking and the annual report. Additionally, Energy Division may require RENs and CCAs to submit monthly narrative reports, which enable staff to track and perform a variety of specialized activities. Detailed specifications for these reports are found on the Energy Efficiency Groupware Application (EEGA.) [www.eega.cpuc.ca.gov]

1) Monthly Reports

IOUs, RENs and CCAs are required to submit monthly status reports in accordance with current Energy Division guidance[103]. The reporting period for each monthly report will be *through the month prior to the submittal date.*

a) Program Definitions

The values below are to be assigned for each program in the utility or program implementer's portfolio. The values below should be updated with each portfolio cycle to reflect the current makeup of the energy efficiency portfolio. This table would allow Commission staff to quickly group the monthly expenditure and energy savings data.

For each program the following information should be provided and if it is a pilot program it should be flagged.

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[102] All templates referenced in this document can be accessed under the "Resources" tab under "Guidance Documents" tab of http://eega.cpuc.ca.gov

[103] Energy Efficiency Program Reporting Timeline can be accessed on The "Documents" tab under Report Catergories "Adhoc Documents"

Program Type	Target Sector	Program Status	Utility Grouping	
Core-SW	Agricultural	New	Agricultural 3P Programs	Industrial 3P Programs
Core-SW/3P	Commercial	Existing	Calculated Incentives	Integrated Demand-Side Management
Government Partnerships	Cross-Cutting	Revised	Codes and Standards	Market Transformation
3P	Industrial		Commercial 3P Programs	Marketing Education and Outreach
	Residential		Continuous Energy Improvement	MFEER
			Deemed Incentives	New Construction
			Emerging Technologies	Plug Load Appliance
			Energy Advisor	Residential 3P Programs
			Financing Programs	Whole House
			Government Partnerships	Workforce Education and Training
			HVAC	

b) Frequency

The due date for monthly reports is the first day of the month 30 days following the month of the report.

2) Quarterly Reports

a) Cap and Target Report

The Cap and Target Report is required by Energy Division in order to identify if a particular program budget category is exceeding the percentage caps and target set by OP 13 of D.09-09-047 (i.e. 10% administrative cap). The report shows program implementer expenditures, third party expenditures and total portfolio expenditures, to-date, broken up by the following budget categories and sub-categories:

i) Administrative Costs
   (1) IOU/Program Implementer (REN, CCA)
   (2) Third Party and Partnership
ii) Marketing and Outreach Costs
   (1) Marketing and Outreach
   (2) Statewide Marketing and Outreach
iii) Direct Implementation Costs
   (1) Incentives and Rebates
   (2) Non-incentives and Rebates
   (3) Target Exempt Programs
iv) EMV Costs

b) Fund Shift Report

The intent of this report is to track any significant shifts in funding across the portfolio and ensure that Commission procedures were followed in getting approval for such shifts. This report lists every program in a program implementer portfolio and provides the following fields:

i) Full Portfolio Cycle Authorized Budget
ii) Individual Year Authorized Budget
iii) Roll Over from/Carry Forward to Previous Year
iv) Individual Year Operating Budget
v) Funds Transferred In (Cumulative for Year)
vi) Funds Transferred Out (Cumulative for Year)
vii) Revised Individual Year Operating Budget
viii) Annual Fund Shift Threshold
ix) Advice Letter Submitted & Approved

c) Frequency of Cap and Target and Fund Shifting Reports:

The due date for monthly reports is the first day of the month 30 days following the month of the report.

3) Utility, REN and CCA Program Tracking Data

The quarterly program tracking data will be the primary source that is used for reporting utility, REN and CCA accomplishments, evaluation sampling, and cost effectiveness calculations.

a) Tracking Data Specifications

The data specification will be posted under the "Guidance" tab of http://eega.cpuc.ca.gov.

b) Frequency of Submittal of Tracking Data

Quarterly reports of are due the first of the third month following the end of the quarter.

4) Program Implementation Plans (PIP)

a) Compliance Filing PIP

PIPs should be filed as part of the utilities compliance advice letter filings. The "current PIP" is the version of the implementation plan currently in effect. The approved PIP should be posted to EEGA.

b) PIP Addendum Process

Starting in 2011, the PIPs will be updated using the PIP addendum process. All continued programs are updated using the PIP addendum process, unless the program is new.

i) Template and Trigger Definition – There are 11 situations that trigger a PIP addendum be posted. These 11 "triggers" are defined in a document titled: "PIP Addendum Trigger Definitions_DISTRIBUTE_V01.doc" that can be found at under the "Guidance" tab on EEGA: http://eega.cpuc.ca.gov/StandardTables/GuidanceDocument.aspx

(1) Reporting Instructions
(2) PIP Addendum – Definitions

5) Program Performance Metrics Annual Reporting

a) Excel Template

A standardized template for reporting Program Performance Metrics is available under the "Guidance" tab on EEGA:

[http://eega.cpuc.ca.gov/StandardTables/GuidanceDocument.aspx]

i) Reporting Templates [drop down]
ii) PPM spreadsheet and narrative template

b) Narrative Template

Each annual PPM report must include a narrative a template for which is included in the in the PPM Spreadsheet and narrative spreadsheet file cited above.

APPENDIX E: Custom Project Review Process

Energy Division Process for Review of Investor Owned Utility Custom Measure *Ex Ante* Values

Introduction:

This document details how the California Public Utilities Commission (Commission) will review the *ex ante* energy savings claims of Investor-Owned Utilities (IOUs) implementing custom measures or projects in the 2010-2012 Energy Efficiency program cycle.

Custom measures and projects are energy efficiency efforts where the customer financial incentive and the *ex ante* energy savings are determined using a site-specific analysis of the customer's existing and proposed equipment, and an agreement is made with the customer to pay the financial incentive upon the completion and verification of the installation. The efforts are by definition unique, each with their own characteristics. Parameters that determine estimated energy savings from a custom measure or project are more variable and less predictable without a site-specific analysis than the more common deemed measures for which savings parameters can be predetermined. As such, it is necessary to establish a clear process by which *ex ante* energy savings estimates from custom measures and projects can be reviewed in real-time as such measures and projects are identified and implemented.

An effective custom measure and project review process balances the needs of program participants who are investors and beneficiaries, the IOUs who administer the programs, and ratepayers who provide incentive funding contingent on adequate oversight of their investment. The process identified here aims to strike that balance. This review process is intended to be applied consistently throughout the program cycle; however, clarification may be made at the discretion of the Assigned Commissioner or Administrative Law Judge.

Chart A of this Attachment includes a graphical schematic depicting the process outlined in this document. In addition, the principles guiding this process and supporting resources are defined herein.

Guiding Principles:
1. Energy savings are the paramount priority of custom measures and projects.

2. The Customer Measure and Project Review Process is intended to allow Energy Division (ED) to review customer projects in parallel with the IOUs, thereby allowing for maximum customer convenience and program oversight.

