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SCE Stakeholder Input for the 2019 California Energy Efficiency Action Plan

Additional submitted attachment is included below.

May 15, 2019

California Energy Commission
Docket Office, MS-4
Re: Docket No. 19-IEPR-06
1516 Ninth Street
Sacramento, CA 95814-5512
docket@energy.ca.gov

Re: Southern California Edison Company's Comments on the California Energy Commission Docket No. 19-IEPR-06: Stakeholder Input on the 2019 California Energy Efficiency Action Plan

Dear Commissioners:

On April 30, 2019, the California Energy Commission (CEC) held a workshop to solicit feedback on the development of the 2019 California Energy Efficiency Action Plan as part of the 2019 Integrated Energy Policy Report (IEPR) Update Proceeding ("workshop"). The CEC listed several questions related to energy efficiency (EE) and building decarbonization (BD) under the "Stakeholder Input Request" section in the workshop's notice,¹ and invited parties to respond in workshop comments. Southern California Edison (SCE) attended the regional workshop in Los Angeles, participated in the regional workshop in Fresno and appreciates the opportunity to provide these written comments responding to the Stakeholder Input Request questions.

I. Building Standards

One goal from the 2016 Existing Buildings Energy Efficiency Plan Update was to make the 2019 Building Energy Efficiency Standards easier to use/understand than previous iterations. In your view, was this goal achieved?

The CEC has made clear efforts to streamline the sections in the 2019 Building Energy Efficiency Standards that could be simplified, such as the requirements for communicating thermostats. Since the 2019 Title 24 Building Energy Efficiency Standards are not yet in effect, however, it is difficult to ascertain how accessible the 2019 plan is compared with the 2016 plan. SCE observes that the residential Standards have become much more complex with added

¹ California Energy Commission. (27 Mar 2019). Notice of Staff Workshop to Solicit Comment for the Development of the 2019 California Energy Efficiency Action Plan, TN 227435,

requirements for renewable generation and compliance credits for resources like batteries, demand responsive electric water heaters, and variable capacity heat pumps.

To improve understanding of the 2019 Standards, SCE recommends including input from the IOU Codes and Standards' Compliance Improvement sub-program team and the 2019 CASE report development process. The sub-program team sought to make the 2019 energy code as user friendly as possible, by integrating the needs of end-users, identified through several workshops, into the writing of the code proposals. Similarly, the code change proposal in the 2019 CASE report aims to improve comprehension of and compliance with the existing requirements, by employing consistent terminology and methodology across all sections of the existing demand response (DR) requirements in Title 24, Part 6. Drawing from these two sources, SCE recommends enhancing the Standards, Reference Appendices, Compliance Manuals, and compliance documents as follows:

1. Improve the clarity of the code language without changing the stringency of the standards;
2. Harmonize the demand responsive control requirements, including requirements related to the application of open or standards-based communications protocols;
3. Clarify and improve the compliance and enforcement process; and
4. Establish a foundation within the Title 24, Part 6 Standards, Appendices, Alternative Calculation Method Reference Manuals, and Compliance Manuals upon which measures that have load reshaping and ancillary service benefits can be added in future code cycles.

SCE also recommends using the Dynamic Forms created through the Compliance improvement subprogram. The Dynamic Forms reduced the amount of the time and processing needed to complete the multiple forms required for the 2016 energy code.

Finally, SCE obtained helpful stakeholder and end-user feedback from the Energy Code ACE SMEs and members of the CA Association of Building Energy Consultants to ensure that the code language was more efficiently utilized and effectively implemented.

What are the immediate steps you recommend taking to improve compliance with building energy standards?

SCE supports allowing cities and other local jurisdictions to claim credit for higher compliance rates with their climate action plans. This would incentivize local jurisdictions to increase enforcement.

In addition, the CEC could support building departments with plan check and permitting processes. Permitting processes should be streamlined for retrofit projects and Home Energy Reports (HERs) raters should be utilized for additional verification of compliance measures.