3. When possible and practical custom measure and project calculation methodologies shall be based upon Database Energy Efficiency Resources (DEER) methodologies as frozen for 2008 DEER version 2008.2.05 or upon methodologies documented within the most current Energy Division reviewed and approved IOU non-DEER deemed workpapers.

4. IOUs are responsible for effective record keeping such that calculation tools, documentation of how those tools were applied to custom measures and projects, and documentation of custom project *ex ante* savings calculations are submitted electronically to the Energy Division.

Supporting Resources:

IOUs are directed to maintain the following supporting resources to enable timely, effective review of custom measures and projects by the Energy Division and their consultants.

Calculation Tool[104] Archive (CTA):
Each IOU shall maintain an archive of all generic tools used in calculating *ex ante* values such that they remain accessible to the Energy Division throughout the program cycle.[105] The archive shall contain all versions of all tools used in the development of *ex*

[104] Tools, in the context of this document, means software, spreadsheets, "hand" calculation methods with procedure manuals, or any automated methods used for estimating *ex ante* values for custom measures or projects.

[105] The IOUs must arrange access to any proprietary tools and software used in the development of *ex ante* values so that Energy Division can perform the review described

Footnote continued on next page

ante values for custom measures or projects claimed during the current program cycle. Project specific tools and processes will be stored in the Custom Measure and Project Archive described below.

The tool archive shall include:

a. All manuals and user instructions, where applicable. If the calculation tool is simply a generic spreadsheet, then all cell formulas and documentation shall be readily accessible from the tool.

b. A list of technologies, measures or projects for which custom calculations are performed using the tool.

The Calculation Tool Archive shall be updated by the IOUs on an ongoing basis during the 2010-2012 program cycle as tools are revised.

Custom Measure and Project Archive (CMPA):

Each IOU shall keep a complete up-to-date electronic archive of all custom measures and projects. Each project should be added to the Archive as soon as possible after either identified in the pre-application stage or the date of the customer's application to the IOU, whichever is earlier. Each project should be assigned a unique identifier that shall not be re-used or re-assigned to other projects.

The IOUs shall provide a summary list of all projects, in pre-application stage and application stage, in their CMPA. Energy Division will provide the IOUs with the format of the summary list. The summary list shall identify each project using its unique identifier and provide a link to the detailed files of each project. The summary list shall also reflect the date of the most recent entry into each project. The summary list shall include for each project the following (Energy Division and the IOUs will work out details of the meaning and specifics of each item below):

- The customer type
- The project type
- Industry Type

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in this document.

- Status (pre-application, application received, application in review, agreement signed, completed, paid, claimed, etc.)
- For pre-application stage projects, a best guess at probability the project will become an application (unknown, very low, low, medium, high, very high; or a percentage probability 0-100% for none to definite) with this status updated as new information becomes available)
- Project location (address)
- Utility contact person (Primary IOU review contact and, if appropriate, primary IOU customer interface contact such as marketing representative)
- Customer segment
- Equipment or process involved
- General description of the proposed project and its energy saving premise
- Estimated *ex ante* energy savings
- the target date when a customer agreement is expected to be issued for customer signature (Agreement Target Date)

The summary list shall be updated at least on the first and third Monday of every month for the duration of the 2010-2012 program cycle, however, the IOU shall provide the updated list more often as necessary to provide Energy Division with information on high priority or fast-tracked applications so as to allow Energy Division to perform reviews of such projects at its sole discretion. The IOUs may provide the summary list by program instead of a consolidated list, should they so desire.

For projects that, within a regular bi-monthly CMPA summary list submission, are projects for which applications have been newly received or projects that have moved from the pre-application state into the application state Energy Division will inform the IOUs of projects which have been selected for review. Such notification shall be before or by the next regularly scheduled CMPA summary list submission. Thus Energy Division will have a minimum of approximately two weeks to decide if a new application measure or project, either in pre-application or application stage will be subject to review and included into its review "sample." An IOU may request that a project review decision be expedited for high priority or fast tracked projects and Energy Division will make its best effort to accommodate such requests. If Energy Division chooses not to review a project an IOU may request such a project be included in the Energy Division review sample. Energy Division shall consider such decision change requests but will limit such changes based upon available resources to ensure adequate coverage of the full cycle portfolio of measures and projects in its review

sample. An IOU request for Energy Division project review may be accepted, denied or deferred into the Early Opinion process at Energy Division's discretion, however, Energy Division shall inform the IOU of its decision as quickly as possible.

For each project sampled for a review, the specific types of documents to be maintained in the CMPA and parameters required to be in the supporting documentation may vary based on the type of project. *Examples* of the expected data elements are listed below.

- Documentation to support Baseline assignment (Code or Standard requirement, Early Retirement, Retrofit, Replace On Burnout, industry standard practice, CPUC policy, etc)[106]
- Existing system controls and operating status description
- Existing system output capacities – current output and maximum/design capacity
- Pre-installation inspection report
- Post-installation inspection report
- Proposed modifications with schematic as applicable
- Preliminary savings calculations and supporting data with documentation to ensure replicability
- Manufacturer's cut sheets when used to estimate *ex ante* savings or when needed to ensure replicability
- Fuel switching considerations and any required analysis per CPUC policy regarding fuel switching projects (see Energy Efficiency Policy Manual)
- Other fuel savings and/or load increases resulting from the project
- Heating, Ventilation, and Air Conditioning (HVAC) interactive effects values and methods used to develop those values, when measures cause a change in HVAC system loads
- Interactions between multiple measures that act to increase or decrease savings relative to a measure stand-alone savings estimate

[106] The baseline parameters used are of primary importance in estimating project savings. Appendix I of this document provides the guidelines by which Energy Division will review baseline parameter selection.

- Pre/post production output data when used in savings calculations and the source of such records
- Billing history - one-year pre installation, with interval data required when available; when *ex ante* estimated values rely upon a per-unit-production changes based on multi-year production data, corresponding billing histories are required
- IOU or implementer program manual (a single archive of these documents should be referenced rather than including the documents in each project archive)
- M&V plans, reports and raw data archives, where applicable
- EUL/RUL value, analysis or source

Projects Energy Division selects for review will have their complete documentation from the IOU CMPA placed into an Energy Division Review CMPA which, with the Utility Custom Project Summary List, will be housed on an internet-accessible website that meets reasonable security and legal requirements. The Energy Division will be responsible to establishing and maintaining that website.

Custom Measure and Project Review Process:

There are two categories of Energy Division's Custom Measure and Project Review Process: general and claims. All reviews are at the Energy Division's discretion; however, if an IOUs *ex ante* values are not reviewed by the Energy Division, the IOU shall rely on those values in making energy savings claims before the Commission after adjusting those values using the gross realization rates as shown in Table 1 below.