SCE sees a need to design energy modeling, especially for multifamily, to model envelope and systems accurately, in order to gain credit for EE-related measures. There should be clarity on the schedules and baselines in the modeling software to compare the proposed designs accurately.

SCE's Codes & Standards program has undertaken measures to accelerate or facilitate implementation of the standards. For the 2019 Standards, the Codes & Standards program created some sample, non-residential modeling specification documents to assist the CEC with accelerating development of the simulation software to implement the new measures. SCE is also updating the CASE template with CBECC modeling specification sheets and is updating the prototypes for multi-family, to ensure that the HVAC mapping matrix is aligned with DOE/ASHRAE and exploring different baselines. Finally, SCE met with software users, developers and policy makers through the Software Symposium to establish a structure for communications between these groups.

II. Benchmarking

Are building owners looking at their energy consumption or just reporting to benchmarking?

The data suggests that building owners are primarily reporting to benchmarking. In support of the benchmarking and energy disclosure requirements set by Assembly Bill 802, SCE made aggregated, whole-building usage data available for customers and their authorized agents through its Automated Benchmarking System on sce.com. SCE provided this data with the assumption that customers, upon benchmarking their buildings on the EPA's ENERGY STAR Portfolio Manager, would invest in opportunities to improve scores by participating in demand-side management programs. After providing this information for several years, however, SCE notes that the data demonstrates a different trend. SCE thought that customers with an interest in their energy consumption would check the site throughout the year for their building data. However, SCE sees customer inquiries spike in the months of March and April, which could indicate attempts to meet the timelines needed to request and process data in order to meet the June 1st reporting deadline.

What type of encouragement or support, beyond monetary, would lead to improved benchmarking scores over time?

The SCE Energy Leader Partnership program has employed the EPA's ENERGY STAR Portfolio Manager Benchmarking Score to help improve the efficiency of City- and County-owned facilities. This initiative has set the participating City and Counties apart as "Energy Leaders" in their community, setting a good example for other building owners to emulate and improve benchmarking scores over time.

SCE also recommends improving awareness of these initiatives, by featuring top performing buildings in local real estate publications and providing increased access to energy auditing services.

Finally, the CEC could disclose anonymous, aggregated building energy data to allow owners to compare their building's performance with other local buildings within the same industry sector. The comparison results could potentially encourage some building owners to take actions that lead to improved benchmarking scores.

III. Market Transformation

How can local governments continue to support and/or expand energy efficiency efforts?

The strategies outlined in the Energy Efficiency Strategic Plan² are relevant and critical to the advancement of EE adoption and market transformation. These strategies are:

1. *Regulatory Authority:* Local governments have significant powers that can improve the EE of new and existing buildings. Local governments can lead the adoption of higher EE standards or "reach codes" for residential and commercial buildings and enforce energy code compliance, among other strategies.
2. *Energy Use for Government Facilities:* Local government facilities provide an opportunity to lead by example by achieving economic EE, reducing CO2 emissions, and showcasing promising EE, DSM and renewables products and practices.
3. *Energy Leadership in Local Communities:* Local governments play an important role in influencing their citizens and businesses. This can take on many forms, from public education to adopting innovative policies and initiatives to integrating actions addressing EE, climate change and sustainability.

Many of the goals and strategies for local governments can also apply more broadly to all Public entities, who can use their jurisdictional authority to lead and facilitate the implementation of EE plans in order to meet state goals as outlined in state legislation and executive orders.

Which private-sector financial mechanisms have been most successful in supporting energy efficiency?

The New Finance Pilots—i.e., Residential Energy Efficiency Loan (REEL) program and the Small Business Financing Program—and the Property-Assessed Clean Energy (PACE) model are the most successful EE financial mechanisms. A brief explanation of each mechanism is provided below.