Table 1: Default Custom Measure Gross Realization Rates

IOU	kWh	kW	Therm
PG&E	0.9	0.9	0.9
SCE	0.9	0.9	
SDG&E	0.9	0.9	0.9
SCG			0.9

The **General Review** will include Energy Division's oversight of the CTA and CMPA. Energy Division, at its discretion, will review tools, measures, and projects, as well as

inputs to the tools for selected projects. Energy Division may choose to provide the IOUs with input on one or more of the tools, measures, or projects. The tools reviews will be done on a prospective basis. IOUs shall adjust their subsequent use of the tools to conform to Energy Division input.

The more specific **general project reviews** include a close examination of a selected subset of custom projects.

For all custom applications with *ex ante* values that are not reviewed by the Energy Division, the IOU shall apply an adjustment to the gross savings estimate values using the Default Custom Measure Gross Realization Rates (Table 1) above when making energy savings claims before the Commission.

Energy Division will conduct general project reviews at three stages of the IOU custom project process: concurrent and collaborative pre-installation review, post-installation review, and claim review.

Pre-Installation Review

The objective of the Pre-Installation Review is for Energy Division to perform a parallel review, with the IOUs, and then for Energy Division to provide to the IOUs input on the estimated custom measure or project *ex ante* savings. The Pre-Installation Review allows Energy Division to supplement the resources and information available through the CTA and CMPA in making its recommendations.

The IOUs shall provide the Energy Division the opportunity to participate in any site visits, pre-installation inspections, customer interviews, pre-installation M&V, or spot measurements that may occur during this and subsequent phases. If such events are scheduled by IOUs more than five days in advance, the IOU shall provide notification to the Energy Division within one business day of scheduling the event; the Energy Division should be immediately notified for events scheduled less than five days away. The Energy Division will notify the IOUs prior to the event if they plan to send a representative.

During the Pre-Installation Review, the Energy Division will coordinate any Measurement & Verification (M&V) activities on these custom projects with the IOU. The Energy Division may choose to use the IOUs' or its own contractors, at Energy Division expense, to perform site inspections or pre-installation M&V.

The Energy Division will provide the IOUs with the results of its Pre-Installation Review, including recommended *ex ante* values and documentation to support its recommendation, at least ten days before the Agreement Target Date identified by the IOU in the CMPA summary list. However, the IOU shall provide Energy Division with all CMPA documents in a timely manner such that Energy Division has a reasonable ability to meet this timeline. Energy Division and the IOUs agree to work together to allow timely review of expedited and high priority project. If the Energy Division affirms the IOU's estimated *ex ante* values or suggests values which would result in greater or lower savings than the IOU's estimated *ex ante* values, then the IOU shall rely on those values when entering into estimated incentive agreements for the project and shall also rely on those values for subsequent energy savings claims before the Commission if no further post-installation adjustments are identified by either the IOUs or Energy Division, as described below.

Post-Installation Review

The objective of the Post-Installation Review is to provide the Energy Division with continued opportunity to review and provide input on the accuracy of *ex ante* values assumed by the IOU prior to the utility making its final incentive payment to its customer. The IOU shall allow the Energy Division access to site visits, post-installation inspections, customer interviews, post-installation M&V, or spot measurements. IOU and Energy Division notifications for these events should follow the guidelines described above for Pre-Installation Review. The IOUs shall continue maintenance of the CTA and CMPA in accordance with the direction provided above. If the post-installation M&V inspection results in an IOU adjustment of savings for projects that were reviewed by Energy Division during the pre-installation stage, Energy Division shall have the option to review and approve such adjustments. If, as a result of the post-installation inspection, the Energy Division affirms the IOU's estimated *ex ante* values or suggests values which would result in greater or lower savings than the IOU's estimated *ex ante* values, then the IOU shall rely on those values for making energy savings claims before the Commission. Otherwise, no deliverables are due to either IOU or Energy Division.

IOU Claim Review

The IOU Claim Review allows the Energy Division to conduct a review of energy savings for custom projects included into the IOU Quarterly Claim[107] to ensure that:

1. appropriate default realization rates were applied to *ex ante* gross savings estimates for projects that were not reviewed by the Energy Division;
2. recommendations made by Energy Division for reviewed projects were accurately reflected in the claim.

The IOU Claim Review shall commence upon the IOU submittal of a quarterly reporting period claim containing those projects, and end at the later of ninety-days after that submission or the subsequent IOU quarterly submission. Energy Division shall notify the IOU of any errors found in their claim review and the IOU shall comply and revise the claims.

Custom projects that were not reviewed by the Energy Division prior to appearing in a Quarterly claim may be further reviewed for the purpose of gaining new information and prospective improvements to *ex ante* estimates and planning, but IOU's **will not** be held accountable for energy savings adjustments for such reviews for any projects covered by then existing customer agreements or already approved customer applications.

Resolution of Disagreements:

1. Should Energy Division and a Utility have a technical disagreement on a project's *ex ante* values, Energy Division and the Utility shall meet to discuss and resolve the differences. If the Energy Division recommended *ex ante* value is less than a plus/minus 20 percent of the utility estimated *ex ante* value, Energy Division and the utility shall split the difference of the two values. However, this does not apply if the disagreement is where Energy Division determines that savings will not accrue at all or when a Commission policy has not been

[107] As a component their energy efficiency portfolio reporting requirements each IOU will submit a quarterly filing on EEGA which includes details of all measure *ex ante* savings values for all individual projects and measures which have been installed prior to that claim.