New Finance Pilots. Decision D.13-09-044 allocated \$65.9 million to launch implementation of selected pilot programs designed to test market incentives for attracting private capital through investment of limited ratepayer funds. A core feature of the pilots are the ratepayer-funded "credit enhancements," such as a loan loss reserve, that are used to provide incentives to lenders to extend or improve credit terms for EE projects. The New Finance Pilots seeks to test whether transitional ratepayer support for credit enhancements can lead to self-supporting EE finance programs in the future.

- *Residential Energy Efficiency Loan Program (REEL)*, the first of the CHEEF Pilot Programs to launch (in Q2 of 2016), offers a loan loss reserve to mitigate lender risk in providing access to financing for residential EE projects in IOU service territories.

² *California Energy Efficiency Strategic Plan* January 2011 Update, p. 86.

Owners of any residential property and renters (at the discretion of the lender and with the property owner’s permission) that receive electric or natural gas service from SCE, Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E), or Southern California Gas Company (SoCalGas) are eligible for the REEL program. Launched in Q2 of 2016, the REEL Assistance Program has produced the following results:

Enrollment to date in SCE’s REEL Assistance Program

- Seven (7) credit unions (lenders)
- One hundred and seventy-four (174) contractors

Fig. 1. SCE and IOU Loan Activity in REEL Assistance Program, 2016-2018

<i>Entity</i>	<i>Year(s)</i>	<i>No. of Loans</i>	<i>Total Loan Amount</i>
SCE	2016	5	\$57,737
	2017	38	\$662,128
	2018	85	\$2,147,024
Statewide IOUs (Total)	2016-Present	339	\$5,780,206

- *Small Business Financing program* is available for eligible businesses and nonprofit organizations seeking to acquire affordable EE project funding. The Small Business Financing program is administered by the CAEATFA with additional support from the IOUs.

The pilot was soft launched on April 1, 2019. There is no activity for SCE customers under this program yet.

Property Assessed Clean Energy (PACE). The PACE model is a mechanism for financing EE and renewable energy improvements on private property. PACE programs exist for both residential properties (commonly referred to as Residential PACE or R-PACE) and commercial properties (commonly referred to as Commercial PACE or C-PACE) and allow a property owner to finance the up-front cost of energy or other eligible improvements on a property and repay those costs over time through a voluntary property assessment. The typical repayment period is 10 to 20 years.

The unique characteristic of PACE assessments is that the assessment is attached to the property rather than an individual, and thus the debt is tied to the property as opposed to the

property owner(s) and paid as an addition to the owners' property tax bills. Nonpayment generally results in the same set of repercussions as the failure to pay any other portion of a property tax bill.

Since the PACE is not offered by SCE, we are unable to provide participation metrics on this program.

On-Bill Financing Program. In addition to these third-party finance mechanisms, the On-Bill Financing (OBF) program provides no interest loans to non-residential customers for comprehensive EE projects. Qualification is primarily based on a good utility bill payment history and the prospect that the loans can be repaid by savings within five years to ten years for most borrowers, or the lesser of up to ten years or the expected useful life of the EE measures for governmental borrowers. OBF is funded entirely by ratepayers without private capital and has been instrumental to the implementation of EE projects for non-residential customers. Since its inception in 2010, the OBF program has funded 4,246 loans for over \$82M to SCE customers.

What changes, if any, are expected or ongoing in the energy efficiency market due to the expansion of community choice aggregators?

Almost all community choice aggregations (CCAs) have a long-term goal to provide both EE and demand response programs and to partner with utilities to implement these programs in CCA communities. Currently, Lancaster Choice Energy is the only CCA with an EE program. To accommodate these changes, the EE market will need to address some foundational questions associated with CCA expansion, such as:

- how and by whom the EE programs will be administered
- how to measure performance
- the types of partnerships that should be formed between IOUs and CCAs to develop innovative programs to achieve common goals for communities and the State

As CCAs expand, the market lacks clarity on who is responsible for the governance of, and the compliance with, these programs. It will be important for regulators to lay out the program and contract requirements for the IOUs and CCAs. IOUs also need transparency into how the CCAs' application for EE funds will be considered by the CPUC. It should be clear how to fund these programs. Finally, the state should weigh in on the types of partnerships between CCAs and the IOUs that are best suited to advancing the State's goals.

Have you seen improvements in energy efficiency marketing, outreach, and education efforts? If not, what areas are still undeveloped? Please provide examples.

The Home Energy Report (HER) mailings and Energy Upgrade California (EUC) have both resulted in improved energy savings behavior and more streamlined education and outreach efforts. SCE continues to develop its Marketplace.

Home Energy Reports. SCE has seen increases in energy savings from the HER Mailings, which began in 2012. HERs are designed using a Randomized Control Trial methodology and use

social norming behavior strategies to help influence recipients’ behavior to reduce their energy consumption. SCE helped customers reduce the following kilowatt hours and demand off-grid:

Fig. 2. Energy Savings from SCE Home Energy Report Mailings

<i>Year</i>	<i>Kilowatt Hours Reduced</i>	<i>Demand (kW) Reduced</i>
2016	33 GWh	8 MW
2017	86 GWh	23 MW
2018	120 GWh	35 MW

CPUC evaluations conducted on IOU HERs for 2015 -2017 have validated these numbers and proven the effectiveness that HERs have on customer behavior change.

Marketplace. The SCE Marketplace is designed to help customers shop, research and compare the efficiencies for multiple consumer products and appliances. Customers can also apply for rebates on Marketplace for Smart Thermostat Energy Efficiency and Demand Response programs.

Energy Upgrade California. In Decision (D.) 13-12-038, the CPUC determined that its EUC brand would serve as an integrated umbrella brand for statewide marketing, education, and outreach (ME&O) messaging in order to foster increased and more effective energy management activities by residential and small business customers. Importantly, Opinion Dynamics conducted a tracking survey of EUC and SCE, SoCalGas and SDG&E made recommendations to continue the EUC campaign based on the results.

There were six key findings in the survey:

1. Awareness of the EUC brand is increasing over time.
2. Most respondents consider EUC as relevant and needed, but are less likely to find it trustworthy.
3. Compared to homeowners, renters believe there are more opportunities to increase home efficiency and change energy savings behavior and are more likely to act on these opportunities.
4. Respondents most frequently suggested they could make common behavioral changes, but also suggested making more advanced changes, such as shifting use to off-peak times (unaided).
5. Respondents’ beliefs align with EUC marketing strategies (e.g., the importance of climate change, doing their part to make California more energy efficient).

6. There is a large potential market for smart thermostats. Customers are moderately interested in smart thermostat programs. Just over half of all respondents have heard of time-of-use rates.

The EUC faces continued challenges with getting the message to hard-to-reach Californians (defined as those with language barriers, no access to internet, or a disability). The contracted agency should be directed to create and implement a ME&O strategy that will prioritize engagement with low-income and hard-to-reach communities.

In your opinion, what retrofit programs (please specify sector) are most successful? What makes the program successful?

In general, EE lighting programs (i.e., Primary Lighting, Midstream Point of Purchase, Commercial Deemed) are examples of successful retrofit programs that have transformed markets to adopt Light-Emitting Diode (LED) solutions. These programs have successfully increased market adoption in advance of and in conjunction with Title 24 (Building) codes. The HERs mailings, based on their cost-effective savings, are also strategically important.

What barriers remain for energy efficiency to be a reliable grid resource? Are there data limitations, lack of quality results, lack of awareness, etc. What immediate steps do you recommend the Energy Commission take to resolve these barriers?

Some of the key barriers to the use of EE as a reliable grid measure are customer adoption and measurements of impacts. While there are many types of services that EE can provide to the grid (e.g., capacity reduction benefits at the system level, or to relieve local grid constraints when deployed in a targeted manner), the magnitude and ability of EE to serve as a grid resource is hindered by policies on baseline determinations and limits on energy savings claimable by program administrators. These limitations reduce the available measure offerings and ultimately result in limited incentives for customers, which in turn affect adoption levels.