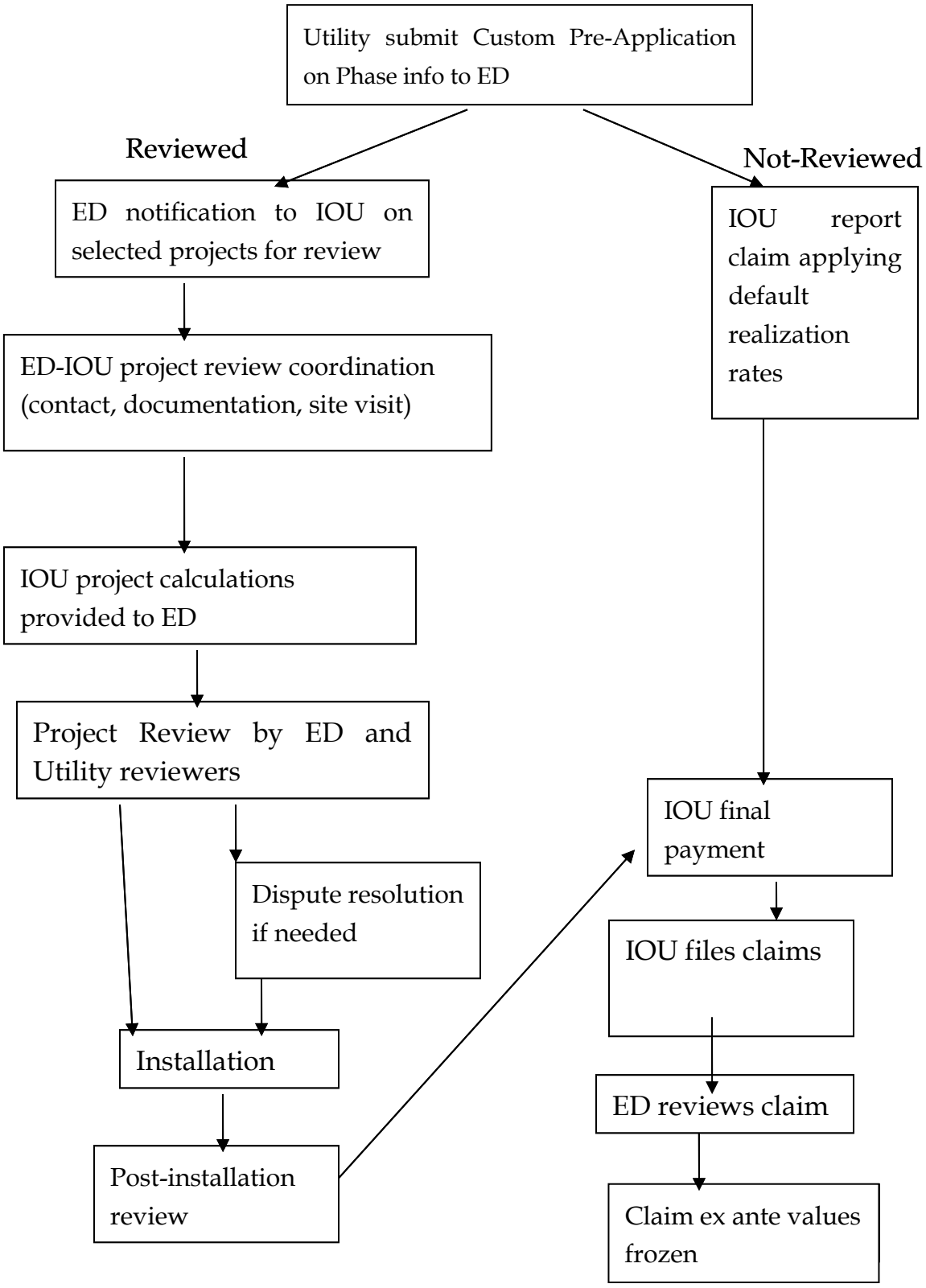
followed. However, in cases where the difference is greater than a plus or minus 20 percent, then Energy Division's value will be the frozen *ex ante* value.

To facilitate future communication:

Energy Division and the IOUs shall establish a working group to allow an ongoing dialog on the custom measure and project review process. This working group will provide a forum for all parties to exchange information on their current activities and future plan and to discuss and resolve problems and issues with the process outlined in this document. The working group will also provide a forum for Energy Division to inform the IOUs on issues arising in its custom measure *ex ante* estimation review process. These issues may include items such as baseline definitions, net versus gross savings definitions and other items as any party deems necessary. Energy Division will maintain a public archive database of summary of issues identified in its custom applications and projects reviews, and the Energy Division dispositions of those issues. Customer specific data and information will be removed from the Energy Division summary of issues and dispositions.

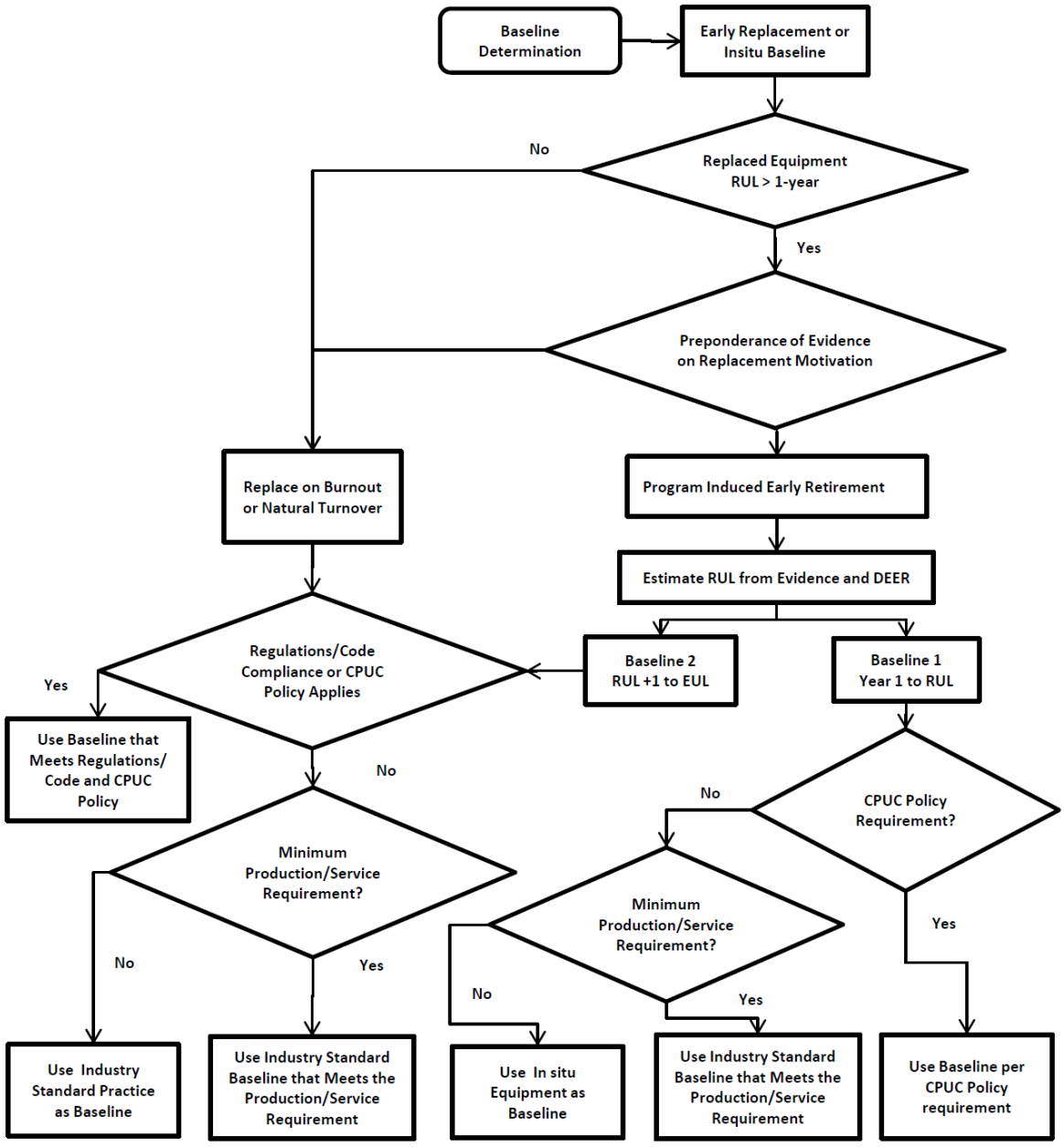
At any time during their development of *ex ante* estimates for a specific custom measure or project the IOUs may submit to Energy Division a request for an early Energy Division review or opinion on a specific issue. This process has been established by Energy Division issuance of the "Custom Measure Early Opinion Process" document posted as "Custom Measure Early Energy Division Opinion Process v2.docx" on basecamp 9/30/2010 in the "Early Opinion Shared" project area. Energy Division shall respond to that request in as expeditious a manner as possible to provide the IOUs with guidance and to allow the IOUs to complete their *ex ante* estimates in a timely manner. However, this type of early guidance shall not limit or constrain any later Energy Division review of *ex ante* claims submitted by the IOUs.