IV. Building Decarbonization

What are the main concerns with implementing programs that focus on reducing carbon emissions from buildings?

Rapidly developing the market for BD technologies will require significantly more resources than the amount that was directed by SB 1477 for the BUILD and TECH pilot programs, which allocated \$50 million per year over four years. To meet State goals, it is necessary to quickly identify appropriate funding streams and initiate full-scale programs. EE also has a lead role to play in continuing to decarbonize buildings. To maximize the effectiveness of EE programs in this area, the CPUC should reform its 3-prong test to allow effective deployment of EE technologies.

The implementation of BD continues to face challenges in addressing customer concerns about the desirability and affordability of electric end-uses. Both the lifecycle of the equipment and health benefits need to be communicated to customers in a user-friendly and meaningful

way. Therefore, a key to deepening implementation of BD programs lies in developing ME&O that demonstrates the benefits of electric end-uses to customers, product distributors, installers and the building trades.

Lastly, focusing on transforming the California market suggests the need for a policy framework that is more akin to the California Solar Initiative (CSI) than EE, where the CSI program is designed for market transformation rather than incremental resource acquisition. BD programs should aim to transform a nascent market into a vibrant, competitive, self-sustaining market and, thus, a “least-cost-to-achieve-goal” model for cost effectiveness is more appropriate than the resource cost-effectiveness tests currently used in EE in order to expedite market transformation.

Heat pump water heaters and space conditioners are expected to play a role in building decarbonization, they currently occupy a small portion of the market; what actionable steps do you think are viable to improve the market potential of the technology?

The market potential of the technology would be significantly improved through a multi-faceted approach that engages customers, the supply chain, regulators and policy makers. SCE’s research shows that customers are willing to adopt new technologies if educated about the technologies’ benefits. Customer engagement and acceptance is critical to create the demand for the supply chain to provide products. Customer acceptance is also needed for regulators and policy makers to be able to push the envelope on new regulations and building codes to ultimately get to California’s GHG goals. An engagement strategy should be developed that provides a simple, concise value proposition for the supply chain (i.e. manufacturers, distributors, retailers, and contractors). Customers purchasing space and water heating equipment are heavily influenced by the contractors installing the equipment (e.g. plumbers, HVAC contractors, electricians). The whole supply chain will likely need incentives, at least initially, to instill confidence in these technologies and jump start the market transformation. Finally, policy makers and regulators will need to help transform the market by pushing the building code towards clean heating in buildings—in new construction initially and, ultimately, in all buildings.

V. Low Income and Disadvantaged Communities

What type of energy efficiency programs are shown to be most successful in low-income and disadvantaged communities? Please cite any evidence such as program results or customer testimonials.

From an energy and bill savings perspective, direct install programs that replace older, energy-draining appliances such as refrigerators with more energy-efficient ones tend to be the most successful.

When it comes to delivering energy savings, it is important to note that EE programs and measures for low-income customers and disadvantaged communities (DACs) may define “success” in ways that diverge from more common, savings-based metrics. In California, for example, program success is based on the number of eligible homes treated; which is different than federal or other jurisdictions that focus on achieved savings rather than equity-related

metrics. Success is typically evaluated based on the extent to which the program (or measure) mitigates issues associated with customer's health, comfort, and safety, or a larger overall goal to mitigate GHG emissions. Thus, DAC or low-income EE programs are designed to measure non-energy benefits for the customers and may or may not result in savings.

Based on SCE's experience with its pilot program to decarbonize residential buildings in three DACs that were using propane or gas-burning stoves,³ energy education is clearly very important to ensure customer adoption and to influence customer behavior. Moreover, the best approaches will employ different types of programs, strategies and funding sources to address the diverse needs of these communities (e.g., elderly versus large young families; owner-occupied versus renter).

VI. Standards Compliance

In your experience, what are the primary drivers of non-compliance with building standards?