Custom Review Flow Chart



Appendix 1

Energy Division Methodology for Determination
of Baseline for Gross Savings Estimate



Review of Baseline for Gross Savings Estimates

The estimation of *ex ante* saving values requires the selection of a baseline performance for every project. The baseline selection and specific baseline parameters are of primary importance to establishing the *ex ante* savings estimates. The baseline parameters are

selected by establishing the project category from the possible alternatives including New Construction or Major Renovations, program induced Early Retirement, Standard Retrofit or Normal/Natural Replacement/Turnover, and Replace On Burnout. These alternative categories result in the utilization of alternative baseline parameters set by Code or Standard requirements, industry standard practice, CPUC policy, or other considerations. In the review of IOU projects Energy Division will follow the guidelines as presented here in establishing the baseline for all gross savings estimates.

Notes to above flowchart

Pre-existing equipment[108] baselines are only used in cases where the preponderance of evidence the program has induced the replacement rather than merely caused an increase in efficiency in a replacement that would have occurred in the absence of the program.

Pre-existing equipment baselines are only used for the portion of the remaining useful life (RUL) of the pre-existing equipment that was eliminated due to the program. These early or accelerated retirement cases may require the use of a "dual baseline" analysis that utilizes the pre-existing equipment baseline during an initial RUL period and a code requirement/industry standard practice baseline for the balance of the EUL of the new equipment.

- A pre-existing equipment baseline is used as the gross baseline only when there is a preponderance of evidence that the pre-existing equipment has a remaining useful life and that the program activity induced or accelerated the equipment replacement. This baseline can only apply for the RUL of the pre-existing equipment.
- A code requirements or industry standard practice baseline is used for replace-on-burnout, natural turnover and new construction (including major rehabilitation projects) situations. This baseline applies for the entire EUL as well as the RUL+1 through EUL period of program induced early retirement of pre-existing equipment cases (the second period of the dual baseline case.)

[108] Here the term equipment is intended to cover all technology cases including envelope components, HVAC components and process equipment and may also include configuration and controls options.

Commission policy rules and IOU program eligibility rules govern the baseline

A careful review of utility and third-party program and Commission policy rules must be undertaken and adjustments applied to gross savings in some cases. Adjustments are indicated for gross when there was clear evidence from program or policy rules that savings claims could not be made nor rebates paid for the baseline in question. Program rules come into play with respect to gross baseline requirements, for example, when those rules specify:

- a minimum required efficiency level;
- a minimum percentage improvement above applicable minimum code requirement;
- a minimum RUL of the existing equipment;
- the type or range of retrofits that are allowed be included in a program.

Commission policy may apply to establishing gross baseline when Policy Manual Rules, a Commission Decision or a decision maker Ruling includes special requirements or consideration for the situation or technologies of a measure. For example, projects or sites that involve fuel switching, co-generation or renewable technologies are usually subject to special baseline considerations (or other considerations) that must be considered in the savings estimates.

Minimum production level or service requirements govern the baseline

In some situations, a measure for which savings might be claimed could be determined to be the only acceptable equipment for an application. In such cases, the baseline must be set at the minimum needed to meet the requirements, which may be the same as the equipment planned for installation. An example would be an industrial process where only a variable-speed drive pumping system could meet the production requirements. For situations where the baseline conditions or requirements were changed (such as production level changes), the baseline equipment is defined as the minimum equipment needed to meet the revised conditions. If the pre-existing equipment is not capable of reliably meeting the new requirement (such as production change) for its remaining life, then a new equipment baseline must be established utilizing either minimum code requirement or industry standard practice equipment, whichever is applicable.

Industry standard practice baselines are established to reflect typical actions absent the program

Industry standard practice baselines establish typically adopted industry-specific efficiency levels that would be expected to be utilized absent the program. Standard practice determination must be supported by recent studies or market research that reflects current market activity. Typically market studies should be less than five years old; however this guideline is dependent on the rate of change in the market of interest relative to the equipment in question. For example, the lighting markets may change significantly in the next two years while larger process equipment markets might change more slowly. Regulatory changes might cause very rapid market practice shifts and must also be considered. For example, forthcoming changes in Federal Standards relating to linear fluorescent ballasts will result in rapid market shifts of equipment use.

(END OF APPENDIX E)

APPENDIX F: Cost Categories and Related Cap and Targets

IOU shall reflect all costs associated with the delivery of their energy-efficiency programs in their filings in the energy-efficiency portfolio applications and shall note, where applicable, when the costs are recovered in other proceedings.

The Commission has established various (hard) caps and (soft) targets as summarized in the table below:

Budget Category	**Cap**	**Target**
Utility program administrative costs[109]	10%	
Third-party / Gov't partnership administrative costs[110]		10%
Marketing & outreach costs[111]		6%
Direct implementation non-incentive (DINI) costs[112]		20%
Evaluation, measurement & verification (EM&V) costs[113]	4%	

The IOUs will forecast and report total Administrative, Marketing, Direct Implementation costs by program and subprogram in the cost categories and sub-categories. A detailed characterization of the specific types of costs that are allocated to each of these categories is provided below.

Utility Administrative Costs

Administrative costs for utility energy efficiency programs (excluding third party and/or local government partnership budgets) are limited to 10% of total energy efficiency budgets. Administrative costs shall not be shifted into any other costs category.

Administrative costs are necessary to support energy efficiency programs but costs must be reasonable and limited to overhead, labor and other costs discusses below needed to implement quality programs with ratepayer funds.

All IOUs shall reflect all labor-related costs associated with the delivery of energy-efficiency programs, as defined at page 49 of D.09-09-047, in their energy-efficiency portfolio filings, and shall clearly delineate where any expenses or costs have been or will be recovered in proceedings

[109] D.09-09-047, OP 13a and p. 62

[110] D.09-09-047 at p. 63

[111] D.09-09-047, OP 13b and at p. 73

[112] D.09-09-047 OP 13c and at p. 74; D.12-11-015 at p. 101

[113] D.12-11-015 at p. 59; D.09-09-047, COL 6

other than energy efficiency applications.[114]

Administrative costs include the following:[115][116]

1. **Overhead** (G&A Labor/Materials): administrative labor, accounting support, IT services and support, reporting databases, data request responses, Commission financial audits, regulatory filings support and other ad-hoc support required across all programs.

2. **Labor** (Managerial & Clerical): This category includes utility labor costs related to either management or clerical positions directly related to program administration. SDG&E and SoCalGas also add payroll taxes.

3. **Human Resource Support and Development:** This includes payroll taxes, payroll support, as well as pensions. [117]

4. **Travel and Conference fees**: This includes labor, travel and fees for conferences.[118] This category includes utility sponsorships for energy efficiency program-specific events or activities such as including membership-based, issue-specific trade organizations that include as a component of membership benefits entry into conferences. However, utility sponsorship fees for major national energy efficiency conferences that provide company recognition or status are prohibited as energy efficiency allowable costs. Such costs shall not be funded with energy efficiency program funding.[119]

   CPUC Division of Water and Audits allows travel costs, such as meeting with customers, can to be charged to the applicable program area (i.e., to DINI or to Marketing and Outreach). Travel costs by IOU staff should be limited, but this will be achieved via the cost targets for marketing. Travel costs to EE conferences and other activities shall be charged to administrative costs with the following exceptions:

   Travel costs for DINI activities and marketing can be charged to those respective cost categories

   IOU sponsorships of EE conferences (i.e. "platinum" "gold" level donations) be explicitly

[114] D.12-11-015 OP 39

[115] D.09-09-047, OP 13a and at p. 50; with additional detail from Attachment A to PG&E AL. 3065-G/3562-E

[116] D.09-09-047 at 50 states that these Administrative Cost categories do not include EM&V or Marketing Outreach

[117] D.09-09-047 at p. 56 says "Attachment 5-A of the December 2008 ruling [the Allowable Costs Attachment] lists payroll tax and pensions as included in the Human resources Support Category."

[118] D.09-09-047 at 50

[119] D.11-04-005 at 20, OP 2

prohibited from inclusion in energy efficient budgets as administrative costs. IOUs may join membership-benefit issue specific (i.e. HVAC) trade organizations that include as a component of membership benefits entry into conferences. Other staff travel costs to participate in energy efficiency conferences are also allowable administrative costs.

Additional activities charged to the utility administrative cost category include:[120]

- Membership dues (i.e., trade organizations)
- Reporting database (e.g., CRM,Track It Fast, Program Builder, SMART, etc.)
- Facility-related costs
- Supply management function activities to ensure oversight of contractors
- Administering contractor payments for services which are non-incentive related
- Utility administrative cost associated with Local Government Partnerships & Third Party Programs
- Administrative and logistical costs related to workshops on Strategic Planning issues[121]

Utility administrative costs do not include the following:[122]

- Direct implementation (incentive costs and DINI)
- Marketing and outreach
- Evaluation, measurement and verification
- Administrative costs for third party programs / government partnerships[123]
- Program-specific IT costs charged to the DINI and M&O cost categories (e.g., on-line audit tools).[124]

Direct Implementation Non-Incentive (DINI) Costs

Direct implementation non-incentive (DINI) costs (excluding non-resource and other exempt programs and subprograms) are targeted at 20% of the total adopted energy efficiency

[120] Unless otherwise noted, these details were provided in Attachment A to PG&E AL 3065-G/3562-E (2010-12 EE portfolio compliance filing).

[121] D.09-09-047, OP 14

[122] D.09-09-047 at 50, unless otherwise noted

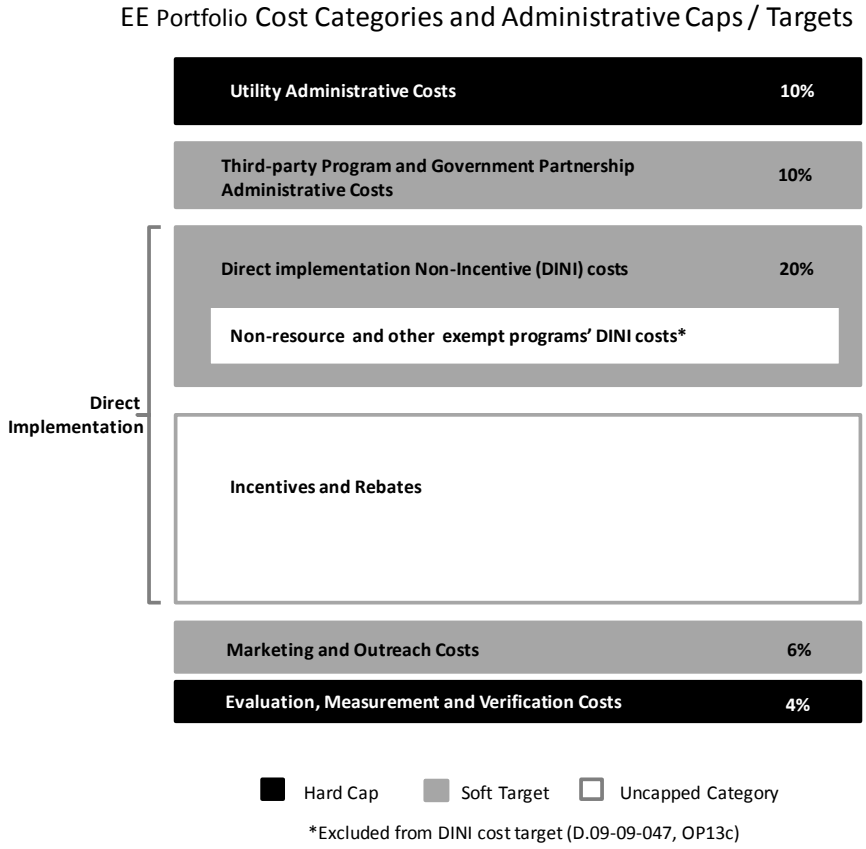
[123] D.09-09-047 at 63

[124] Attachment A to PG&E AL 3065-G/3562-E

budgets.[125]

As depicted in the figure below, direct implementation non-incentive (DINI) costs are a subset of direct implementation costs. Direct implementation costs are defined as "costs associated with activities that are a direct interface with the customer or program participant or recipient (e.g., contractor receiving training)."[126] Direct implementation includes two subcategories: (a) rebate and incentive costs and (b) DINI.[127]

Note: DINI costs have been referred to by the IOUs and the Commission with various terms such as "non-resource costs,"[128] "direct implementation (non-incentives and rebates),"[129] "program delivery (non-rebates and incentives),"[130]and "implementation – customer services costs."[131]



[125]D.09-09-047 OP 13c and at p. 74; D.12-11-015 at p. 101

[126] D.09-09-047 at p. 50

[127] D.09-09-047, Table 3, at p. 54, see notes regarding lines C1 and C2.