Although the overall effect may be to increase energy savings in new buildings and retrofits, frequent updates (e.g., 3-year cycle) to the building standards could likely be a non-compliance driver. For example, when new Title 24 code requirements become effective, the compliance is generally lower in the first year compared to the third year due to lack of knowledge or awareness. There should be a continuous drive towards investing in easier, simpler, and lower cost ways to increase compliance. For example, the use of an online compliance submittal tool may help to streamline and simplify the compliance process while also allowing for useful, timely feedback. In addition, continuing efforts to provide training, tools, and resources about the new code, such as those already advanced by the IOU Codes and Standards' Compliance Improvement teams and the CEC, may lead to increased compliance. The IOU Codes and Standards' Compliance Improvement team provides various trainings and tools, including the Certified Energy Analyst (CEA) exam, to improve the compliance rate/challenges

Another significant non-compliance driver is the lack of clarity in the two existing compliance software (CBECC.com and CBECC-Res) that exists between residential and commercial buildings, and high-rise and low-rise buildings, when dealing with multi-use and multi-level buildings. This problem is becoming exacerbated by the increasing number of mixed use and high-rise residential buildings. Also, several building technologies have been changed over the years, making the old demarcations less relevant. For the 2022 code cycle, there will be an increased focus on multifamily buildings which should go towards making the Standards clearer and easier to follow.

One of the biggest drivers of non-compliance seems to be lack of enforcement from jurisdictions, which may be due to issues such as limited staffing, budget, or staff training.

³ Presented at April 25, 2019 IEPR Staff Workshop to Solicit Comment for the Development of the 2019 California Energy Efficiency Action Plan – Fresno.

Compliance could be improved by cross-referencing code sections—such as the Mechanical, Plumbing, Electrical—in the Energy Efficiency Code so the respective installers and contractors can link the requirements between the two codes where applicable. To do so, the Building Energy Efficiency Code should be better aligned with the rest of the California Building Standards Code.

VII. Workforce Development

Have state efforts resulted in workforce improvements to install energy efficiency measures?

Yes, the state has made significant progress both in creating new statutory and regulatory mandates directly impacting EE measures. In 2016, the legislature passed Senate Bill 1414 (Wolk) that directed the CEC to approve a plan to promote the installation of central air conditioning and heat pumps. The legislation also prohibited the IOUs from paying out an EE rebate for these measures unless the recipient of the rebate provided proof of regulatory permitting and compliance closure.

More recently, the CPUC addressed the need to implement more workforce standards through a regulatory proceeding that represented numerous interests, including contractors, utilities, ratepayer advocates, EE advocates, local government, and labor organizations.⁴ The CPUC established workforce standards after reviewing potential applicability to all EE programs for large, non-residential projects involving heating, ventilation, and air conditioning measures, as well as lighting controls. The decision lays out significant changes to workforce requirements that the IOUs, regional energy networks (RENs), and CCA's must apply to all future EE program solicitations. While it is too early to know the actual impact of the new workforce standards, the CPUC stated that the impacts should be revisited by stakeholders beginning in mid-2020, after the new EE solicitations occur and there is sufficient time to measure impacts.

Additionally, the CEC has the opportunity to establish a “responsible contractor policy” as directed by Senate Bill 350 (DeLeon, 2015). However, without more robust and factual data describing the impact from both new legislation and regulation on EE workforce improvements, it may be too early to measure or determine how well the new requirements are working. The CEC should consider whether retaining or modifying the most recent workforce standards will benefit ratepayers and market participants, before establishing more mandates. In SCE's experience, a very fine line exists between addressing a workforce barrier and creating additional market barriers, requiring a balanced approach.

Provide examples of effective energy efficiency workforce training efforts.

Workforce education and training (WE&T) efforts in EE are primarily focused in the following areas:

⁴ California Public Utilities Commission, Decision 18-10-008, Issued November 22, 2018, Application of Southern California Edison Company (U338E) for Approval of Energy Efficiency Rolling Portfolio Business Plan.