[128] D.09-09-047 OP13

[129] D.09-09-047, Table 3 at p. 54

[130] D.09-09-047 Tables 5, 6 and 7 at pages 75, 77, 80, respectively.

[131] D.12-11-015 at p. 101

Activities charged to cost category subject to the DINI target include:[132]

- Employees who have a direct interface with the customer (i.e. Account Executives, Auditors, Engineers, Processors, Inspectors, call center representatives)
- Processing rebate applications
- Inspecting rebated/incentive measures
- Engineering related activities
- Measurement development
- Education and training of contractors/partners/customers
- Project management activities (i.e. Planning Scope of Work, working with contractors and customers, setting goals, reviewing goals, reacting to market conditions, and responding to customer inquiries (i.e. calls, emails, letters).
- Program planning, development and design
- Customer support
- Energy audits and Continuous Energy Improvement
- Market transformation and long-term strategic plan support
- Compiling and maintaining information (i.e, data, customer records) for projects
- Licensing fees or IT development cost for program specific applications for implementation (e.g., benchmarking tool or project management tool);
- Vacation and sick leave-related to direct implementation labor
- Direct-implementation specific IT costs (e.g., licensing fees or IT development cost for program-specific applications)
- Staff travel to undertake direct implementation-specific work activities (excluding conference participation)
- Program planning/design/project management and information gathering costs related to specific Strategic Plan related non-resource and resource programs[133]

Programs or subprograms that are exempt from the DINI target include: [134]

- Non-resource programs or subprograms (e.g., Emerging Technologies, Workforce Education and Training, Lighting Market Transformation, Zero Net Energy pilots,

[132] Unless otherwise noted these details were provided in Attachment A to PG&E AL 3065-G/3562-E

[133]D.09-09-047, OP 14

[134] See exclusion of these costs in D.09-09-47 OP 13c

Integrated Demand Side Management). [135]

- Codes and Standards Program[136]
- Financing programs, including On-Bill Financing Program[137] (excluding revolving loan amounts)

The formula for calculating the DINI cost percentage subject to the target is as follows:

$$\frac{\text{[Total DINI cost, excluding REN and CCA programs] – [Exempt DINI program costs]}}{\text{[Total IOU budget, excluding REN and CCA programs]}}$$

Notes:

- REN and CCA programs are excluded because the IOUs do not manage and/or administer them.
- For exempt programs and subprograms, see examples above.
- Government partnership and third-party programs budgets are included in both the numerator and denominator.
- Statewide ME&O (a non-resource DINI target exempt program) budgets are included in the denominator, whether approved by separate application or not.

Marketing and Outreach Costs

Marketing and outreach costs are targeted at 6% of total adopted energy efficiency budgets, subject to the fund-shifting rules specified in this manual.[138] This is not a hard cap, as with administrative costs, but a budget target.[139]

Activities charged to this category include:[140]

- Preparing collateral
- Distributing collateral
- Support related to outreach events
- Participating in outreach events

[135] D.09-09-047 at p. 50

[136] D.09-09-047 Table 3, at p. 54, see notes regarding C2

[137] Ibid.

[138] D.09-09-047, OP 13c

[139] D.09-09-047 at p. 73

[140] Attachment A to PG&E AL 3065-G/3562-E

- Advertising, media, newspaper, website, and magazine related marketing activities
- Local government partnership marketing and outreach related to long-term Strategic planning support
- Vacation and sick leave related to marketing labor
- Marketing-specific IT costs
- Staff travel to undertake marketing-specific work activities (excluding conference participation.)

Third Party Program and Government Partnership Administrative Costs:[141]
The IOUs shall seek to achieve a 10% administrative cost target for third party and local government partnership direct costs (i.e., separate from utility costs to administer these programs).[142]The cost target is 10% of third party and government partnership budget, rather than 10% of the total energy efficiency portfolio (as with the utility administrative cost cap). The IOUs should not be permitted to unduly shift administrative cost cuts onto local government partnerships and third party implementers. Local government partnership and third party program M&O and DINI costs are subject to the 6% and 20% portfolio cost targets.[143]

Evaluation Measurement and Verification
The adopted EM&V budget is 4% of the total portfolio budget, consistent with budgets from prior portfolios.[144]

Activities charged to the EM&V budget category include:

- Staff travel to participate in Strategic Plan workshops[145]
- Market, cost assessment and other studies as called for or suggested by the Strategic Plan[146]
- Benefits, payroll tax, and pensions for EM&V labor.[147]

[141] Attachment A to PG&E AL 3065-G/3562-E

[142] D.09-09-047 at p. 63.

[143]Attachment A to PG&E AL 3065-G/3562-E

[144]D.12-11-015 at p. 59; D.09-09-047, COL 6.

[145] Attachment A to PG&E AL 3065-G/3562-E

[146]D.09-09-047, OP 14

[147]Allowable Costs Attachment, Attachment 5-A to December 2008 ACR in A.08-07-021 et al.. Also referenced in Attachment A to PG&E AL 3065-G/3562-E

APPENDIX G: Phase 2 Workpaper Review

Development, review and approval of Non-DEER workpapers has evolved through several decisions:

1. D.09-09-047 gave Energy Division authority to review and approve Non-DEER workpapers and required ED to develop a process for submittal, review and freezing of non-DEER measures.
2. A.08-07-021 provided a standardized review and approval process for Phase 2 Non-DEER workpapers including
    a. Requirements for utilizing DEER values and methods in the development of Non-DEER measures
    b. A timeline for detailed review that required Commission staff to perform a preliminary review for additional information within 15 days and the final review within 25 days of receiving the additional review.
    c. A requirement for consideration of the latest evaluation, measurement and verification published studies in the development of ex ante values including energy impacts, cost data, EUL/RUL and NTGR.
    d. Established the following possible review recommendations (or "dispositions):

        Approved – No changes to submission are required.

        Conditional Approval – ED makes specific revisions to submission, which, if agreed to by ED and utility, the measure is approved.

        Resubmission Required – The measure submission requires additional information or specific revisions or additions for ED to make an approval recommend'ation.

        Rejection – The measure does not fall within the definition of an energy efficiency measure or does not meet Commission requirements for inclusion into a utility portfolio.

    e. Allowed for retrospective staff review of frozen and un-revieed workpapers if the measures if a workpaper eventually rose to HIM status.
3. D.10-04-029 affirmed A.08-07-021 and required IOUs to cooperate with ED to allow upfront consultation regarding workpapers[148].