HVAC & Refrigeration. To meet the goals identified in the California's Long-Term Energy Efficiency Strategic Plan (CLTEESP), WE&T continues to support HVACR Residential, Commercial QI, QM and QS by providing targeted training through our industry partnership with IHACI, NCI and HVACRedu. These professional training teach contractors to install and service HVACR systems that meet all requirements to operate with the highest EE possible.

Lighting/Lighting Controls. WE&T continues to partner with California Advanced Lighting Controls Training Program (CALCTP), a statewide initiative aimed at increasing the use of lighting controls in commercial building. The CALCTP training program provides electricians, contractors, and acceptance test technicians the knowledge and technical skills necessary to properly program, test, install, commission and maintain advanced lighting control systems while adhering to mandatory code compliance. The systems installed are designed to reduce energy consumption, and support California's Energy Efficiency goals.

In addition to partnering with CALCTP, the Energy Centers offer basic to advanced Lighting technology courses to individuals interested in controls, applications, codes & standards, and emerging lighting technologies to help our customers discover best practices and best solutions for their home/business.

T24 Compliance. Title 24 2019 Energy Codes training classes provide participants with an early overview of the upcoming code changes. The focus of the class is to prepare the audience for significant code changes, allowing them to begin preparing their building designs and specifications in advance of the new code. With the significant changes coming with the new code, these types of classes allow the workforce to anticipate necessary EE improvements needed in their buildings.

Title 24 focuses on "high-value" information and skills related to Plans Examiners, Building Inspectors, and other related professionals regarding building EE standards that provide important benefits throughout California. These standards set a high par with more stringent minimum efficiencies, together with other EE measures.

Zero Net Energy (ZNE). A ZNE building produces as much energy as it consumes over the course of a year. ZNE buildings are high EE performing, offer superior comfort and are healthier places to work and live. ZNE and High-Performance Buildings training are offered to help achieve CLTEESP's goals.

High Performance Building Maintenance Operations. WE&T continues to collaborate with Laney College to deliver the High-Performance Building Operations Professional training program for building technicians who manage commercial building. The program provides information tool, and skills to improve building performance and reduce energy consumption. The training focused on Information Technology, Energy Literacy, Building Systems, Whole Systems Analytics, Systems Manuals, Building Automation Control Systems (BAS), Energy Conservation, Commissioning (Cx) and Continuous Quality Improvement.

Automation Academy. SCEs Energy Centers continue to train customers in the basic and advanced principals of Automation, Controls, Energy Management, SCADA, IOT, VFDs

(Variable frequency drives) in order to support the more energy efficient operations of buildings as well as manufacturing/processing facilities. This training covers the areas of Lighting and HVAC controls to help buildings operate more efficiently. For example, automation and automated systems help with achieving T24 compliance in retrofit and new construction and improve energy efficient operation of process and agricultural pumping systems and manufacturing and processing systems. SCE is currently sharing the Automation Academy with PG&E's Energy Centers for a greater outreach at a lower operating cost.

Food Service. WE&T continues to support the EE measures in areas of lighting, refrigeration, HVAC and end use equipment (foodservice equipment through the statewide foodservice program. These measures are highlighted in seminars such Lighting for Foodservice, Hot Rebates- Cool Savings, and Demand Control Kitchen Ventilation to name a few. The statewide FS team also partners with California Restaurant Association Foundation (CRAF) where the curriculum is taught to high school students at both SCE's FTC and at their respective schools. This seminar and hands-on training allow the students to demonstrate and use the end use EE equipment highlighted in the EE program. This statewide curriculum is also reviewed by some of the local junior colleges to be inserted into their program such as Orange Coast College.

VIII. Conclusion

SCE appreciates the CEC's consideration of these comments and looks forward to its continuing collaboration with the Energy Commission and other stakeholders. Please do not hesitate to contact me at (916) 441-3979 with any questions or concerns you may have. I am available to discuss these matters further at your convenience.

Very truly yours,

/s/

Catherine Hackney