[148] D.10-04-029, OP4, bullet 3 at 55

4. D.11-07-030 affirmed all of A.08-07-021 regarding Phase 2 review, except the provision for retrospective staff review, which was struck from the Phase 2 review process[149].
5. D.1205015 is the guidance decision covering 2013-2014 applications and also includes a process for Phase 2 workpaper review that builds upon the process established in the previous decisions. The remainder of this attachment describes requirements for both IOUs and Energy Division for the review and approval of Phase 2 Non-DEER workpapers

The following paragraphs, covering Phase 2 workpaper review are from D.12-05-015[150]:

> a. *If Commission Staff agrees with the parameters included in a non-DEER workpaper for a new measure provided by an IOU, Commission Staff will communicate this to the IOU via email and upload it to the Workpaper*

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[149] D.11-07-030 at 26: "We will freeze identification of energy efficiency HIMs by limiting them to the current set of 70 for this portfolio cycle. All other existing measures will thus be considered non-HIMs. This freeze will provide finality on this issue and prevent on-going controversy over future determination of HIM ex ante values in this portfolio cycle. In practical terms, it is likely that IOUs and Energy Division have already identified most, although not all, HIMs. To the extent that existing measures turn out unexpectedly to be high impact measures, using the utility-proposed ex ante values—even if inaccurate—should have a small impact on overall portfolio evaluations."

OP 1: "The frozen non-DEER ex ante values shall be based upon the values adopted in Attachment A to this decision. All non-DEER energy efficiency measures not referenced in Attachment A to this decision (except for custom measures) shall have ex ante energy savings values frozen based on workpapers submitted to Energy Division by March 31, 2010 …"

OP4: "The only high impact energy efficiency measures used for determination of ex ante energy savings values for the 2010 2012 energy efficiency portfolios of [the IOUs] are those identified in Appendix A of this decision, except for any new measures (i.e., measures not identified as of March 31, 2010) which are identified as high impact energy efficiency measures through the Phase 2 process …"

[150] D.12-05-015 at 335

Project Area on the http://www.deeresources.info website, and the workpaper will become effective on that date.

b. If Commission Staff disagrees with or needs more information regarding parameters included in a non-DEER workpaper, Commission Staff will recommend revised parameter values (or request additional information) within 25 days of receipt of a work paper with all necessary information provided by the utility.

In order to fully implement and provide certainty to the workpaper review process, for both workpaper submitters and Commission staff, the workpaper review process shall use the following procedure.

1. On-line Submission: Workpapers shall be submitted to http://www.deeresources.info at in the Workpaper Project Archive under the 2013-2014 Cycle project tree. Within that tree, there are folders for each of the entities responsible for developing workpapers. These entities are:
    a. Southern California Edison (project folder "SCE Workpaper Submissions")
    b. Southern California Gas (project folder "SCG Workpaper Submissions")
    c. San Diego Gas and Electric (project folder "SDGE Workpaper Submissions")
    d. BayREN (project folder "BayREN Workpaper Submissions")
    e. MEA (project folder "MEA Workpaper Submissions")
    f. SoCalREN (project folder "SoCalREN Workpaper Submissions")

    A single file shall be submitted for each workpaper submission. If the workpaper includes additional supporting files, all files shall be archived into a single .zip or .7z file so that they can be submitted as a single file. The file name shall include the entity's unique ID and title of the workpaper.

    When a workpaper is properly submitted by an entity to its respective workpaper submission folder, the timeline for Commission staff review, described below, will begin.

2. Preliminary Review: Consistent with paragraph b, above, staff will provide a preliminary review of the workpaper within 25 days of it being submitted to its proper workpaper submission folder. Within that 25 days, staff may:
    a. Request additional information needed in order for staff to complete a review of the workpaper; or
    b. Require revisions to the workpaper; or
    c. Approve the workpaper; or
    d. Reject the workpaper

3. Final Review: In the cases where staff request additional information or requires revisions to the workpaper, staff will review and either approve or reject the workpaper within 25 days of receiving the additional information or revised workpaper. Entities shall submit additional information and revised workpapers to their respective workpaper submission folders at http://www.deeresources.info

4. Posting of Approved Workpapers: Staff shall post approved workpapers to the submitting entity's workpaper project folder in the Workpaper Project Archive at http://www.deeresources.info. Workpapers that are intended to have uniform statewide ex ante values shall be posted to the "Multi-Entity/Statewide Project Files" folder in the Workpaper Project Archive at http://www.deeresources.info.

5. Disputes over Staff Recommendations: Submitting entities may not agree with the final staff requirement for workpaper revisions. D.12-05-015 includes a dispute resolution process to address cases where a submitting entity finds staff requirement unacceptable. These paragraphs are included below[151]:

    c. *If the utility finds the revised parameter values unacceptable (and/or any subsequent information exchange does not resolve the disagreements in parameter values), Commission Staff and the IOU will hold one or more meetings to come to*

[151] D.12-05-015 at 335

an agreement. If agreement on workpaper parameters is reached through this process, Commission Staff will upload the workpaper to the Workpaper Project Area on the http://www.deeresources.info website, and the workpaper will become effective on that date.

d. *Every six months, and for each applicable IOU, Commission Staff will develop a draft resolution that identifies the disputed ex ante values proposed by the IOU for each non-DEER workpaper submitted during the previous six months that remains in dispute, along with Commission Staff's recommended adjustments and its rationale for those adjustments. The IOUs may articulate their disagreements with Commission Staff's proposed adjustments in their comments on the draft resolution, and the resolution will be subject to a Commission vote.*

6. Mid-Cycle Review: Un-reviewed workpapers that were submitted with the 2013-2014 portfolio applications shall receive a status of "interim approval[152]." Commission staff may review any workpapers that have previously received a status of "interim approval" and apply any adjustments on a prospective basis[153]. Review of these workpapers shall adhere to the Phase 2 workpaper review process[154].

7. Notification of Mid-Cycle Review Interim-Approved Workpapers: Staff notify the IOU or workpaper submitting entity with its mid-cycle review. This notification may consist of a request for additional information or it may include required revisions to the workpaper.

8. Final Mid-Cycle Review of Interim-Approved Workpapers: In the cases where staff request additional information or requires revisions to the workpaper, staff will review and either approve or reject the workpaper within 25 days of receiving the additional information or revised workpaper. Entities shall submit additional information and revised workpapers to their respective workpaper

[152] D.12-05-015 at 336
[153] D.12.05-015 at 337
[154] ibid

submission folders at http://www.deeresources.info.

9. Posting of Approved Workpapers Originally Receiving Interim-Approval: Staff shall post approved workpapers at http://www.deeresources.info as described in item 4, above.

10. Dispute over Staff Recommendations for Interim-Approved Workpapers: Disputes or disagreements shall be resolved according to the dispute resolution process described in item 5, above.